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Message from the Editor-in-Chief

Hello from TOJDEL

TOJDEL welcomes you. TOJDEL looks for academic articles on the issues of distance education and e-learning and may address assessment, attitudes, beliefs, curriculum, equity, research, translating research into practice, learning theory, alternative conceptions, socio-cultural issues, special populations, and integration of subjects. The articles should discuss the perspectives of students, teachers, school administrators and communities. TOJDEL contributes to the development of both theory and practice in the field of distance education and e-learning. TOJDEL accepts academically robust papers, topical articles and case studies that contribute to the area of research in distance education and e-learning.

The aim of TOJDEL is to help students, teachers, school administrators and communities better understand how to organize distance education for learning and teaching activities. The submitted articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJDEL. TOJDEL provides perspectives on topics relevant to the study, implementation and management of learning with technology.

I am always honored to be the editor in chief of TOJDEL. Many persons gave their valuable contributions for this issue.

TOJDEL will organize the IDEC-2019 International Distance Education Conference (IDEC 2014) (www.id-ec.net) in August, 2019 in Fairfax, VA., USA.

Call for Papers

TOJDEL invites article contributions. Submitted articles should be about all aspects of distance education and e-learning. and may address assessment, attitudes, beliefs, curriculum, equity, research, translating research into practice, learning theory, alternative conceptions, socio-cultural issues, special populations, and integration of subjects. The articles should also discuss the perspectives of students, teachers, school administrators and communities.

The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to TOJDEL.

For any suggestions and comments on the international online journal TOJET, please do not hesitate to fill out the comments & suggestion form.

April 01, 2019

Editors,
Prof. Dr. Aytekin İŞMAN
Sakarya University

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A WEB CSS FRAMEWORK WHICH FAST AND SMOOTH: W3.CSS*

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Abstract: The aim of this work is to explain how to use the W3.CSS library, one of the Css (Cascade Style Sheet) style libraries used in preparing web pages. Web Css libraries are largely lacking in the HTML language, which is based on web pages. Css libraries such as Bootstrap are widely used in the web design world. The World Wide Web Consortium (W3C), an international organization that sets Web standards, has developed a fast and smooth Css library called W3.CSS. Some of the key features of the W3.CSS library; It is space-saving, fast, compatible with all web browsers, does not require JavaScript codes, responsive to the screens of the hardware. In this study, the basic benefits of Css libraries will be explained. Examples of usage patterns will be given. It will be explained examples of how to use. The basic characteristics of the W3.CSS library will be explained, and the results will be discussed using sample codes. It will be explained how some designs needed on a web page can be done with W3.CSS.

Keywords: Html, Css (Cascade Style Sheet), W3.CSS, Bootstrap CSS Library, Web Browsers, W3C (World Wide Web Consortium)

Introduction

With the development of web technologies, there have been developments in the Html field which are the basis of web pages. Developed to address the formal deficiencies of HTML (Hyper Text Markup Language), Css has been mandatory for use on web pages.

CSS is a markup language that describes the style of an HTML document. CSS defines how HTML elements should be displayed. CSS is abbreviation for Cascading Style Sheets. Css simplifies the formal editing of HTML tags. Css file extension is external stylesheets. Example style1.css. On the screen of the desktop computer and on the screen of mobile computers the web pages can be displayed correctly with the help of Css codes. The developer of web pages is Css3 and the developer of Html5 is W3C (World Wide Web Consortium)

* A brief version of this article presented at ISTEC 2018

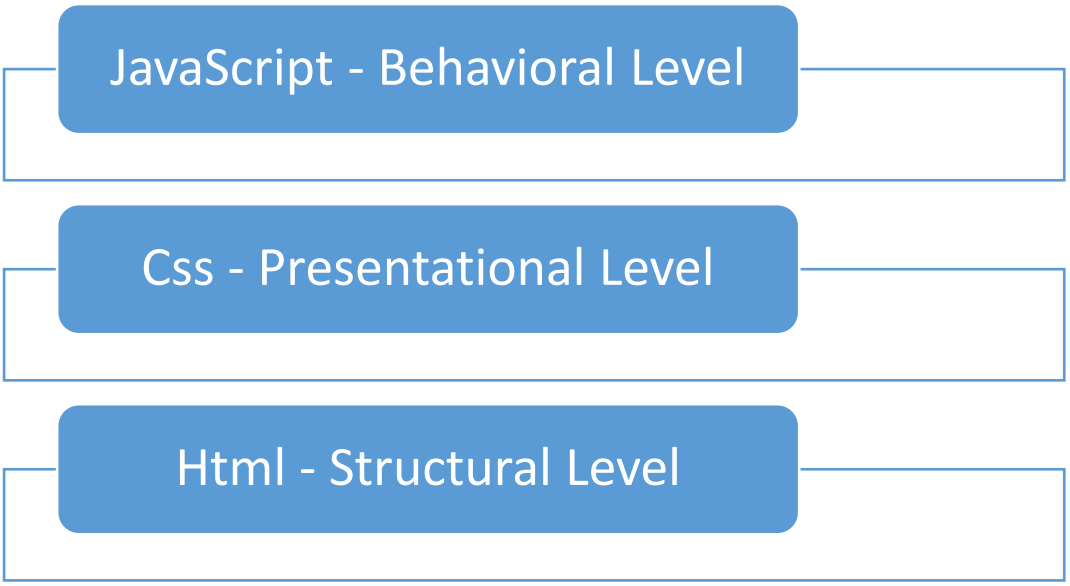

Figure 1: Web page elements

In the software world, library structures are used too much to make things easier. The library structure for Css, the markup language, was developed. BootStrap has pioneered this issue. Such libraries are called the Css framework. With the widespread use of mobile devices, the Css framework is being used too much. Because the web programmer needs to design the web page to a responsible screen width. It has become very simple to develop a responsible page with prepared Css classes.

1. Css Framework

A CSS framework is a prepared software framework that is meant to allow for easier, more standards web design using the Cascading Style Sheets language. The CSS framework is designed to overcome recurring problems across web pages. This greatly reduces the time it takes to start creating applications and websites. In this way developers, large applications do not always have to start from scratch. Re-use the basis of previous applications. A framework is a standardized and set of concepts, practices and criteria for dealing with a common type of problem, which can be used as a reference to help us approach and resolve new problems of a similar nature.

Below is a list of the best css framework.

- BootSrtrap (http://getbootstrap.com/)
- W3.Css (https://www.w3schools.com/w3css/4/w3.css)
- Semantic-UI (http://semantic-ui.com/)
- Foundation (http://foundation.zurb.com/)
- Materialize (http://materializecss.com/)
- Material UI (http://www.material-ui.com/#/)
- Pure (https://purecss.io/)
- Skeleton (http://getskeleton.com/)
- Uikit (http://getuikit.com/)
- Milligram (https://milligram.github.io/)
- Bulma (https://bulma.io/)
- Susy (http://susy.oddbird.net/)
- Mini.css (https://minicss.org/)

BootStrap is the most commonly used Css framework.

Figure 2: Top 5 Css framework

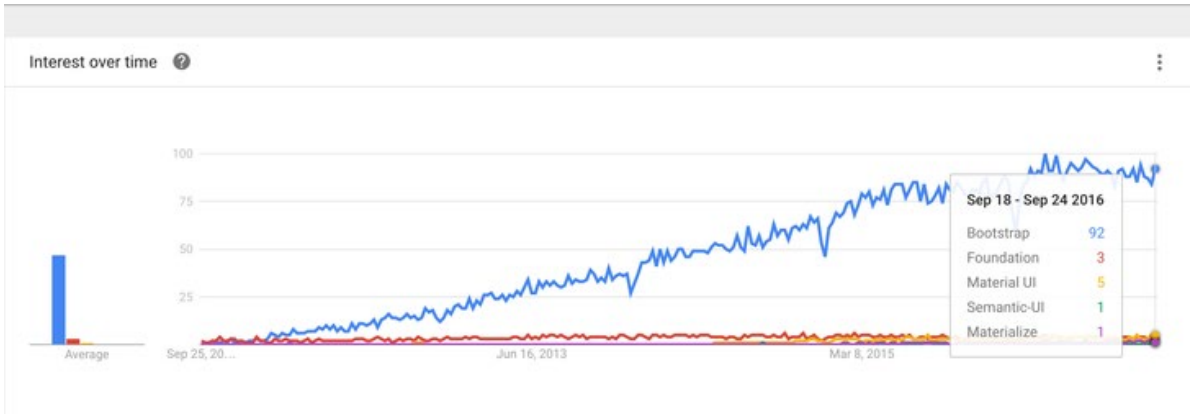

Figure 3: Top 6 Css Framework using on September,2016 (https://www.keycdn.com/blog/front-end-frameworks)

1.2. W3.CSS

W3.CSS is a modern CSS framework with built-in responsiveness. It supports responsive mobile first design by default, and it is smaller and faster than similar CSS frameworks. W3.CSS can also speed up and simplify web development because it is easier to learn, and easier to use than other CSS frameworks. W3C developed this Css framework. W3.Css is free.

If you want to use W3.CSS in your web site, just add a link to "w3.css" from your web pages:
<link rel="stylesheet" href="https://www.w3schools.com/w3css/4/w3.css">
You can download w3.css to your web folder.
<link rel="stylesheet" href=" w3.css">
First, create a web page (index.html) with Notepad++ or any Html editor.

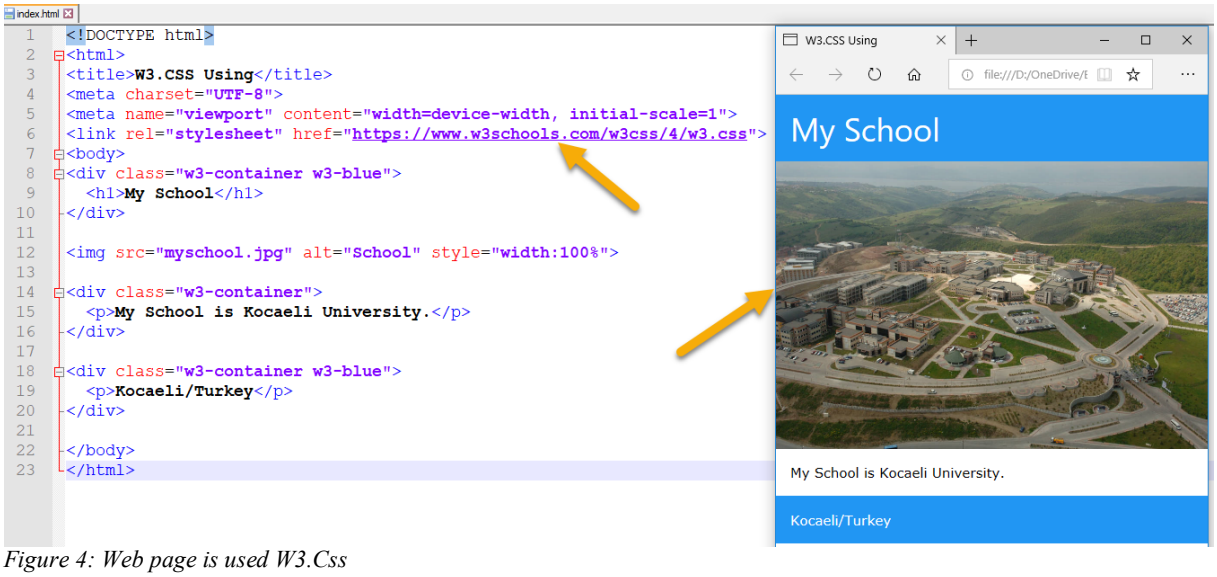

Figure 4: Web page is used W3.Css

W3.CSS Containers;

The w3-container class is the most important of the W3.CSS classes.

The w3-container class is used with HTML container elements, like:

, <header>, <footer>, <article>, <section>, <blockquote>, <form>, and more elements.

Create container1.html and use a W3.Css container.

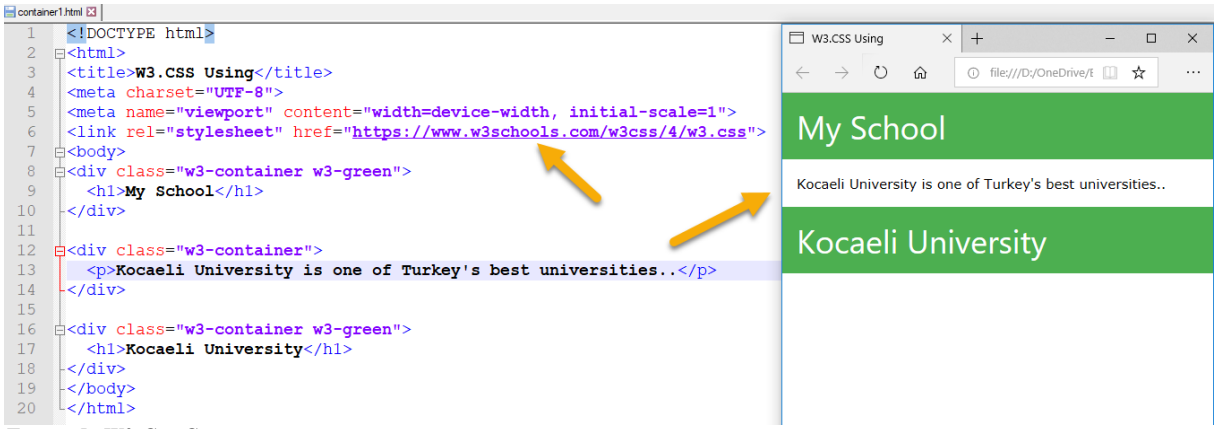

Figure 5: W3.Css Container

W3.CSS Panels, Notes, and Quotes;

You may need to use many text and content in panels on your web page. W3.Css panels have a stylish and beautiful appearance. The w3-panel class can display all kinds of notes and quotes.

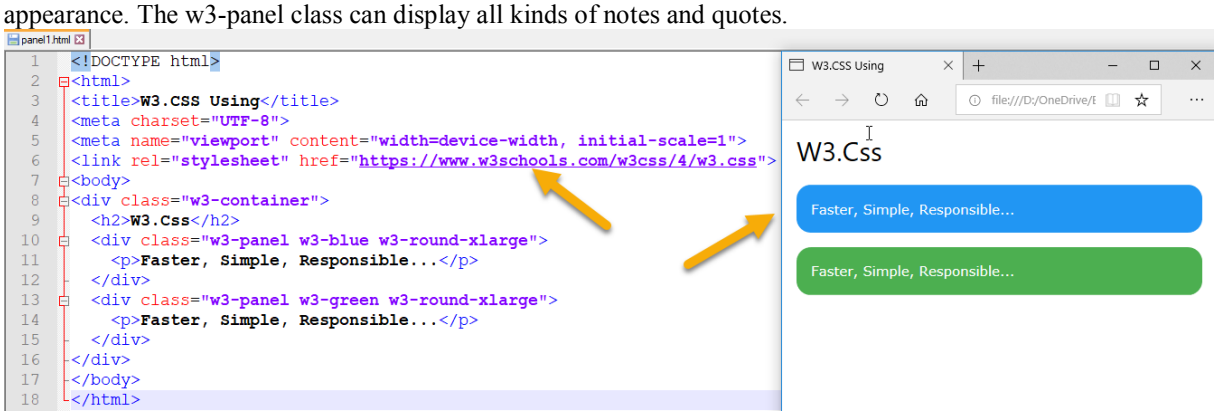

Figure 6: W3.Css panel

W3.CSS Cards;

The w3-card classes are suitable for your images and contents.

Figure 7: W3.Css cards

W3.CSS Tables;

The w3-table classes can perform all tables.

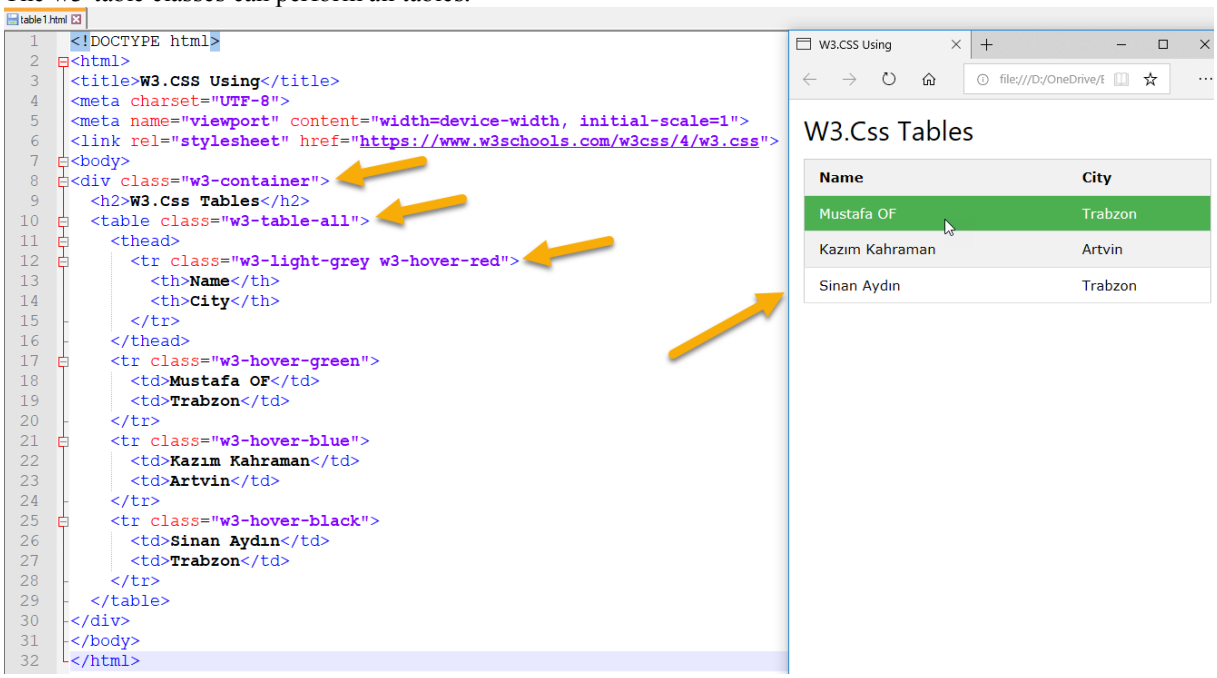

Figure 8: W3.Css tables

W3.CSS Lists;

The w3-ul class can handle all of lists. This way you can prepare stylish lists.

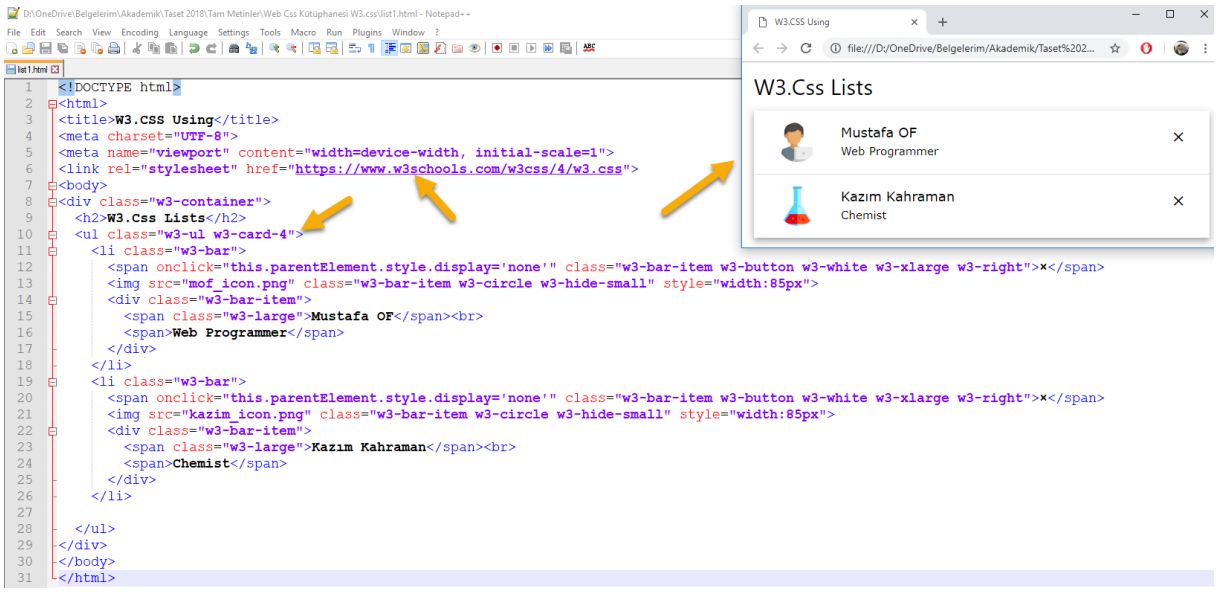

Figure 9: W3.Css tables

W3.CSS Buttons;

The w3-button and w3-btn class provides your buttons of all sizes and types what you want.

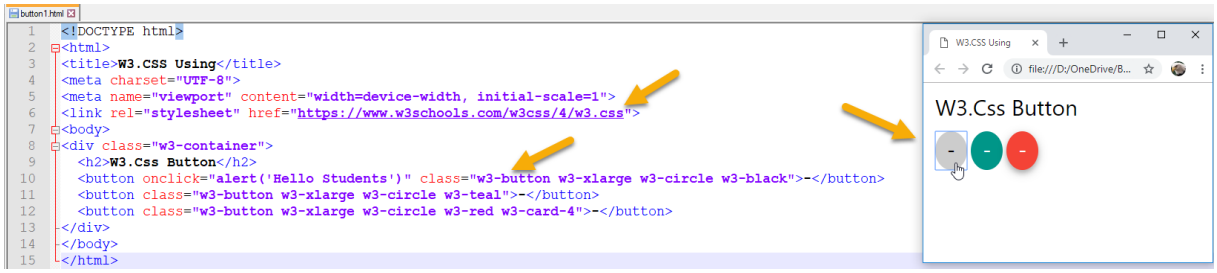

Figure 10: W3.Css buttons

W3.CSS Modals;

The w3-modal class provides modal dialog in HTML no JavaScript codes. Fast and simple.

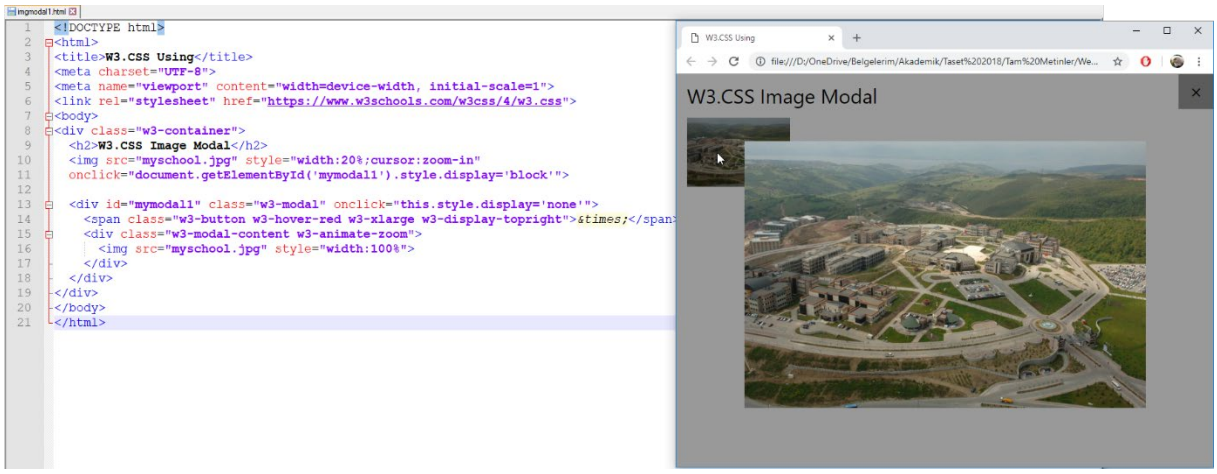

Figure 11: W3.Css image modal. It consists only pure Html

W3.CSS Navigation;

The w3-bar class can be used to create any navigation bar.

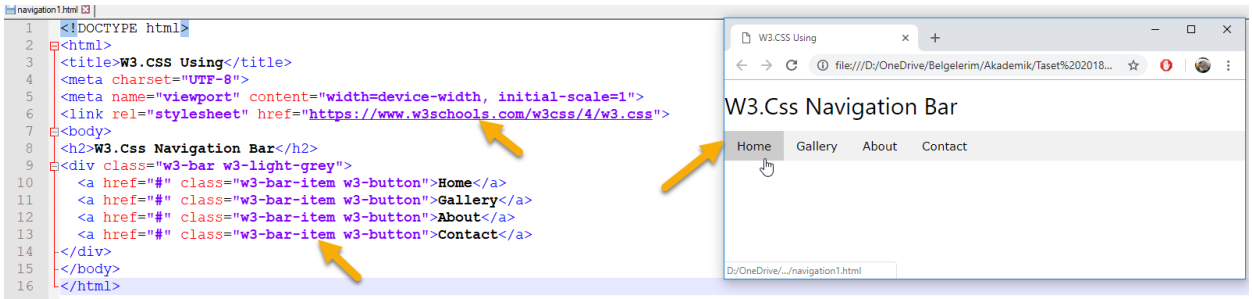

Figure 12: W3.Css navigation bar

W3.CSS Sidebar;

The w3-sidebar class creates a horizontal or vertical side navigation.

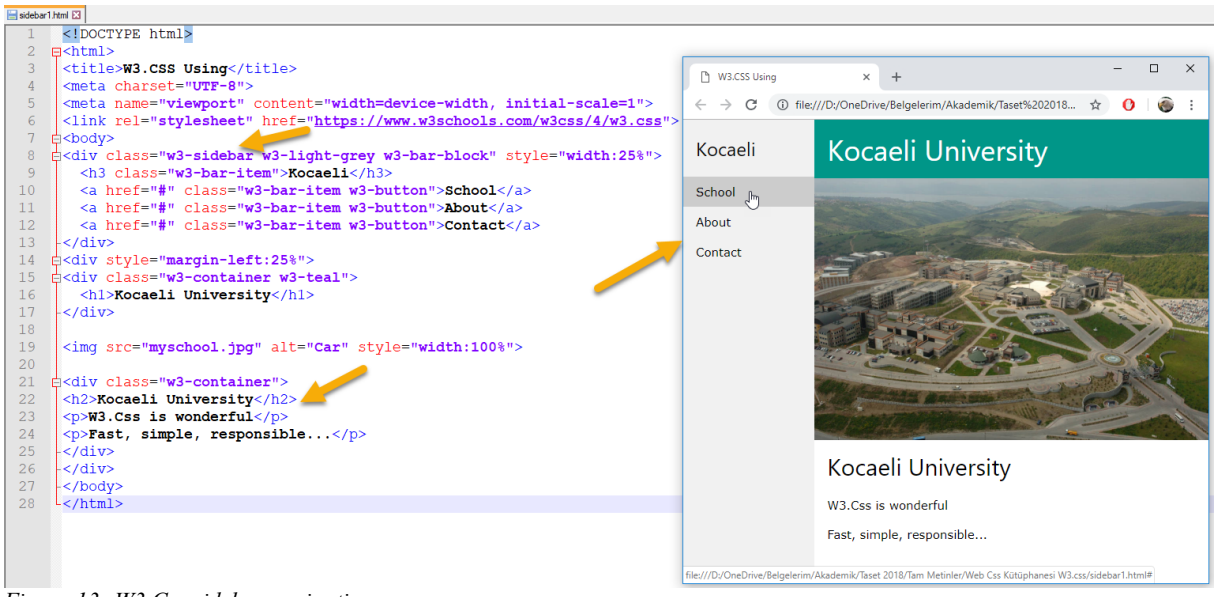

Figure 13: W3.Css sidebar navigation

W3.CSS Animations;

The w3-animate classes provide an easy way to slide and fade in elements.

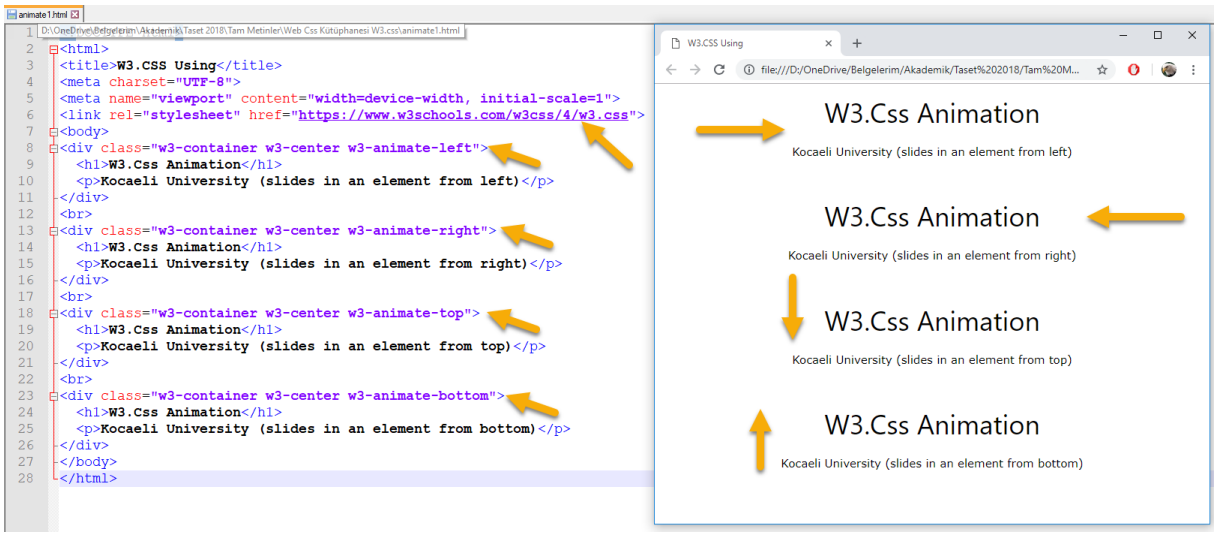

Figure 14: W3.Css animations

W3.CSS Input Forms;

The w3-input classes are for your input forms.

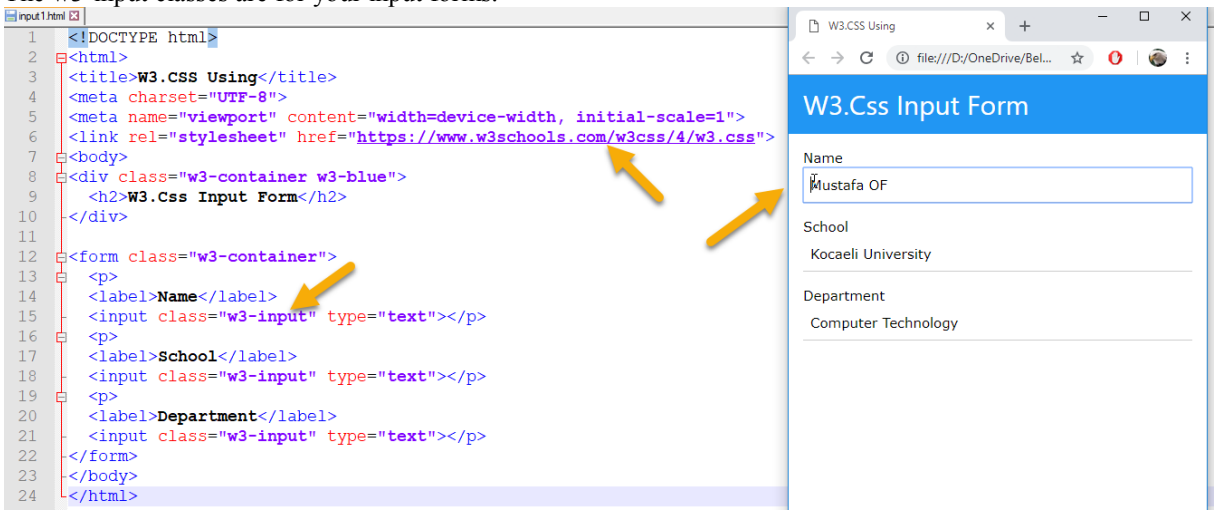

Figure 15: W3.Css input forms

Conclusions

It is easy to design a web page with W3.Css. Both fast, simple and straightforward, as well as fit all devices. All responsible. Unlike other Css, W3.Css mostly consists of Css codes. Does not use any other language codes unless required. This will load web pages faster. It also uses less memory than the web browser.

A few simple steps are needed to use W3.Css, which comes from the group that develops the Html and Css languages. As the projects grow, the codes used increase. As a result, the web page begins to load slowly. Here W3.Css makes you feel the difference. Less work with less code.

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ASSISTANT BED CONSTRUCTION AND UTILIZATION*

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Abstract. Hospitals, rehabilitation homes and retirement homes around the world are dependent upon a quality medical staff to maximize safety of people. Staff professionalism, facility quality and the condition of equipment are all key components in medical care which must be considered when designing hospitals and especially beds. Particularly, hospital beds are of recent concern around the world. All around Europe, there is a particular need for improving and modernizing hospital beds. But, high price in bed cost is passed down to the patients further increasing the cost for quality healthcare and thus resulting in only the upper echelon of people being able to utilize technologically advanced hospital beds and hospital care.

In this paper, we give existing models of hospital beds and analyze the components and functions of them by the overview of some authors. We try to determine some features that could be useful in a modern hospital bed. We hope to see designing and manufacturing a reliable, reproducible and marketable bed for all patient, especially living independently.
Keywords: assistant bed, performance -service, living conditions

Introduction

Today's technology presents many different bed designs available for purchase by a medical care facility. These beds are produced by a wide range of companies in many countries. Each bed is designed for a specific use and the functions. It is divided the notion of the bed is to two parts that are "living" bed and "service" bed (Tianyi, Z. 2012; Wong, 2006; Rittweger at all. 2004; Ishizaki at all. 2002). Tianyi noted that the living panel is separated to "head zone", "upper zone", "lower zone"; the upper and lower part are separated to small parts to meet the ergonomics needs better. For mechanical move functions, these parts are connected the main part which presents good actions in using of this bad (Figure 1).

Figure 1. Assistant bad designed with a special protective layer
(www.ewlclublondon.com/anti-dekubitus-matratzen/anti-dekubitus)

Design

* A brief version of this article presented at ISTEC 2018

The assistant bed is generally involved of main 2 parts that living part and service part (Tianyi, Z., 2012; Yousefi at all. 2011; Sakakibara at all, 2011). Tianyi (2012) stayed that the elementary role of service part is for WC (toilet function) and about supplementary personal service to do some simple everyday actions. He explained that: "this panel is divided to upper part, hip part and lower part; there locates a device works as a toilet and in upper part provides smart tablet entertainment for users. The basic function of living unit is for sleeping, relaxing as bed, sitting as chair and taking exercises. The living panel is divided to head part, upper part, lower part to meet the ergonomics needs better. The upper and lower part are divided to more semi-parts. In-between two adjacent parts, pivot connects the two parts to offer rotational flexibility" (figure 2).

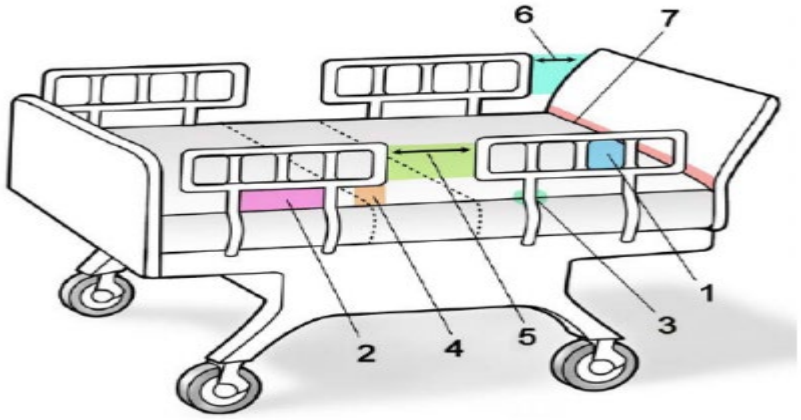

Figure 2. Basic parts of Assistant Bed
(www.wpi.edu/Pubs/E-project/Available/E-project)

- Section 1 is the area of spacing within the rail
- Section 2 is representative of the area in the railing, between the rail ropes
- Section 3 is the area between the rail and the bed •
- Section 4 distinguishes the area under the rail, at the last point of the rail
- Section 5 is defined as the area between split bed rails
- Section 6 between the last point of the rail and the cross lines of foot panel
- Section 7 clarifies the area between the foot panel and the bed last position (Rachlin, 2006).

Tianyi (2012) explained some detailed information about the layer of the assistant bed: "a prefabricated platform is assembled in the room in advance. It is consisted of one strong central pivot which is fixed onto the wall and two strong arms. The so called arms are used for supporting and lifting the two panels just like human arms". There is two different types of assistant bed to realize the functions;

- motor embedded pivot (figure 3)
- hydraulic jacks

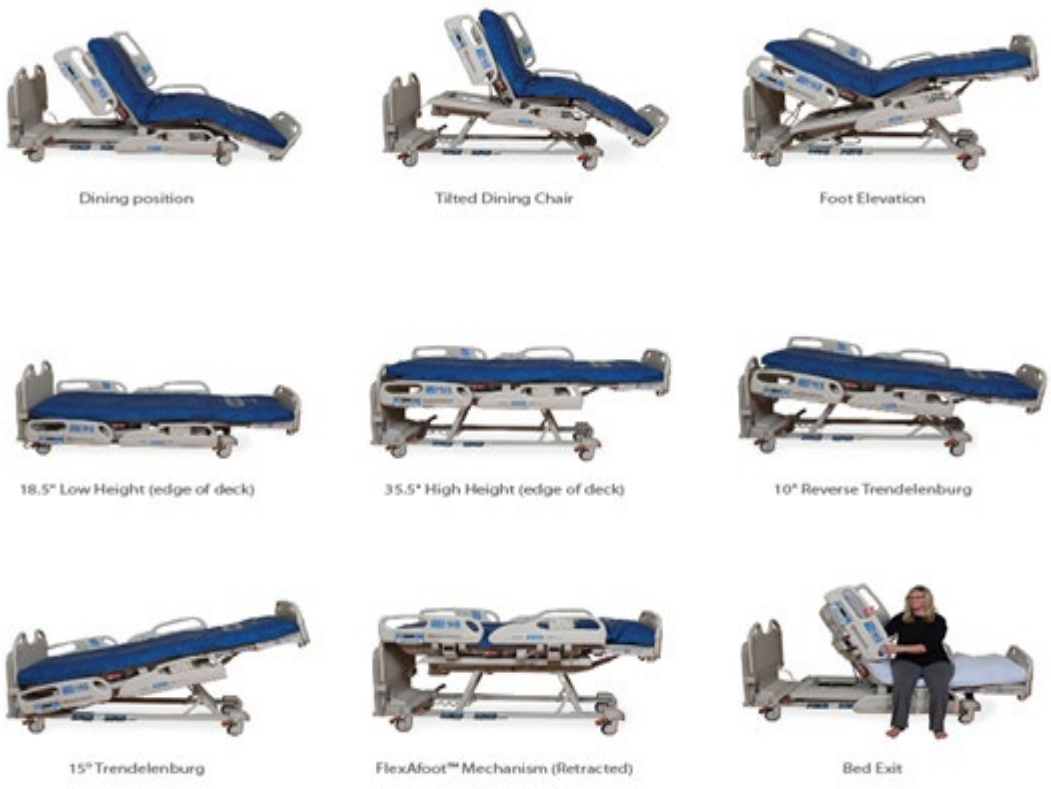

Figure 3. Different positions of an assistant bad with the motor embedded pivot (www.google.com.tr/search?q=Different+positions+assistant+bed&tbm)

In the pivot method, it is used a singular spool, that is fixed by a mechanical material to attach connected elements. The mean of this configuration that the amount of exercise is best for the patient. In the hydraulic method, at least five or six jacks are used under the unit (Tianyi, 2012; Ostaddabas at all. 2011; Wei at all. 2007). Tianyi noted that through adjusting the altitude of thump. The bed can be converted to a wheelchair by the instruments in the low part of bad.

Some Activities

Tianyi presented some exercise methods to the assistant bed in which the model have three types of trainings (Tianyi, 2012; Miller Keane, 2012);

- position at active level
- position at passive way
- actions concentration as mentally

Tianyi presented some practice for these exercises in "active" studies, exercise refers to voluntary action of physical: "If the patient had the ability to move actively, the application also covers active exercise. In this exercise mode, about the pivot, the lower part rises or falls down".

Tianyi presented some basic exercises for "passive" position: that "in passive exercise mode, the bed offers a relatively elastic force".

Finally, for "mental exercises", Tianyi (2012) pointed out some useful exercises that "normal patient "can play with the smart tablet PC when he leans on his left. Some apps that can be downloaded from online store are also valid for patient recovery, not only the physical, but also the mental. So bed producer can cooperate with app developers and nursing department to develop new apps based on treatment requirements".

Result

Everybody know that patient could make trainings, and are be able to get main everyday actions such as weekly wash and toileting. If you need and use an assistant bed, it is not important that you are not in a special home which it has helper. A well-designed assistant bed presents you its efficient functions, such as turning-over, transferring, and different exercises. In this paper, we try to explain the design and modification of some kinds of assistant beds and point out the ability of living self-sufficiently as order human. We can shortly say that the assistant bed is an

original and powerful designed device to use for the assistant persons of patient as nursing staff or civil person with because of its easy operated functions.

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CHEMICAL TECHNOLOGY FOR STUDENTS CHEMISTRY CURRICULUM*

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Abstract. Global competition has leaded to the world textile industry to modernize and become cost competitive because developing nations have turned out that exporting textile products to the world is an attractive way to enhance their economic growth. Their work standard costs have pressured domestic producers into replacing manufacturing equipment with automated, efficient and technology machinery. The sector has focused on reducing costs, improving quality and developing quick response scenarios. Engineers focused to improving quality and efficiency make up the rest. The technical knowledge is in the form of supplier technical bulletins. A few is in written form, and what does exist, is not easily accessible to others needing the knowledge.

In this study, many chemistry knowledge lessons are analyzed to take part in a flexible curriculum in a traditional chemical profession master's degree. Lessons should make learning for upcoming chemistry teaching and their possible involvement in work life and industry, and provide students with a much better technical foundation than normally recent tryouts.

Keywords: chemistry, chemical technology, Industry

Introduction

In recent years, an interesting growth in chemical information with the promise that in chemistry it can take optimistic and meaningful changes to civilization and resolve the difficulties that arise in this century. This is possible if the chemical manufacturing prospers in indorsing the inventions in the workshop to new goods in the marketing sector. The next chemist will have the practical skills to positively fulfill the new tests expected for the new technological life. The main point for all the requirements is the creation of a chemistry graduate or technical education, which continues to be deprived of the technical relevance required for this field.

Matis and Prashar (2015) stayed that chemistry has always been considered as the basic locomotive for innovation and developments in science area. According to him, the European chemical industry would requisite the support of the prevailing forms to accomplish the goals of the global development, effectiveness and green world goals in the near future world stagnation. Industrial chemists have worked very little while doing science and need detailed background knowledge (Lawton, 1997; Wei, 2008). Matis and Prashar (2015 noted that chemistry sections are efficient at training students to do scientific tryouts; students yield graduates by chemical information. So many graduates think they're not ready to study at college to get their lessons".

The chemical public in European contires is signified by five establishments, which promote in opposite ways chemical disciplines and knowledges in zones of basic and useful research, and education and working out (Matis and Prashars 2015). This teamwork said organizations came together to form an Alliance of Chemical Sciences and Technologies to organize their actions to encourage chemistry and chemical manufacturing. Also, they underlined that to save our chemical tutoring we must accept that we are all if we can cooperate with a solitary resolve. Another perspective about this situation is stayed by Clifford (1997) that "Knowledge will not substitute teachers, but teachers who use knowledge will substitute the teachers who do not".

Chemistry in Vocational Schools

Chemistry in the vocational school of European countries was established by the European Chemical Thematic Network Association (http://www.ectn-assoc.org) to identify reference points on an international basis and to guarantee the quality of chemical degrees in all countries. In this program, chemical technology is classified as a

* A brief version of this article presented at ISTEC 2018

semi-optional course. Many competences can be further developed by teaching the traditional subject (Matis and Prashar 2015).
Chemistry undergraduate students and vocational schools need to add industry-oriented modules offered by the departments of chemical engineering in their programs. Another approach proposed by Matis and Prashar (2015) is to attract experienced industrial chemists for short time teaching at universities and vocational schools. In this method, students may be aware that they can develop skills outside their universities or vocational schools.
Matris and Prasharş (2015) gave a view that the reference in an environmental application of chemistry to real everyday problems and establishes the best instructive example: they stayed that it will confidently attract the student's care and give feasibility to the complete knowledge. Trainer could add more applied elements to academic lessons.

The Role of The Technology in the Chemistry Courses

Translating a scientific idea into a manufacture-scale process needs an considerate of fundamental chemical procedures, conceptual ways of the concepts and an mindfulness of related parts such as ecological issues, gear, controller systems and other connected sectors (Matis and Prashar 2015; Mills, 2002). Mills also stayed that the commercial insinuations and period of each plan also need to be considered as a basic component. According to Mills skills and abilities of students are often developed in hands, especially in vocational schools, on knowledge in manufacturing somewhat than through official education and this will confidently be supported and improved by considerate of chemical knowledge.
Scientists and engineers in the chemical departments cannot remain to exist and effort in a single punishment or at one useful area (Whitfied, 2012). He underlined that chemists should be more elastic, operating at a inter sciences border to create new production. Matris and Prasharş (2015 presented some examples for technology applications in vocational school chemistry courses;

- One of the requests of thermodynamic values is the warmth stability of a procedure of economic importance.
- When investigative the kinetics of a chemical alteration, it is certainly helpful to teach the principles of chemical reactors.
- If an exothermic chemical reaction is carried out on a relatively large catalytic-filled bed, care must be taken to prevent the bang. Otherwise, multistage schemes can be used with suitable warmth conversation
- The effectiveness of gas-liquid form transmission rest on to a large amount on the boil behavior in the environment to be inspected.
- Hydrodynamic belongings were mainly investigated by animal lockups due to stormy shave damage during socializing.
- There is a alteration in the manufacture of one gram of material and several tonnes of the same substantial.

Chemistry Program with Chemical Skill

An efficient chemistry curriculum with chemical technology content was proposed by Matis and Prashar (2015). The main line of the program;

A. Portion of the core lesson:
   - Introduction codes of chemical knowledge; 5 ECTS, ie one hour of model, two hours of training and one hour laboratory (this course is a prerequisite for advanced chemical technological issues) and has the recommended content:
   - Dimensions and controls in chemical knowledge, data dispensation and drawings, organizations and transformations of units, form and warmth stabilities, fluid flow and warmth transmission fundamentals, overview to physical procedures and procedure selection, absorbent materials and catalysis, water action; Some workroom exercises for the above.

B. Semi-elective lesson:
   - Separation procedures; 10 ECTS, ie 2 hours of model, 3 hours of training and two hours of workroom, recommended content:
   - Examination of key meeting techniques, insertion, filtering, dimensions decrease,, precipitation, absorption, freshening etc. Above courses and workroom studies.

C. Optional lessons:

- Bioprocedures: Biological mass and warmth balance systems applications and transport phenomena (liquid flow and mixture, warmth and mass transfer), kinetic, downstream processing and separation, bioreactors.
- Progressive chemical knowledge: Chemical depiction elements for chemists, flow charts, energy necessities of chemical procedures, changeable energy foundations and warmth regaining, procedure assessment, University-Industry correlative studies.

D. Other likely chemical skill elective courses:
    * Transportation phenomena
    * Manufacturing organic chemistry
    * Manufacturing procedures
    * Organic chemical knowledge
    * Polymer knowledge
    * Conservational Chemistry
    * Conservational pollution control
    * Food protection
    * Substantial knowledge
    * Nanoknowledge
    * Practical electrochemistry
    * Bioknowledge
    * Green Chemistry

Conclusions

Chemistry is usually referred to as “the central science” due to its interconnectedness with other fields as science, knowledge, engineering, and math fields (STEM) (Matis and Prashar) (2015. Chemistry and the language of chemists play important roles in biology, medicine, materials science, forensics, environmental science, and many other fields of science

In the developing world by the effect of knowledge, chemistry graduate or application studies in vocational schools needs many abilities and multiple functional perspectives in order to struggle with the new tests of the modern culture. We believe that chemical knowledge has key role to accomplish this target (Matis and Prashar (2015). Finally, chemistry curriculum study in vocational schools is necessary to change the situation.

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DEFINING CLOUD COMPUTING AND SETTING UP YOUR OWN CLOUD COMPUTING SERVER / CLIENT SYSTEM*

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Abstract: With the development of computing technologies that have been at many points in our lives, cloud computing technology has begun to be used in a wide range of environments from a portable computer to a server computer. Accessibility is easy, cloud computing is at the top of the reasons for preference. Big companies in information technology (Microsoft, Google etc.) are leading the cloud computing services. It is thought that the installation of the cloud computing system is a big financial budget. However, a cloud computing system can be installed even in our home or office computers.

Accessibility is easy, cloud computing is at the top of the reasons for preference. Cloud computing facilitate access to data greatly. However, it should be known that the data are collected on the servers of the cloud computing service provider. In terms of importance, more or less important data are stored in cloud computing servers. It is important not to forget that in the event of a corruption of trust relations it will have serious results.

The aim of this work is to explain the installation steps of our own cloud computing server and client system on a virtual or real server system. It is to explain that a cloud computing system is easily installable. A cloud computing system can be set up in short steps and at low cost. In this way, contributed to the growth of national software works. The data is stored in cloud computing servers, one or more national and reliable institutions.

Keywords: Cloud Computing, Server, Linux Operating System, Open Source Software, OwnCloud, Cyber Security

Introduction

1. Cloud Computing System

While it is not known exactly when the term cloud computing is known (Estimated 1950s), this concept is the most generic name given to the Internet-based information services that can be shared among users by using the server computers and similar devices connected to the Internet. It is about the provision of services to be taken by using software at minimum level without the need for service infrastructure by the user. Cloud computing provides services based on three basic models. These are Software as a Service, Platform as a Service, Infrastructure as a Service.

With cloud computing, data, applications and many other information services are stored in the server systems of the provider or organization. Ease of use is one of the great benefits. Google Drive, Microsoft OneDrive, cloud services are the obvious. With mobile, tablet, laptop or desktop computer access, data can be accessed continuously wherever an Internet connection is available. While cloud computing has good sides, it also has bad sides. The presence of data in a server system that is unaware of the user can lead to unpredictable results if the trust agreement is compromised. For example, cloud computing is one of the bad results that the country has cut off its support on a country or company basis. In terms of security, countries must have their own cloud computing server systems.

Advantages;

Variable cost instead of capital investment: Instead of making large investments in data centers and servers that you don't know how to use, you can only pay for the resources it uses and the time you use it.

Benefit from the advantages of large-scale use: You can benefit from low usage costs that you cannot reach yourself by using cloud computing. With hundreds of thousands of customers in the cloud, large service providers can reach more affordable costs on large scales, which reduces pay as you go.

* A brief version of this article presented at ISTEC 2018

Stop capacity estimation: Stop anticipating the capacity needs of your infrastructure. If you determine the capacity before you distribute the application, you may have to pay high wages for the resources you have paid, or you may have to manage with insufficient capacity. Cloud computing eliminates these problems. You can access the desired size of resources and increase or decrease the scale as required by just a few minutes in advance.
Get faster and more agile: In the cloud computing environment, new IT resources are just a click away. This allows you to reduce the time it takes to deliver these resources to software developers from a few weeks to a few minutes. This significantly increases the agility of the organization as it pulls down the costs and time required for testing and development.
Stop running data centers and spending money on maintenance: Focus on projects that will make a difference for your business, not infrastructure. With cloud computing, you can focus on your customers rather than server staging, editing, and infrastructure provisioning.
Turn to the world in minutes: Deploy your app to different regions around the world in just a few clicks. This allows you to easily and cost-effectively reduce latency and offer a better experience to your customers.
Disadvantages;
Security: Cloud companies are becoming an open target for attackers because many companies or customers receive service. The cloud computing firm must maximize its security level.
Privacy: The firm or customers receiving services from the Cloud Computing Company register their data on the server computers. These data should not be available to unauthorized persons.
Continuity: The service provided by the cloud computing company should be continuous. Any interruption in service will affect the workflow of all customers.

1.1. Cloud Computing Service Models

Software as a Service (SaaS): A software deployment model that hosts software (SaaS) as a service and delivers them to users over the Internet. It also includes the application of services over the cloud. For example, the Microsoft Office application runs online through the cloud.
Platform as a Service (PaaS): The platform as a Service (PaaS) is a complete cloud computing environment for development and deployment that includes resources that allow us to distribute everything from simple-based applications to cloud-enabled advanced enterprise applications. However, we can purchase the resources we need from a cloud service provider based on the price you pay, and access resources through a reliable Internet connection.
Infrastructure as a Service (IaaS): Infrastructure as a Service (IaaS) is an instant data processing infrastructure provided and managed over the Internet. IaaS supports our cost and complexity of purchasing and managing our own physical servers and other data center infrastructure. Each resource is offered as a separate service component, so we can only rent what we need and for the time required.

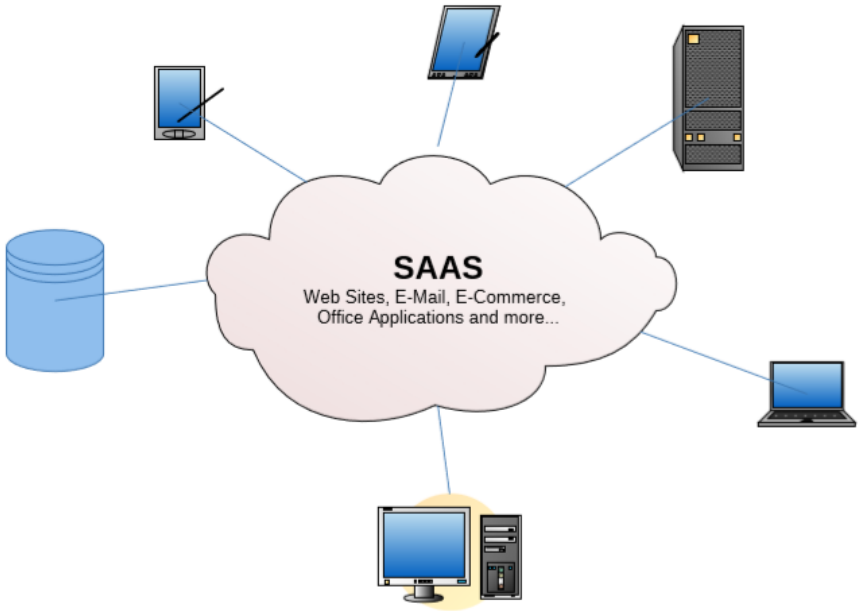

Figure 1: SaaS

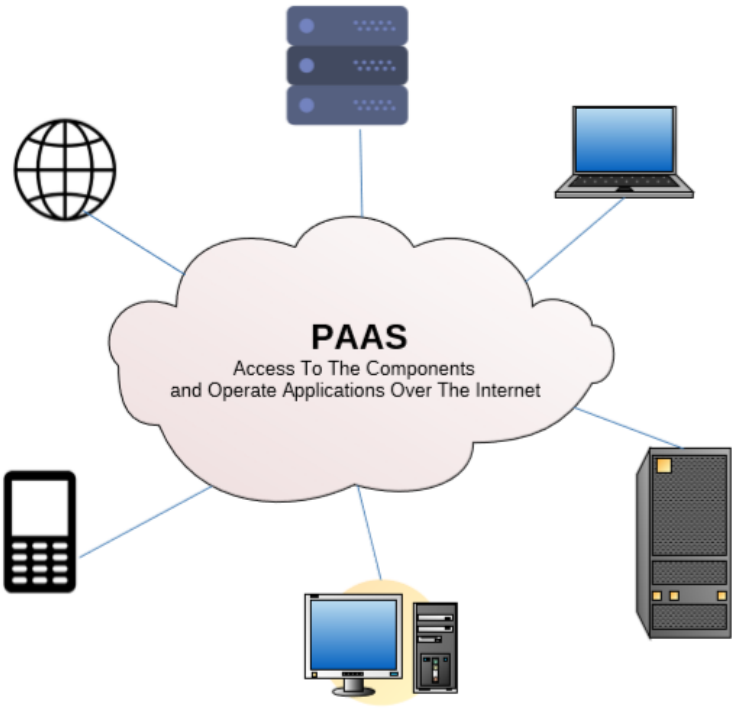

Figure 2: PaaS

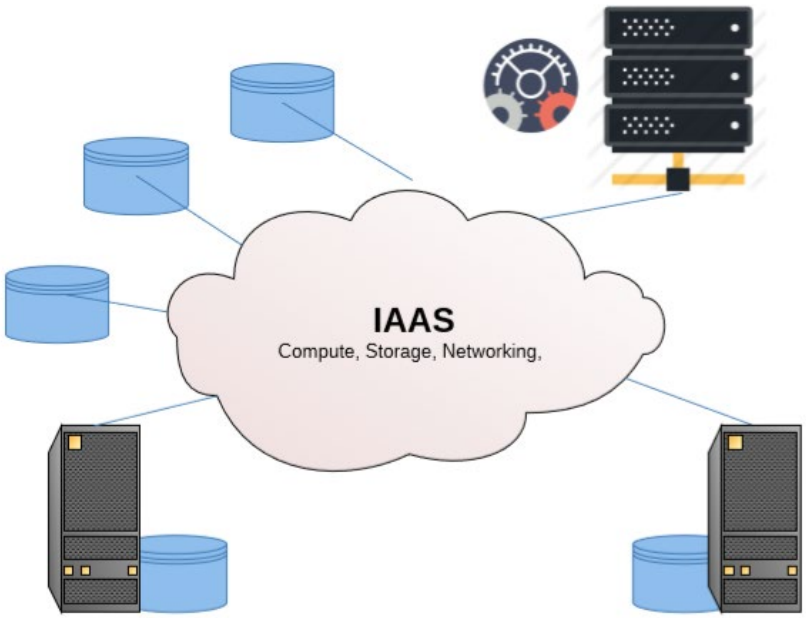

Figure 3: IaaS

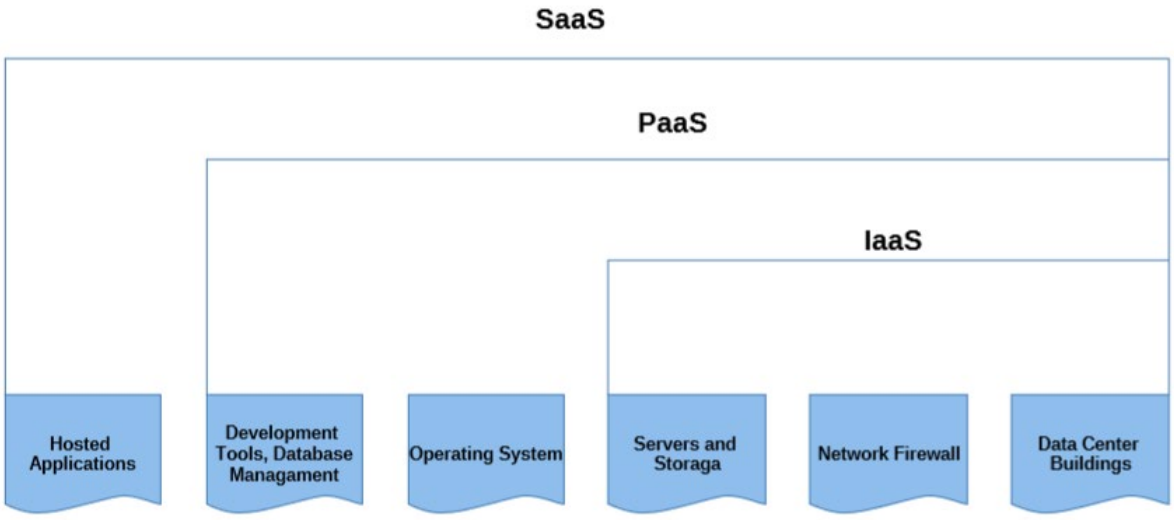

Figure 4: Cloud Computing service models

2. Cloud Computing Server Installation

We can turn a Linux-based computer into a cloud computing server. A cloud computing system can be prepared with ownCloud, which is open source and free. Official site is www.owncloud.org. ownCloud is the most simple way to file or document share data. With ownCloud all your data is where ever you are; accessible desktop or mobile devices, any time. You can install ownCloud Community edition.

ownCloud required one of them Linux distributions.

- Centos Linux 6 and 7
- Debian 7 and 8
- Fedora 27 and 28
- Red Hat Enterprise Linux 6 and 7
- SUSE Linux Enterprise Server 12 with SP1, SP2 and SP3
- openSUSE Tumbleweed and Leap 15.0, 42.3
- Ubuntu 16.04 and 18.04

It required Apache 2.4 Web server and Php 5.6 or above. Database can be one of them;

- MySQL or MariaDB 5.5+
- Oracle 11g
- PostgreSQL
- SQLite

We will use Ubuntu 16.04 Linux to install ownCloud.

ownCloud installation steps on Ubuntu 16.04 are below;

Step 1: Installation Apache2 (Web Server)

sudo apt install apache2

After Apache2 installation you have to run this command

sudo sed -i "s/Options Indexes FollowSymLinks/Options FollowSymLinks/" /etc/apache2/apache2.conf

You have to run next commands

sudo systemctl stop apache2.service
sudo systemctl start apache2.service
sudo systemctl enable apache2.service

Step 2: MariaDB Installation (Database)

ownCloud cloud computing software, requires a database management system.
Run this command

sudo apt-get install mariadb-server mariadb-client

You have to run after MariaDB installation

sudo systemctl stop mysql.service
sudo systemctl start mysql.service
sudo systemctl enable mysql.service

You have to run commands for security information of MariaDB server.

sudo mysql_secure_installation

You have to give database password and other informations.

Run with this command to start database server

sudo systemctl restart mysql.service

Step 3: Php and related modules install

PHP 7.1 isn't available on Ubuntu default repositories. In order to install it, you will have to get it from third-party repositories.

Run the commands below to add the below third-party repository to upgrade to PHP 7.1

sudo apt-get install software-properties-common
sudo add-apt-repository ppa:ondrej/php

Then current Php upgrade to PHP 7.1
sudo apt update

Run these commands to install PHP 7.1 and related modules.

sudo apt install php7.1 libapache2-mod-php7.1 php7.1-common libapache2-mod-php7.1 php7.1-mbstring php7.1-xmlrpc php7.1-soap php7.1-apcu php7.1-smbclient php7.1-ldap php7.1-redis php7.1-gd php7.1-xml php7.1-intl php7.1-json php7.1-imagick php7.1-mysql php7.1-cli php7.1-mcrypt php7.1-ldap php7.1-zip php7.1-curl

After install Php 7.1 edit config file with nano

sudo nano /etc/php/7.1/apache2/php.ini

Then make the change the following lines below in the file and save.

file_uploads = On
allow_url_fopen = On
memory_limit = 256M
upload_max_filesize = 64M
max_execution_time = 360

Step 4: Create your OwnCloud Database

Now that you've install all the packages that are required, continue below to start configuring the servers. First run the commands below to create OwnCloud database.

Run the commands below to logon to the database server. When prompted for a password, type the root password you created above. You will open MariaDB command console.

sudo mysql -u root -p

Then create "owncloud" database. Database name is owncloud

CREATE DATABASE owncloud;

Create a database user called "owncloduser" with new password. Example : own12345

CREATE USER 'owncloduser'@'localhost' IDENTIFIED BY ' own12345*';*

Then grant the user full access to the database.

GRANT ALL ON owncloud. TO 'owncloduser'@'localhost' IDENTIFIED BY 'own12345' WITH GRANT OPTION;*

Save your changes and exit

FLUSH PRIVILEGES;
EXIT;

Step 5: Download OwnCloud Latest version

Download OwnCloud free copy latest release from site to /tmp folder. The community edition will be download. It may take some time according to your internet speed.

cd /tmp && wget https://download.owncloud.org/community/owncloud-10.0.3.zip

Unzip downloaded zip file. If unzip command not found, then install unzip. (sudo apt-get install unzip)

unzip owncloud-10.0.3.zip

You can use to move this folder to new location

sudo mv owncloud /var/www/html/owncloud/

Then run these commands below to set the correct permissions for OwnCloud to function.

sudo chown -R www-data:www-data /var/www/html/owncloud/
sudo chmod -R 755 /var/www/html/owncloud/

Step 6: Apache2 configure

Configure your Apahce2 site configuration file for OwnCloud. This file will control how users access OwnCloud content. Run the commands below to create a new configuration file called owncloud.conf

sudo nano /etc/apache2/sites-available/owncloud.conf

Then copy and paste below content

*<VirtualHost *:80>*
ServerAdmin admin@your_domain_name.com


```
    DocumentRoot /var/www/html/owncloud/
    ServerName your_domain_name.com
    ServerAlias your_domain_name.com

    Alias /owncloud "/var/www/html/owncloud/"

    <Directory /var/www/html/owncloud/>
        Options +FollowSymlinks
        AllowOverride All
        Require all granted
          <IfModule mod_dav.c>
            Dav off
          </IfModule>
        SetEnv HOME /var/www/html/owncloud
        SetEnv HTTP_HOME /var/www/html/owncloud
    </Directory>

    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined

</VirtualHost>
```

Step 7: Rewrite Module and Enable the OwnCloud

After configuring the VirtualHost above, enable it by running the commands below

```
sudo a2ensite owncloud.conf
sudo a2enmod rewrite
sudo a2enmod headers
sudo a2enmod env
sudo a2enmod dir
sudo a2enmod mime
```

Step 8 : Reload Apache2

We're reloading the Apache2 service for the changes to take effect.

```
sudo systemctl restart apache2.service
```

The installation can now be started for your ownCloud. An SSL certificate can be created with LET'ENCRYPT if you wish.

Open your web browser and open url
http://your_ip_addres_or_domain_name or
http://your_ip_addres_or_domain_name/owncloud

ownCloud installation screen will be seem.

Figure 5: ownCloud installation screen

After installation open ownCloud url on your web browser.

Figure 6: ownCloud login page

After login ownCloud administration page will be open.

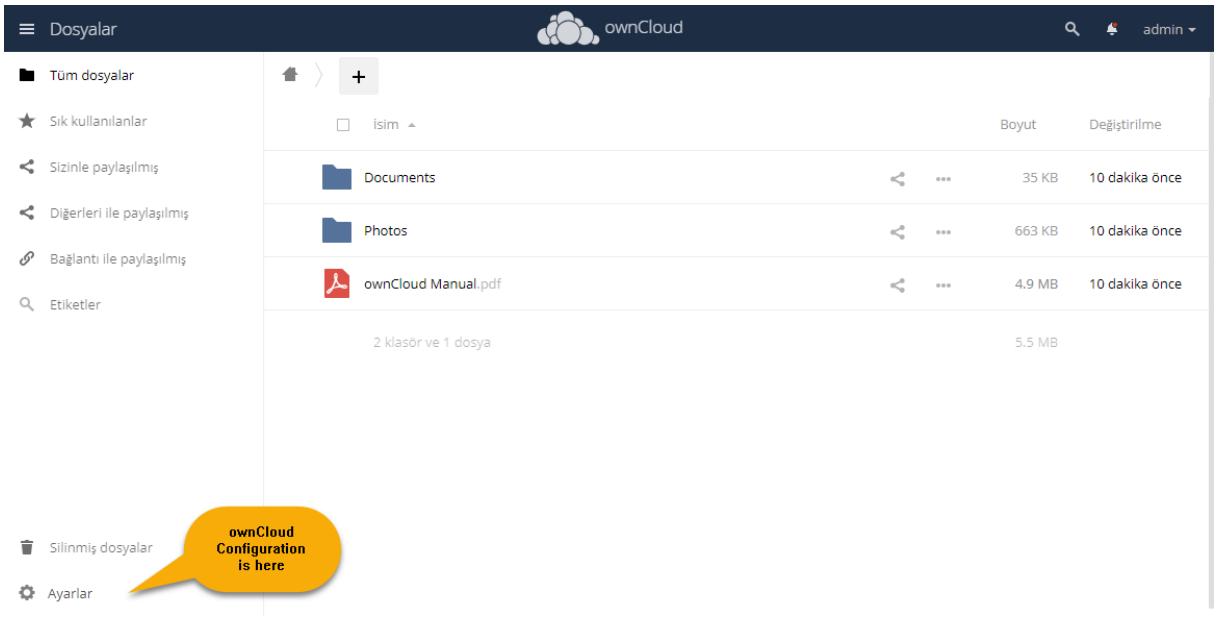

Figure 7: ownCloud main page

Conclusions

With the ownCloud system, small or medium sized companies can install their own cloud systems. It is enough to install the public version on their servers. In this way, they can share their files securely. Files can only be accessed from their network. The philosophy of general public license (GPL) responds to many needs without paying any price. ownCloud system is one of them. There is always no need to pay a large amount for a good information system. Sometimes a free software can do a lot more work. In a few steps as described above, we were able to establish our own cloud computing system.

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GROUP EXPLORER IN ABSTRACT ALGEBRA: VISUALIZATION ON A_4 AND ITS EFFECTS IN THE CLASS*

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Abstract. Group Explorer can be used to make easy teaching and learning of the abstract algebra. In the paper, we used a famous group A_4 to check whether it is an abelian group or not, but some of the more difficult concepts can be illustrated to make lecture presentation more colorful. Then, we explore the student's idea to understand to positive effect of the application.
The essence of Group Explorer in representing notions in group algebra is a good helper to practice the program in the lectures. Twenty-two participants in an undergraduate course taking Abstract algebra lecture were charted concerning the practices by means of Group Explorer. For the effect of the application, all participants believed that the A_4 group explorer with visualization was useful to the teaching and defined the habits concerning the programe by means of technological materials.
Keywords: abstract algebra, group theory, group algebra, technology

Introduction

Students' difficulty in weak points of the abstract way of the course and its concepts is very important structures in the teaching and learning of algebraic lectures in universities. Many researchers have determined the ways to teach the notions (Edwards & Brenton, 1999; Hazzan, 1999; Dubinsky, Dautermann, Leron & Zazkis, 1994) by the essential attention with how learners concretely to recognize the notions, for example, group concept, quotient groups and subgroups (Schubert, Gfeller and Donohue, 2002).
We remember that normal subgroups and quotient groups have near relation. Using the relation, we describe a visualization by the active structure of *Group studies* which could help the student's concrete understanding of what a quotient group is. It is manipulated a Cayley diagram of the group A_4 into a more suitable diagram for imagining the quotient of A_4 by a subgroup isomorphic to $Z_2 \times \boldsymbol{Z}_2$ (Carter and Emmos, 2005).
Before the course, our students learned some basic concepts as normal subgroups, we are illustrating the concepts, to presents students efficient representing perceptions to related with the notion. We shortly remember that, normal subgroups have a special visual way that permit learners to procedure a quotient group; in other words, "H is a normal subgroup of G, at the time we will give a quotient group G/H (Carter and Emmos, 2005).
When the instructors consider applying the procedure in the lecture, they could need to confirm that the learners recognize of the fact; a normal subgroup H of A_4 isomorphic to V_4 ($H \cong V_4$). Moreover, they could give the learners to realize the by composing a subgroup for A_4, and recognizing that these subgroups are normal subgroup of the gorup. In the point, the "effective" ways of *group studies* could be benefited by the learners to reach of finding and identifying normal subgroup of the group (Carter and Emmos, 2005).

The lecture Details

In the lecture, we are using a nice visualization of A_4 fashioned by Carter and Emmons (2005). They presented their visualization step by step as below;

1. Let's begin by introducing of the rectangular Cayley diagram for A_4: your diagram should look like figure1. It is aimed *Group Explorer* to arrange the lines in a rectangle.

* A brief version of this article presented at ISTEC 2018

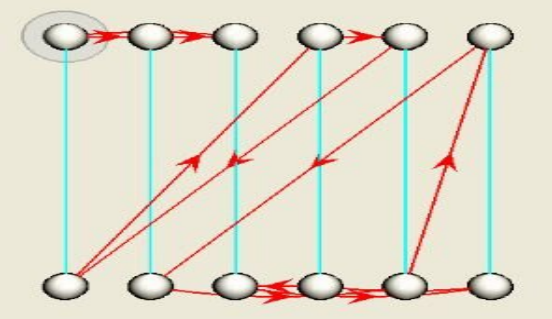

Figure 1: rectangular Cayley diagram for A_4

2. It is confirmed the diagram to establish the figure round the group H isomorphic to V_4. The share of the Cayley Diagram figure which matches to the construction of H as figure 2. And, it is shifted to the figure, than teacher would make of the H subgroup (figure 3) (Carter and Emmos, 2005).

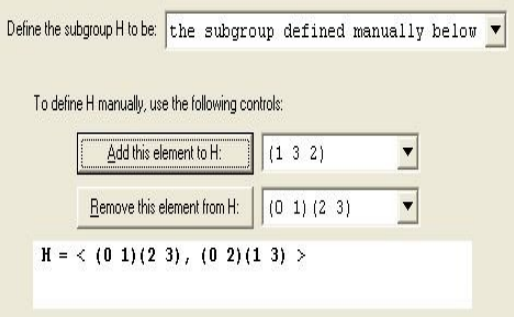

Figure 2. Actions to display an order-4 subgroup

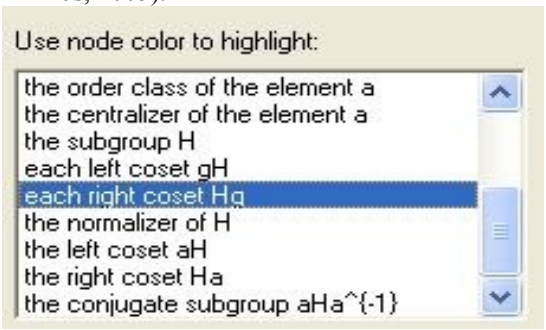

Figure 3. Finding of the right cosets of H

3. Finding cosets of Subgroup. three distinct classes (Carter and Emmos, 2005). 3 different sets by color, every color has the meaning as a right coset Hg of the subgroup H in A_4 (figure 4).

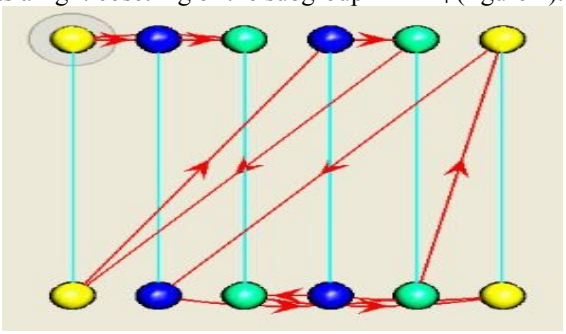

Figure 4. Cosets of A_4

4. It is given separately the construction of the group with regard to the cosets (Carter and Emmos, 2005). For the aim, teacher should to give reposition the diagram conferring to the given colorful sets (figure 5).

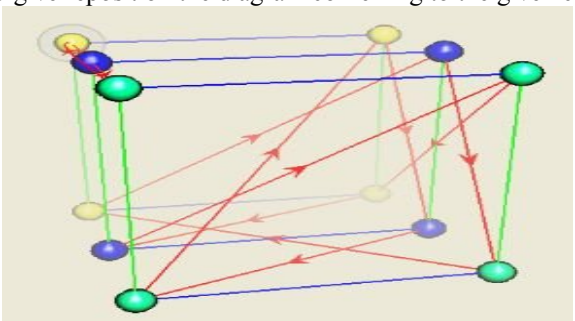

Figure 5. 3-dimensional shape of cosets.

5. Let's exhibit our cosets in columns views: Cosets are still a bit difficult to see as figure 4. For the aim, it is turned the figure to the right way, then, it is constructed in the view (figure 6) (Carter and Emmos, 2005).

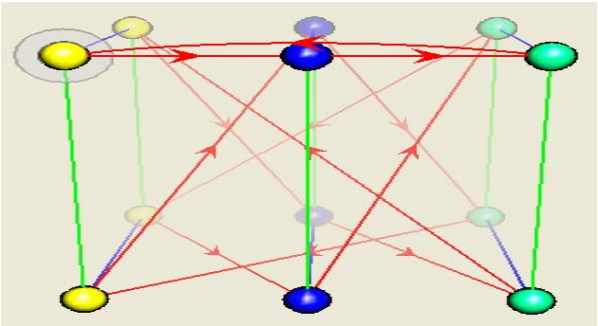

Figure 6. Column view of the cosets.

6. we see the quotient group structure of A_4 more clearly (Carter and Emmos, 2005). For the reason, it is choosen a different assignment of axes (figure 7).

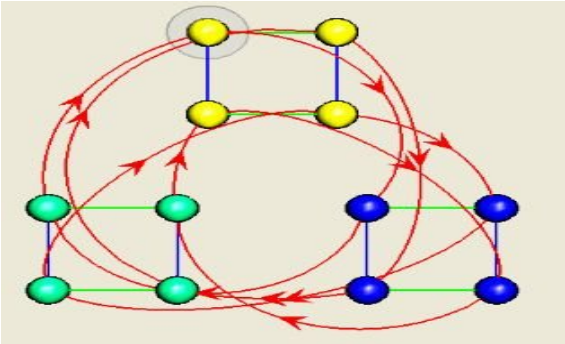

Figure 7. A planar representation of Cosets

Our Student's Views

At the end of the 3-hours lectures, the students were surveyed for the practices with the program and software, and students' learning of applying the modern equipment to response explicit requests of students for some notions revealed before this step. Students' images of "enjoys and hates" about some group examples applied the lectures. The groups of answers that developed in analysing that students enjoyed about the applications were software program and education style (Schubert, Gfeller and Donohue, 2002). participants answers could be categorized as bellow;

- benefiting from the technology (software),
- Simple application of algebric concepts,

"I tested simple using of group concepts and exploring was to understand and to practice. I can say that this situation was beneficial that everything to recognize in the lecture. I didn't have my book to find the everything what I look for. Everything I want to find was on Group explorer" (Student 3).

"It is very nice to see by software presenting that I was focusing to control in lesson. These applications turned some situations easier to perceive that some directions are learning and when some notions mention to special difficulties or examples" (Students 7).

"I enjoyed manipulating cosets of group A_4 Generating moreover highlighting cosets was also very entertaining and helpful". (Participant 12).

"before the course, it was boring for me to participate to Algebra course. But now, I turned out to a student who like the course, more familiar with a lot of the concept of the course" (Student20).

Conclusion

The outcomes of the work show that students' ability was an important issue in shaping notion learning at the abstract algebra lectures. Our lectures' method and effects to the students suggest that they were highly willing to follow the course and using Group Explorer. Almost all the students in our work group recognized the visual lectures as a constructive part of the group concept studies (Schubert, Gfeller and Donohue, 2002).

Computer materials in the mathematics lectures offer a expressive practice to the students. We need the underlined the importance of visual representations heavily (Schubert, Gfeller and Donohue, 2002). Two powerful effect is that visualization is an significant material that aids learners to form their understanding, and this visualization could benefit lecturers give difficult notions with a simple and different way and simple presentation.

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HORIZONTAL BUILDING CONSTRUCTION I: RAPID CONSTRUCTION*

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Abstract. The possible way of aiding the horizontal building at the sector of construction are developing step by step. In this study we pointed out the study of construction to encounter the modern developments. We are focusing on the construction explanation for a special environmental situation when incorporating some project restrictions, producing minimum disruption, by helping of new structure production systems and administration to restrict the constructional problems or faults.

Keywords: horizontal building construction, construction project, construction robotics

Introduction

In the chiefly communal horizontal building production, the characteristic inspiration of the persons is to have a member of the communal reserves (Lupa, 2015). He also noted that communal reserves are getting to be consumed, the fundamental permitted context needs the disintegration of the plan transfer procedure into three stages;

- Design,
- Bid,
- Build

Moreover, risk level is classically escaped by both holders and workers, and it has a nonappearance of observable prizes (Lupa, 2015; Fu, X at all. 2012).

In this study, we are analysing three design parameters (Arshad, 2014);

- farming resource utilization
- rapid construction
- *on site-off site* logistics

Of course, it is denoted hard to entirely incorporate the parameters in a unique horizontal structure building. So, to show details of the parameters, we selected different construction models.

The first phase of the study, we focus on design standards to encounter the contemporary requirements of structure building. That situation contains the work of three project factors. Then, we analyse the difficulties opposed to incorporate the factors in construction structure. Later, a modern method is given for horizontal structure constructing. (Arshad, 2014).

* A brief version of this article presented at ISTEC 2018

Farming resource utilization

This construction design inspires to create accessible incomes and gathering in a special department at local position. Vertical agricultural work is a perfect solution of farming to apply in metropolis (Arshad, 2011). According to him, main determined selections for the farming;

- procedure of growing vegetable in air without soil,
- rising boards to the wall with necessary amount of water
- developing flowers by means of mineral resolution as presented below (figure 3).

Figure 3. Vertical hydroponic design system to grow strawberries in Zimbabwe

(https://zimbabwebookproject.weebly.com/hydroponics-etc.html)

Rapid construction

Some researchers noted that fast building is a design notion to improve proficiency of building procedure current by period restriction to ensure the achievements of plan transfer in a limited period of agreement and encounters customer pleasures (Arshad, 2014 &Yahya and Mohamad, 2011).

The four pylons of spectacular mega bridge in Bankog, Industrial Ring Road, rise 173 m into the sky. For the realization, the ACS climbing system ensured rapid construction system. The PERI formwork solution with the ACS self-climbing system permitted effective building through different connections (www.peri.co.th/projects/civil-engineering/mega-bridge-industrial-ring-road.html.).

The pylons were divided into 3 sections with convoluted alteration zones. The ACS V climbing system ensured horizontally-located stands at all times for safe and ergonomic working operations (figure 5).

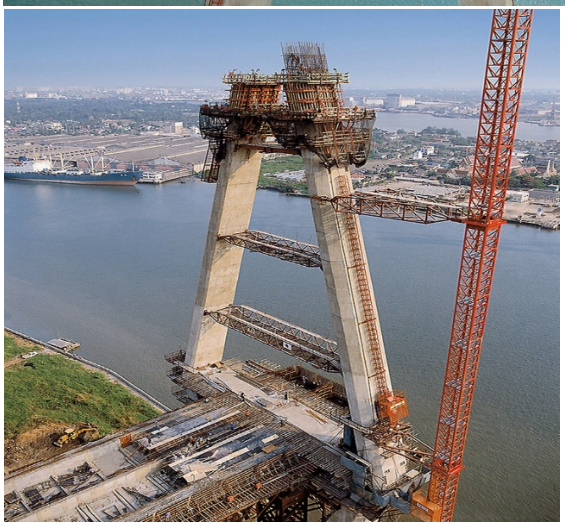

Figure 5. Mega bridge, industrial ring road in bankog ensured rapid construction system

(www.peri.co.th/projects/civil-engineering/mega-bridge-industrial-ring-road.html)

On-site & off-site logistics

Manufacturing processes characteristics similar production home building possesses as the building of comparable constructs and a rising request for customization of constructs (Bashford at all. 2005). Arshad (2014) pointed out that because of the relationships, constructers frequently try to see the construction scheme.

According to Arshad (2014), a Japanese researcher used at the middle of 1970, is a management system and a manufacture plan which focuses to advance a business reappearance on the construct by eliminating in procedure register and related transport prices (Ashford, 2014). According to Ashford, “Just in time” inventory systems expose concealed cost of keeping inventory. The company must apply a new method to manage the consequences of the change at solving the problem (figure 7).

Figure 7. some companies using JIT applications from all over the world

(www.slideshare.net/RahulIyerMSEMechEngE/what-is-just-in-time-jit-manufacturing)

We can give the "Pit stops" application of Formula 1 for JIT. In Pit stops application, the several tasks are accomplished to a racing automobile in a very little time that contains refilling, rapidly tire out, controlling and repairing some systems of automobile. (Arshad, 2014).

Arshad (2014) focused detailed another vertical delivery system that Cranes are classic which is applied for on-site substantial logistical way. He noted that Japan structure methods are using robot cranes. Arshad gave a good example of this system that "Kiva Systems" (Figure 8).

Figure 8. the most innovative company in 2012; Kiva systems

(www.google.com.tr/search?q=Kiva+Systems&rlz)

Result

The idea of a modern building robot is demonstrated that completes horizontally. We can say that it is not far to obtain the load of building components from an appropriate preliminary level. Also, it would transfer horizontally to spread at necessary position for location. We believe that this would get a special standard of horizontal constructional designs in next years.

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ON THE MODULAR CONSTRUCTION SYSTEM: A SPECIAL DESINGN METHOD*

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Abstract. Generally, integrated construction can be stayed as that is a constructional system in which a building is constructed with a special model situations, consuming the similar equipment and model of special and similar constructs http://www.integrated.org/HtmlPage.aspx?name=why_integrated. In this study, we present a brief introduction to architectural construction of system administration by the view of some authors. Some special necessities could lead customers to select an integrated construction. We need to add that, modelling an integrated construction is a multifaceted procedure and could needs a methodical attitude in a long time period (Van Gassel & Martin, 2006).
Keywords: İntegrated Construction, System Management

Introduction

İntegrated constructions are usually powerful according to conservative building as structurally. The constructions units have unit part in its design as roof or floor, when they combined (Gray and Will, 2001). They noted that construction off site could make guarantee for powerful building administration. Also, the team stressed that industrial plants contain different modules (http://www.integrated.org/HtmlPage.aspx?name=why_integrated).
In this step, we can say that integrated building is intrinsically a natural fit view because of the modeler searching of good supportable systems. Van den (2002) expressed that construction with the condition of organized situation decreases unnecessary points. According to him, building process by improved quality administration and meaningfully fewer action naturally supports accomplishedly (http://www.integrated.org/HtmlPage.aspx?name=why_integrated).
It is an acceptable situation that costumers occasionally present particular requests and a specific position, a widespread service in the settled part or limited duration of use. Designer meeting the next situations (Gassel and Martin, 2006; Kocaman at all, 2017):

- no private customer, but a basically determined market,
- formation of a making strategy,
- The customer and people need power constructions.

İntegrated Systems

Van Gassel and Martin (2004) were defined the integrated building as "integrated building as a method of building that 'utilizes pre-engineered, factory-fabricated structures in three-dimensional sections that are transported to be tied together on a site". We can say that the definition focuses on the production and method of tool portions. İntegrated building has a more widely manning. In this study, we give the integrated building characterised by (Van Gassel and Martin, 2006) as bellow;

- İntegrated building includes integrated parts constructed in a fabric
- İntegrated parts have established grid dimensions
- The integrated buildings are made by particularly educated persons
- The apparatuses of the integrated materials are stocked in the fabric

* A brief version of this article presented at ISTEC 2018

- İntegrated materials are produced by the view of to client

İntegrated building system productions are shown below step by step (Figure 1).

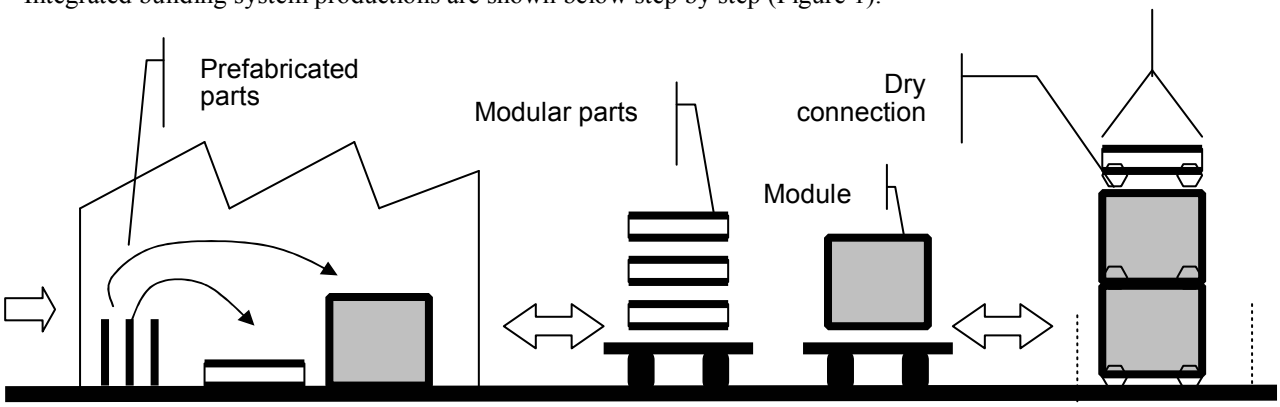

Figure 1. İntegrated building structure fabrication system (Van Gassel and Martin, 2006).

We also exhibit some integrated systems from all over the world that they have constructed according to their own systems;

Figure 2. Some models of integrated building systems.

A Special System Method

Van Gassal and Martin (2006) stayed that, an integrated builder should to work with following procedures;

- market research,
- product development,
- production,
- sales.

According to them, this method provides that the modelling with the four processes exchange information. Also, they focused that the extended group works having a multidisciplinary approach are needed for process modeler. This research team presented a classification that the method's description of the production process system consists of two units:

- The structure model
- The content of the process.

The structure;

Some system reaction implements are established by Gassal and Martin (2006):

1. An item means that a controlled explanation and deeply clarification of the method.
2. An instruction is that a four-step system examination method.
3. Finally, a classification system is description of the last idea and doing steps.

The research team categorized the meeting locations as:

- Meeting at supplier,
- Meeting at the fabric (Van Gassel & Martin, 2006). (Figure 3).

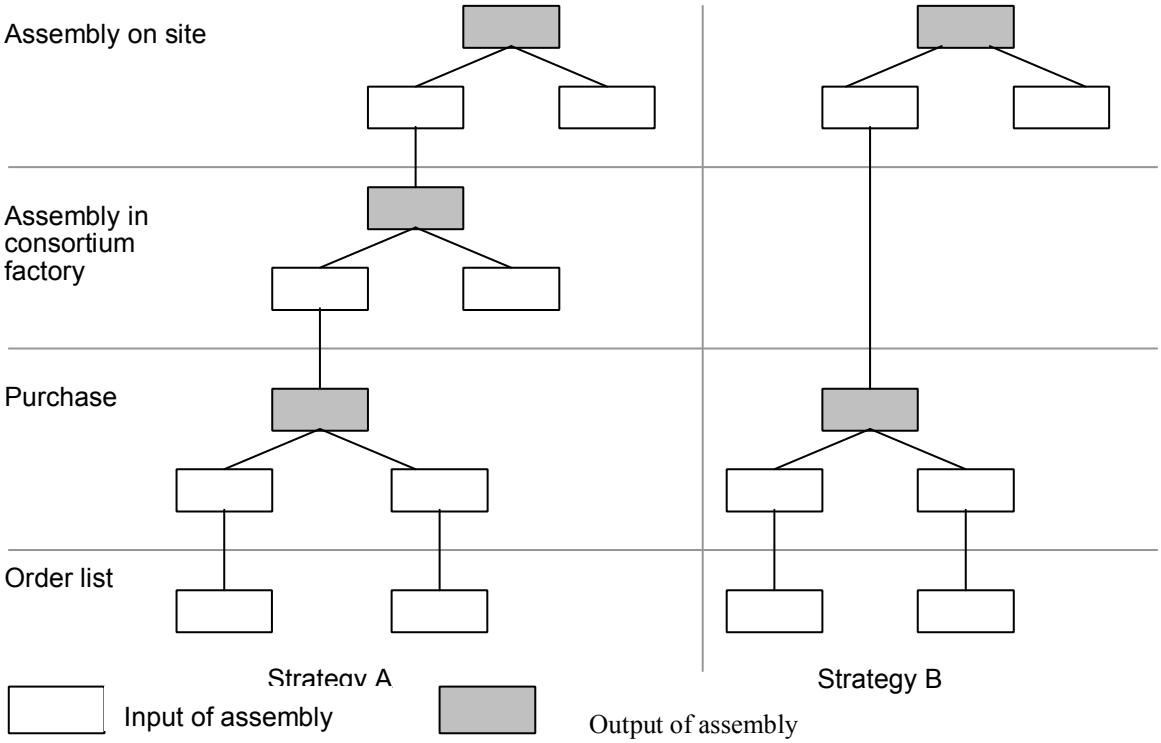

Figure 3. System trees. (Figurated by Gassal and Martin, 2006).

The content;

Many principles could be determined with the unit of the process's construction (Van Gassel and Martin, 2006). According to them, this is directly connected with the using integrated builder's strategy. Van Gassel and Martin also underlined that the bazaar investigation and crop improvement contain its special imports and limits. Van Gassal and Martin (2004) defined four steps to reach the solution spaces of the system as below;

- ✓ Step 1: Production typology
- ✓ Step 2: Client choices
- ✓ Step 3: Client choice
- ✓ Step 4: Production systems

A simple description of each step: Production typology means the selection from classic to developed building procedures. Customer selections give us some offers of costumers as such production strategies as pure, customized standardization level and pure customization (Van Gassel & Martin, 2006). Client choice explain that levels such as building, installation, finishing. And finally, production systems is flow or job-shop**.**

Result

In this study, we focused and presented a method modulated by Van Gassal and Martin (2006) founded on the features of integrated building. Many integrated builders formulate building structures, focusing on the bazaar and crop presentations. This working system give them some advantages as that reducing the risk of failure.

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ON ZERO DIVISOR GRAPH OVER RINGS: DETERMINATION OF THE EDGES AND THE ADJACENT ELEMENTS*

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Abstract. In this paper, it is focused the graphs of the sets of zero-divisors of a ring by the help of the researchers by the view of the authors. It is presented that Ring Z_m to give its graph and when it is graph is planar when it is complete and some other charters of the graph. Our second examination is on the ring coming from the power set of a finite set as $R = T(U) \neq \emptyset$, with the operations, $M + N = (M \cup N) - (M \cap N)$ and $MN = M \cap N$. Finally, we are focusing on the well-known ring that the ring of all two by two matrixes on a ring by identity element and by traditional operations that "+" and ". " of square matrixes.
Keywords: ring, graph, zero divisor, planar

Introduction

Many research studies conducted on zero divisor graphs with some special characteristic ways of the ring as finite or infinite, commutative or noncommutative (Anderson, and Livingston, 1999; Carter and Emmos, 2005; Redmond, 2004; Smith, 2002 and Tongsuo, 2005). By this paper, it is modulated the graphs on the sets of zero-divisors of some special rings. We present that graphs models and give the characteristic ways by the view of the authors.

Definition: Let R be a ring. Let GRAF be a graph with elements of R as vertices that two non-zero elements x, y R are adjacent if xy = yx = 0 (Carter and Emmos, 2005).

We are focusing the following ring to note graphs of them:

- $R = Z_k$, the set of integers modulo k with respect to addition modulo m and multiplication modulo k with the ring system $(Z_k, +_k, \Theta_k)$; for $x, y \in Z_k$, the operation definitions as below,

$$x +_k y = (x + y)_k ,$$
$$x \Theta_k y = (x . y)_k$$

- $R = T(U)$, the power set of a nonempty finite set with respect to addition '+' and multiplication '.' with the ring system (T(U), +, .); for $M, N \in T(U)$, the operations are defined as below,

$$M + N = (M \cup N) - (M \cap N)$$
$$M.N = M \cap N$$

- $R = MAT_2(P)$, the ring of all 22 matrixes over a ring P with identity with respect to matrix addition '+' and matrix multiplication '.' of matrixes with the ring system $(MAT_2(P), +, .)$; for $A = (a_{i,j})_2$, $B = (b_{i,j})_2 \in MAT_2(P)$, the operations are defined as below,

$$A + B = (a_{i,j})_2 + (b_{i,j})_2 = (a_{i,j} + b_{i,j})_2$$
$$A.B = (a_{i,j})_2 . (b_{i,j})_2 = (c_{i,j})_2 = C \in MAT_2(P), \text{ with } c_{i,j} = \sum_{k=1}^{2} a_{ik}. b_{kj}$$

* A brief version of this article presented at ISTEC 2018

All the above special rings are useful examples in abstract algebra as well as in elementary ring theory. For the definitions of a ring, a group, a subring of a ring, zero divisors, units, ideal, commutative ring, abelian group and other related concepts with examples, the reader should read one of the famous and basic abstract algebra books written by Hungerford (1986) or Herstein (1994).

Zero Divisor graphs in Ring Z_k

Z_k is a commutative ring with identity element with respect to addition of integers modulo k and multiplication of integers modulo k (Bhat, Raina, Nehra and Prakash, 2007).
For k = p, p a prime number; the graph has no edges as Z_k in this case is a field and has no non-zero zero divisors.
If k is not a prime number; it is assumed that

$$k = (r_1)^{p1}.(r_2)^{p2}...(r_k)^{pk}, \qquad p_i \text{ prime numbers,}$$

so, the possible adjacent vertices are (r,ts) with ts < k and rs = k.
it was illustrated for some natural numbers (Bhat, Raina, Nehra and Prakash, 2007):

For k = 4, the edge is (2, 2).
For k = 6, the edges are (2, 3) and (4, 3).
For k = 8, the edges are (2, 4); (4, 4); (4, 6).
For k = 9, the edges are (3, 3); (3, 6); (6, 6).
For k=12, the edges are (2, 6); (4, 6); (6, 6); (8, 6); (10, 6); (3, 4); (9, 4).
For k = 120, the possible edges are
(2, 60); (4, 60); ... ; (118, 60);
(3, 40); (6, 40); ... ; (117, 40);
(4, 30); (8, 30); ... ; (116, 30);
(5, 24); (10, 24); .... ; (115, 24);
(6, 20); (12, 20); ... ; (114, 20);
(8, 15); (16, 15); ... ; (112, 15);
(12, 10); (24, 10); ... ;(108, 10);
(20, 6); (40, 6); ... ;(100, 6);
(24, 5); (48, 5); ...;(96, 5);
(30, 4); (60, 4); ... ;(90, 4);
(40, 3); (80, 3) (Bhat at all. 2007).

By using similar method, it is easy to find for other natural number k. We note that if k = p, a prime number, in this situation, the graph is obviously planar.
For k = 4, 6, 8, 9, 12, 14, 15, 16, 18, 20, 21, 24 and 25,
the graph is planar. For general classification, it is used to use following theorem (Harray, 1969):
Theorem. Let k = pq, where p and q are distinct prime numbers. Consider the ring Z_k as above. Define in Z_k a graph as ('x' is adjacent to 'y' if ab = 0, where x, y ∈ Z_k). If the isolated vertices are ignored, then the graph is bipartite.
Proof. The authors accepted that, n has only two prime factors, all multiples tp of p with tp < k in one row and all multiples kq of q with kq < k in the other row. In this position, it is reached a bipartite graph (Bhat, Raina, Nehra and Prakash, 2007).

The Edges and the Adjacent element in the T(U) Ring

Definition: A ring R is called a Boolean ring if each element of R is an idempotent; i.e. $x^2 = x$ for all x ∈ R, (Mussuli, 1994)
Theorem: Every Boolean ring in a ring R is a subring of R, (Mussuli, 1994).
Let U be a non-empty finite set. Consider T(U) the power set of U. Define in T(U) addition and multiplication as

$$M.N = M \cap N \text{ and } M + N = (M \cup N) - (M \cap N)$$

for any M, N ∈ T(U). Then, according to the authors, T(U) is a commutative ring with identity element U. The zero element of T(U) is φ, the empty set. In the Boolean rings, it is well-known that every element is idempotent; i.e. $e^2 = e$ for all e ∈ T(U). This ring is called a Boolean ring. According to the above theorem, every Boolean ring in this ring is a subring of T(U) for some U (Bhat, Raina, Nehra and Prakash, 2007).

For k=4 and U = {x,y,z,t}, it is noted the following sets (Bhat, Raina, Nehra and Prakash, 2007);

T(U) = {{x}; {y}; {z}; {t}; {x, y}; {y, z}; {x, z}; {x, t}; {y, t}; {z, t}; {x, y, z}; {x, y, t}; {x, z, t}; {y, z, t}};

and the edges are

({x}, {y,z,t});
({y}, {x,z,t});
({z}, {x,y,t});
({t}, {x,y,z});
({x,y}, {z,t});
({x,z},{y,t});
({x,t},{y,z}).

To determine the adjacent element in the ring T(U) and whether a graph in T(U) is planar, it is needed the following theorem.

Theorem**:** Let U be a non-empty set. Define a graph with non-zero elements of T(U) as vertices such that

M is adjacent to B if MN = φ,

the zero element of T(U) where M, N ∈ T(U). This graph is planar if number of elements of U is less than 4 (Bhat, Raina, Nehra and Prakash, 2007).

Let k(U) = k.

For k = 1 is obvious.

For k = 2, consider U = {x,y}. T(U) = {{x}; {y}; {x, y}; φ}.

The possible edges are

({x}, {y}); ({x}, {z}); ({y}, {z}); ({x, y}, {z}); ({x, z}, {y}); ({y, z}, {x}).

For k = 4, consider U = {x,y,z,t}. Then

T(U) = {{x}; {y}; {z}; {t}; {x, y}; {y, z}; {x, z}; {x, t}; {y, t}; {z, t}; {x, y, z}; {x, y, t}; {x, z, t}; {y, z, t}; {x, y, z, t}; φ}.

The graph contains a complete sub graph with four vertices

{x}; {y}; {z}; {t}.

The other possible edges are:

({x}, {y, z});
({x}, {y, t}); ({x}, {z, t});
({x}, {y, z, t}); ({y}, {x, z});
({y}, {x, t}); ({y}, {z, t});
({y}, {x, z, t}); ({z}, {x, y});
({z}, {x, t}); ({z}, {y, t});
({z}, {x, y, t}); ({t}, {x, y});
({t}, {x, z}); ({t}, {y, z});
({t}, {x, y, z}); ({x, y}, {z, t});
({x, z}, {y, t}); ({x, t}, {y, z})

Clearly this graph is not planar.

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OPPORTUNITIES FOR THE CHEMICAL SCIENCES - ENERGY II: FOSSIL FUELS, BIOFUELS AND SOLAR ENERGY*

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Abstract. Chemical energy research must turn out the probable technique to get several potential solutions. Focusing global difficulties means progressing essential scientific information in chemical science investigation. It needs an interdisciplinary approach and the Royal Society of Chemistry must form connections between chemistry's disciplines, and other related sciences. We believe that international active networks of this organization could be instrumental in implementing of the possible chemical solutions. The chemical sciences, according to our approach, can play a clear and an efficient role in following maintainable development and in getting technological explanations to the difficulties of humanity now and in the next times.
Keywords: chemical science, energy, environment, supply, energy efficiency, solar energy

Introduction

Energy investigation is an interdisciplinary subject. A big diversity of major methods are suggested and followed to address the many topics of sustainable energy source approaches (Prest, 2009; Schlögl, 2010). Chemistry as a vital goals of getting tools and procedures for changing of substance is at the critical point of the energy positions (Doroodian and Boyd, 2003). Energy alteration systems run on chemical energy transporters and want to work appropriate method. Doroodian and Boyd noted that the huge scale of the system loads optimal levels outside the marginal developments of experiential findings. The systematic methods are complete to reach at accessible and maintainable resolutions (Schlögl, 2010).

International emissions are fixed to reach manufacturing stages before 2050, having different effects on the weather and the international economy (British Wind Energy Association, 2008). Moreover, energy levels of need universally stays to rise, and the people raises, and the rising many economies in the world are extending step by step. Our idea with the current strategies that international energy need would be more than 55 per cent higher in 2040 than now. According to scientific data, outstanding funds of fossil fuels would have a significant portion in getting the world's energy requirements for the predictable future, and decreasing emissions should be created (Schlögl, 2010; Prest, 2009).

Teitelbaum (2007) and Prest (2009) pointed out that researchers would be needed to advance maintainable energy resolutions and, to discover effective methods of manufacturing, and operating fossil fuels at the conversion. In this paper, we overview the challenges and the opportunities which classifies the basic R&D ranges for the chemical sciences which are necessary to give the supportable progress of energy source. The key factors are as below;

- Energy effectiveness
- Fossil fuels
- Biopower & biofuels
- Solar energy

Energy effectiveness

Developments are required for the effectiveness by which electricity is produced and transferred (International Energy Agency, 2016). According to its report, it points to an energy loss of fifteen terawatts (TW) across the planet by 2050. It is noted in this report, over energy efficacy and social events to decrease the situation, families can get about nine billion tons of CO_2 a year by 2020 (Prest, 2009; Advancing UK bioenergy, 2009) (figure 1).

* A brief version of this article presented at ISTEC 2018

Figure 1: Initiative climate bonds for energy efficiency.
(https://www.bing.com/images/search?view)

Materials chemistry has an important character to show in getting coming necessities as noted below (Prest, 2009; Royal Society of Chemistry, 2009):

- creating protecting tools,
- decreasing CO_2 emissions,
- developing to nanotechnology to rise the power of physical things.

Fossil fuels

Fossil fuel operating is uncontrollable and related with greenhouse gas construction. An effective using of fossil fuels is essential together with technologies which confirm lower environmental effect (Prest, 2009; HM Treasury, 2007). HM Treasury pointed out that the quantity of the world's major energy source providing by renewable energy technologies would raise. Also, it is noted that fossil fuels would continue quantity of the energy levels. The organization recommended that the world trusts to fossil fuels for about 80 percent of the whole energy source. According to the report, it is very important to get fossil fuels and the crops more powerfully in technologies which would confirm lower environmental effect, when using of fossil fuels in the coming is used (Prest, 2009) (figure 2).

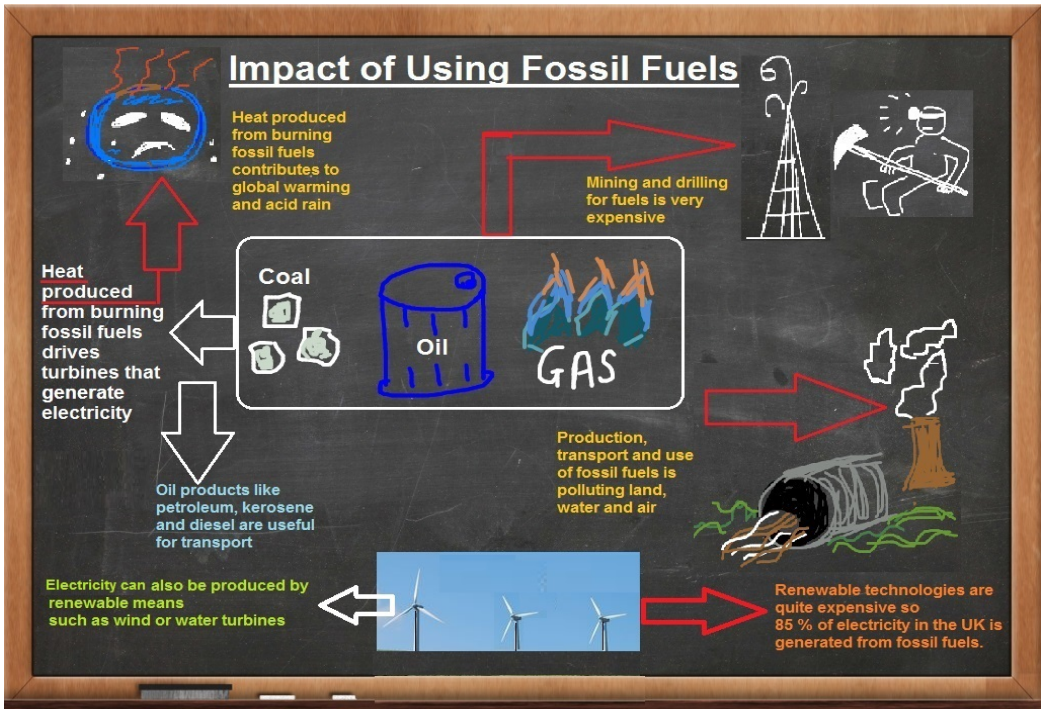

Figure 2. Using fossil fuels is vital for the next green and healthy life
(https://www.sciencemakessense.com/uploads/1/8/1/5/18159741/1399261_orig.jpg)

According to HM report, the possible profits for developing air value are important, comparative to further fossil fuels (HM Treasury, 2007; NSW, 2011; Kulshreshtha, 1998; Prest, 2009). And, chemical sciences would have a tactical character to show in improving current systems, also in developing new technologies. We believe that technological innovations will be required in:

- developing advanced catalysts to improve combustion for emissions clean-up

- rising price effective gas refining technology,
- developing extraordinary temperature supplies for enriched performance.

Biofuel and Biopower

Fuels should be created from biological sources in a style which is economics, and environmental (Prest, 2009; Boole, 2008). He noted that the quantity of solar radioactivity which stretches the Earth's surface every year is more than 10,000 the present yearly total energy consumption. Biomass is supposed to get positive effect over 10 per cent of international energy and much than 80 per cent of the energy is used for cook and heat in homes (IPCC Fourth Assessment Report, 2009). We see that many industrialized countries are rotating to pass for biomass using as a fuel source to improve fossil fuel tradition. In this report, it is noted that yields as sugar cane could develop fast and could shot daylight with an efficacy (Prest, 2009) (figure 3).

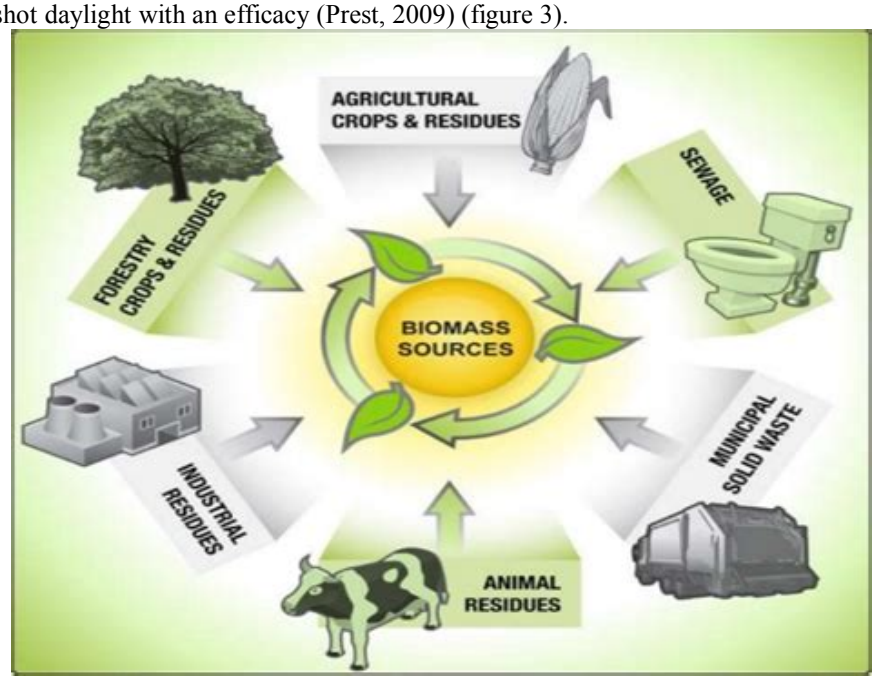

Figure 3. Biomass has a positive affect approximately 10% of global primary energy. (https://image.slidesharecdn.com/biomassenergypowerpointpresentationbykishan-140618222808-phpapp02/95/biomass-energy-5-638.jpg?cb=1403130584)

According to Boole (2008) and Prest (2009) , the effort to rise using of biomass and energy sources has move to the bio-refinery conception. And, chemical technologies on thermo style are significant systems of transforming biomass to carrying fuels. Also, he noted that the comparatively less translation proficiency of daylight to biomass have the same way which big parts of farming places could be necessary to yield important amounts of biofuels applying existing technological methods (IPCC Fourth Assessment Report, 2009) (figure 4).

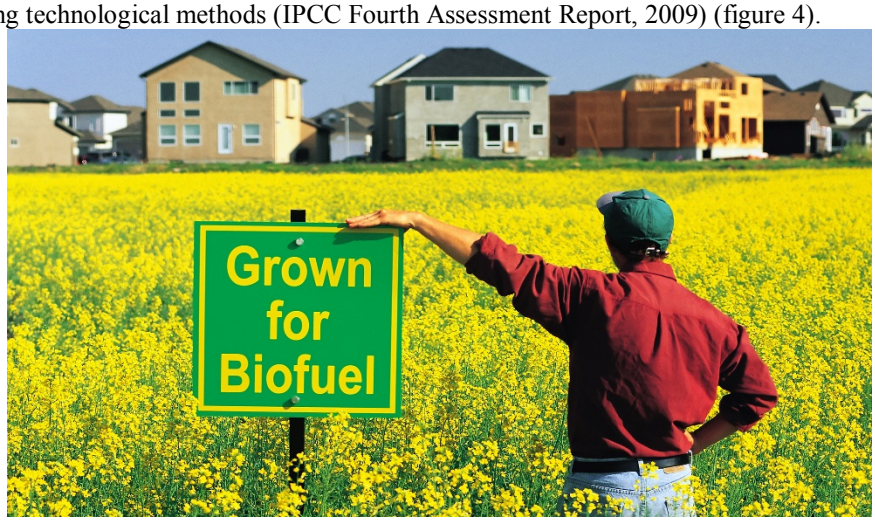

Figure 4. Vegetable oils are potential fuel sources for cars (http://s.hswstatic.com/gif/biofuel-quiz-177800130.jpg)

Prest (2009) pointed out that floras can be processed to yield suitable crops. Moreover, we understand that it would be occasions to advance techniques of creating fuel from different sources. The chemical science of areas have a important character to show in developing bio-refinery procedures by (IPCC Fourth Assessment Report, 2009):

- developing of hydrolyzing biomass,
- advancing modelling and methods,
- developing the flexibility of feedstock and output,
- developing thermochemical processes,

Solar energy

Improvement of current technologies to be more rate effective and emerging the future population of solar cells is significant to do the potential of solar energy. Connecting the energy of the sun could offer a clean and secure source of electricity, heat and fuels (Prest, 2009; www.hydrogensolar.com/Paths.html, available at 25.06.2018).
"The sun is a source of energy many more times abundant than required by man; harnessing the free energy of the sun could therefore provide a clean and secure supply of electricity, heat and fuels. Developing scalable, efficient and low-intensity-tolerant solar energy harvesting systems represents one of the greatest scientific challenges today. The sun's heat and light provide an abundant source of energy that can be harnessed in many ways. There are a variety of technologies that have been developed to take advantage of solar energy. These include photovoltaic systems, concentrating solar power systems, passive solar heating and daylighting, solar hot water, and solar process heat and space heating and cooling" (Royal Society of Chemistry, 2008).
According to this report, solar cells provide a simulated means of utilizing solar energy. The present generation of amorphous silicon solar cells have competences between 5 percent and 17 cents, also the fabrication is costly and eats a lot of energy. The innovations needed to progress the scheme of current first-generation photovoltaic (PV) cells contain (Prest, 2009; Royal Society of Chemistry, 2008) (figure 5):

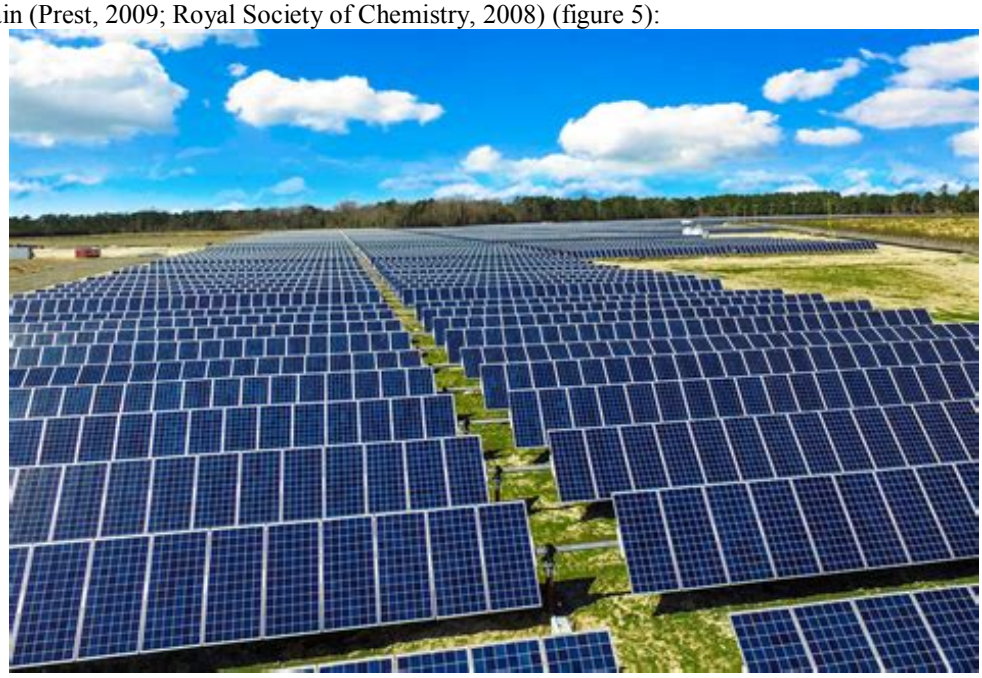

Figure 5. A solar farm in North Carolina.
(energy.mit.edu/news/mit-neutralize-17-percent-carbon-emissions-purchase-solar-energy/)

- increasing base-metal resolutions
- rising low energy, high crop and low price
- effective chemical engraving procedures

According to Prest (2009), the price of photovoltaic power can be decreased with developments in high efficacy concentrator photovoltaics methods.

Result

Chemistry could offer maintainable resolutions for energy supply conceptions inhibiting us to get supplementary large experimentations to international warming with part of the regular environment. Chemistry is a tactical and critical scientific area for solving the energy challenge (Schlögl, 2010). By process strategy it offers vital fundamentals of maintainable energy supply chains founded on physical charge carrier separation.

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PYTHON PROGRAMMING LANGUAGE: BASIC PROGRAMMING LANGUAGE FOR UNIVERSITY STUDENTS*

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Abstract: Rapid technological developments in the world of information have led to a rapid change of hardware and software. Hardware and software, which are inseparable pairs, have not changed at a parallel speed. In the hardware world, a faster development has been observed. But in the software world, they have not developed at the same speed.
Without a software, we know that a piece of hardware cannot sum two numbers. Therefore, the programming language, which is the main factor in the production of software, has a great importance. The most widely used programming languages are C, C ++, Java, C# programming languages.

There are a number of enhancements as well as a lack of script-based programming languages. The obvious features of coding are easy to understand and easy to learn. For the first time, students who will start learning programming languages have great benefits when starting with a language that is easy to learn. Especially Python and Ruby programming languages are simple to learn. However, these languages have quite advanced features.

The aim of this study is to make sure that the reasons that will enable university students to turn to scripting languages in their programming language teaching curriculum. It is to explain the basic features of the Python programming language and to explain that it is easy to learn. Python programming language to explain what can be done with examples.

Keywords: Programming Language, Script Programming Languages, Python Programming Language, Ruby Programming Language

Introduction

Python is a programming language written by a Dutch programmer named Guido Van Rossum. Python started its development in 1990. While many people think that the name Python comes from the python snake, this is not the case. Python developer Guido van Rossum inspired his programming language with the name of Monty Python's Flying Circus, a British comedy group called The Monty Python. Although it is the case, the Python programming language has become a tradition.

Unlike Python language C - C ++, Interpreter is an interpretive language. Therefore, you can run without compiling and thus you can develop applications very quickly. If you know any programming language, the speed of learning Python will be very high. Using Python's simple syntax, it is much easier to write programs in Python or to read a program written by someone else than in other languages. Python can be run on many systems thanks to cross platform support. Many Linux distributions include Python 2.x or higher. Popular Linux distributions also use Python to develop various applications. (For example, Ubuntu Software Center) Python, Google, Youtube, Yahoo! used by companies to develop software. Google also provides business opportunities for people with advanced Python knowledge. Python developer Guido Van Rossum worked on Google from 2005 to 2012. Using Python, desktop programming, game programming, portable device programming, web programming and network programming can be developed. Python optimizes your application's memory usage thanks to its Garbage Collector. It is capable of working with Python, Java and .NET platforms. Python is a free language.

* A brief version of this article presented at ISTEC 2018

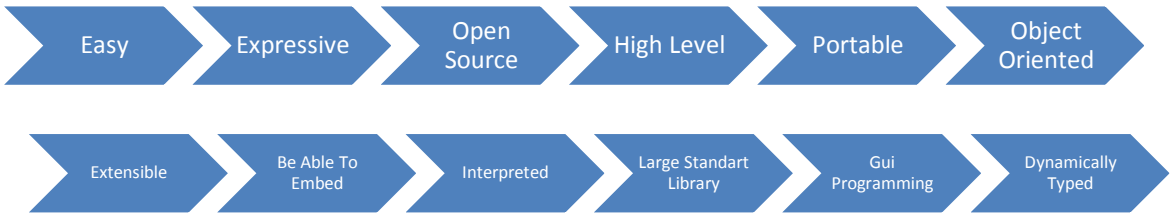

Figure 1: Python Features

1. Python Installation

The most up-to-date and current source code, binaries, documentation, news, etc., is available on the official website of Python https://www.python.org/

It can be download Python documentation from https://www.python.org/doc/. The documentation pages are available in popular document format. Python deployment is available for a wide variety of platforms. You can only download and install the distribution on your computer.

Windows Installation;

- Open https://www.python.org/downloads/ address in a web browser
- Click download windows installer link.
- Run MSI file (Your system must support Microsoft Installer). Install Wizard starts. Accept default settings.

You can check Python installation on Windows. Open command prompt and type it python –version

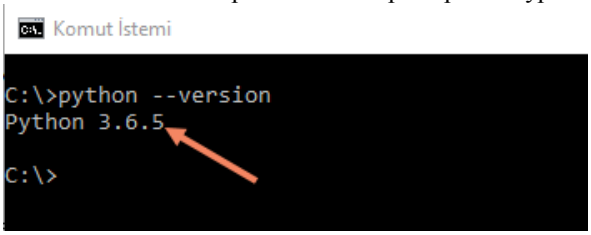

Figure 2: Learn Python version

Running Python;
In Linux/Unix
$ python
In Windows
C:\> python

```
C:\>python
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 16:07:46) [MSC v.1900 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Python is an interpreted programming language, this means that as a developer you write Python (.py) files in a text editor and then put those files into the python interpreter to be executed.
The way to run a python file is like this on the command line:
C:\> python helloapp.py
“helloapp.py” is the name of Python file.

1.1. First Python Program

You can use Integrated Development Environment such as Eclipse PyDev, PyCharm, Spyder, Thonny. We will use Eclipse on this article. You can download PyCharm in https://www.jetbrains.com/pycharm/ web address.

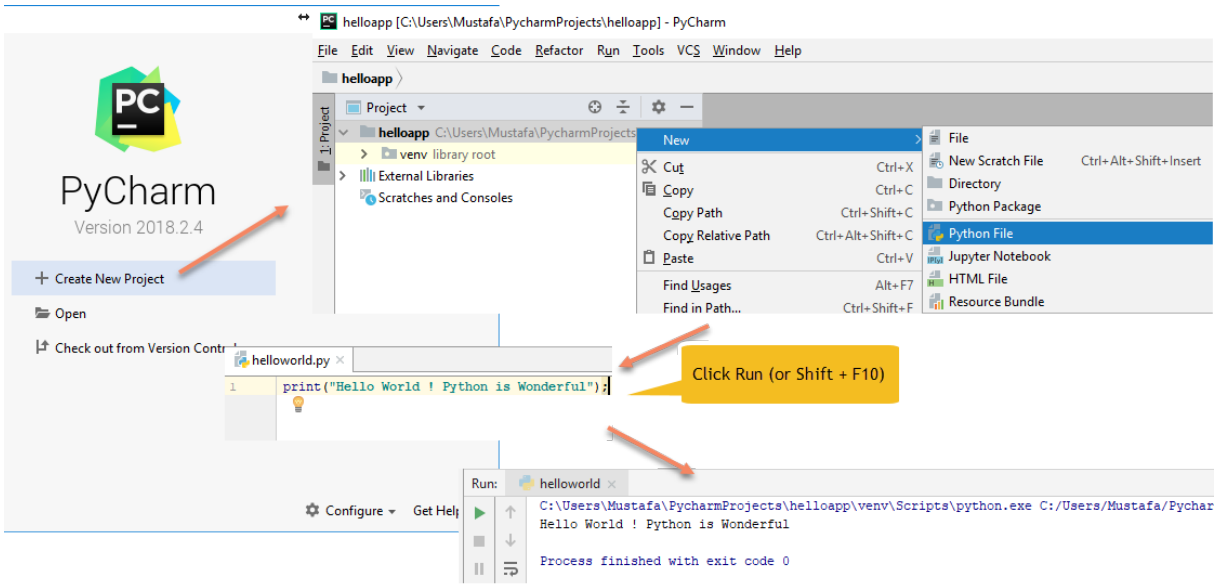

Figure 3: First Python program in PyCharm IDE

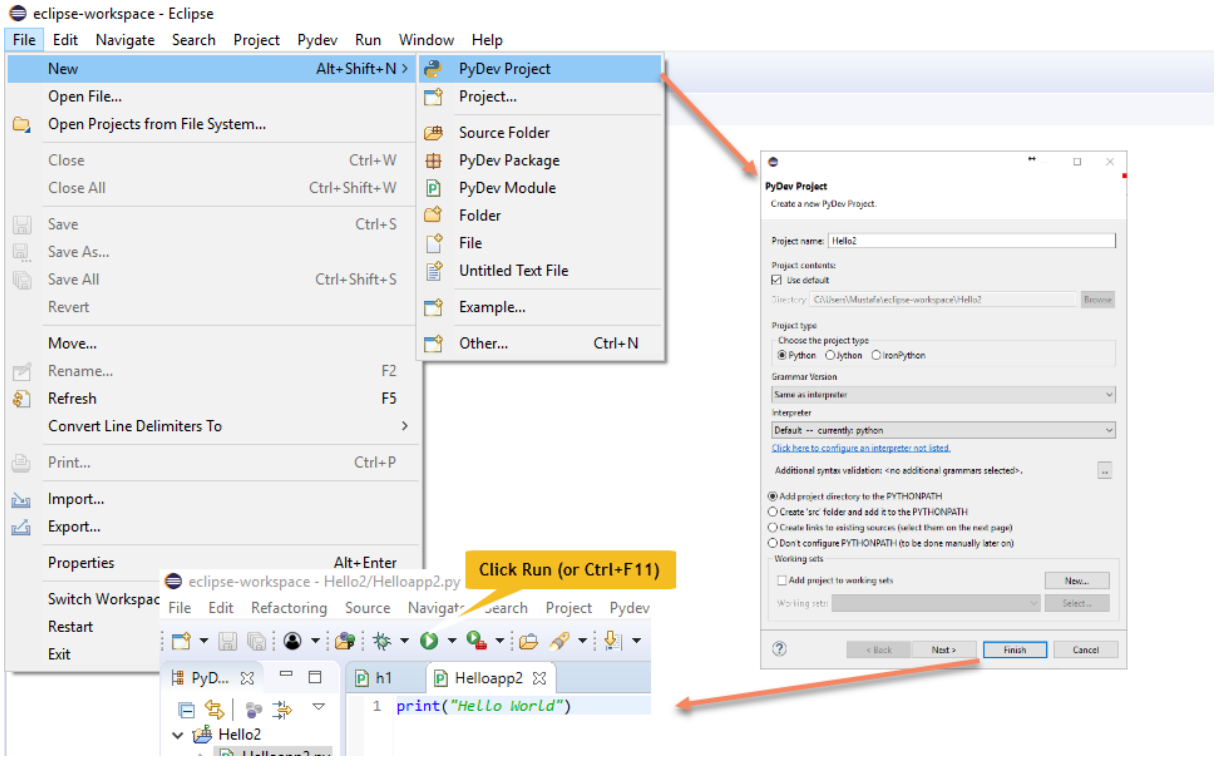

Figure 4: First Python program in Eclipse PyDev IDE

Python programs could be run with python command.
Example:
C:\>python.exe C:/Users/Mustafa/PycharmProjects/helloapp/helloworld.py
Hello World ! Python is Wonderful
*If Python command doesn't run check PATH environment variable with "path" or "set" command.

2. Python Programming Rules

As with any programming language, there are some basic rules of the Python programming language.
Syntax;
Where in other programming languages the indentation in code is for readability only, in Python the indentation is very important. Python uses indentation to indicate code block.
Example;

```
if(10 > 5):
    print("Ten is greater than five")
```

If you type an error occurs;

```
if(10 > 5):
```



```
print("Ten is greater than five")
print("Ten is greater than five");
   ^
IndentationError: expected an indented block
```

Comments;

```
# Comments
print("Hello Students")
```

You can use multi line comments with “””

```
"""
Comments Line 1
Comments Line 2
Comments Line 3
"""
```

2.1. Variables Using

Unlike some programming languages, there is no need to declare a variable. A variable is created you first assign a value to it.

```
d = 10 # d type is int
name = "Mustafa" # name type is string
print(d)
print(name)
```

Result:

10
Mustafa

You must follow these rules when determining variable names

- Variable name must start with a letter or underscore character
  Answer, _monthly_values
- Variable name can not start with a number
  Month1, Week2
- Variable name can only alpha-numeric characters and underscores (A-Z, 0-9 and _)
  Amount_products
- Variable names are case-sensitive
  section, Section, secTion (These are different variables)

```
department = "Computer"
Department = "Accounting"
departMent = "Chemistry"
print(department)
print(Department)
print(departMent)
```

Result:

Computer
Accounting
Chemistry

Python print command is used to output variable. When using multiple variables type “+” character between variables.

```
name ="Nihan"
print("Student’s name is " + name)
school = "Kocaeli University"
department = "Computer Technology"
all = school + " " + department
print(all)
```

Result:

Student’s name is Nihan
Kocaeli University Computer Technology

```
d = 10
e = 20
```



```
print( d + e )
```

Result:
30

But if you type this; it seems an error

```
d = 5
name = "Eren"
print(d + name)
```

Result;

```
    print(d + name)
TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

2.2. Numbers In Python

Python have three numeric types are;

- int
- float
- complex

Remember, there was no need to introduce variables in Python.

```
d = 5 # int
e = 10.2 # float
f = 2j # complex
print(type(d))
print(type(e))
print(type(f))
```

Result;
<class 'int'>
<class 'float'>
<class 'complex'>

int type;
You can use integer variables;

```
d = 5 # int
e = 450000666966 # int
print(type(d))
print(type(e))
```

Result:
<class 'int'>
<class 'int'>

float type;

```
d = 5.4 # float
e = 20.0 # float
f = -45.67 # float
print(type(d))
print(type(e))
print(type(f))
```

Result;
<class 'float'>
<class 'float'>
<class 'float'>


```
d = 5e3 # float
e = 10E6 # float
f = -45.6e10 # float
print(type(d))
print(type(e))
print(type(f))
```

Result;
<class 'float'>
<class 'float'>
<class 'float'>

complex type;

Complex numbers are written with a "j" as the imaginary section:

```
d = 5 + 4j # complex
e = 6j # complex
f = -10j # complex
print(type(d))
print(type(e))
print(type(f))
```

Result;
<class 'complex'>
<class 'complex'>
<class 'complex'>

2.2. Type Conversion

You may want to convert the type of a variable to another type. This can be done by the method called type conversion. Python is an object-oriented language and uses classes to define data types, including primitive types.

There are three functions to type conversion;

- int() : Convert any numeric values to integer values. (By rounding down)
- float() : Convert any numeric values to float values.
- str() : Convert any values to string values.

```
print("int conversion example")
d = int(5) # 5
e = int(3.6) # 3
f = int("5") # 5
print("float conversion example")
d = float(5) # 5.0
e = float(3.6) # 3.6
f = float("5.6") # 5.6
print("string conversion example")
d = str("a2") # 'a2'
e = str(10)  # '10'
f = str(7.5) # '7.5'
```

3. String Type Using

String literals in python are surrounded by ' ', or "" .

'Ali ' is same with this "Ali"
print("Ali")

Strings in Python are arrays of bytes representing unicode characters.

```
name = "Mustafa"
print(name) # 'Mustafa'
print(name[1]) # 'u'
```

name[1] is second character of name variable.

```
print(name[2:6]) # 'staf' from 2.position to 6.position
```

stript() method removes beginning or the end spaces

```
message = " Hello students  "
print(message.strip()) # 'Hello students'
```

len() method returns the length of string

```
message = "Hello students"
print(len(message)) # lengths is 14
```

lower() method returns the lower of string

```
message = "Hello students"
print(message.lower()) # hello students
```

upper() method returns the lower of string

```
message = "Hello students"
print(message.upper()) # HELLO STUDENTS
```

replace() method replaces a string with new string

```
message = "Hello students"
print(message.replace("H","M")) # Mello students
```

split() method splits into substrings by a separator

```
message = "Hello, students"
print(message.split(",")) # ['Hello', ' students']
```

You can input any string from command line

```
print("Enter your department")
department = input()
print("You are working in " + department)
```

Result:
Enter your department
Computer Technology
You are working in Computer Technology

4. Operators

We make various operations when working with variables. Arithmetic or logical operations. Operator symbol is a decision of this operation. In a Go program you will find operators are listed;

- Arithmetic
- Assignment
- Comparison
- Logical

- Identity
- Membership
- Bitwise

4.1. Arithmetic Operators

Python arithmetic operators are listed below

Operator Name	*Description*	*Using*
+	Addition	d + e
-	Subtraction	d - e
*	Multiplication	d * e
/	Division	d / e
%	Modulus	d % e
**	Exponentiation	d ** e
//	Floor division	d // e

```
d = 100
e = 10
f = d + e
print("Sum :" + str(f) )
f = d - e
print("Subtract :" + str(f) )
f = d * e
print("Multiply :" + str(f) )
f = d / e
print("Divide :" + str(f) )
f = d % e
print("Modulus :" + str(f) )
f = d ** e
print("Exponantiation :" + str(f) )
f = d // e
print("Floor Division :" + str(f) )
```

Result:

Sum :110
Subtract :90
Multiply :1000
Divide :10.0
Modulus :0
Exponantiation :100000000000000000000
Floor Division :10

4.2. Assignment Operators

Python assignment operators are listed below

Operator	**Using**	**Same**
=	d = 5	d = 5
+=	d += 3	d = d + 3
-=	d -= 3	d = d - 3
*=	d *= 3	d = d * 3
/=	d /= 3	d = d / 3
%=	d %= 3	d = d % 3
//=	d //= 3	d = d // 3
**=	d **= 3	d = d ** 3
&=	d &= 3	d = d & 3
|=	d |= 3	d = d | 3
^=	d ^= 3	d = d ^ 3

>>=	d >>= 3	d = d >> 3
<<=	d <<= 3	d = d << 3

```
d = 10
e = 20
d += 1
e += 1
print("Value:" + str(d) )
print("Value:" + str(e) )
d -= 1
e -= 1
print("Value:" + str(d) )
print("Value:" + str(e) )
d *= 2
e *= 2
print("Value:" + str(d) )
print("Value:" + str(e) )
d /= 2
e /= 2
print("Value:" + str(d) )
print("Value:" + str(e) )
```

Result:
Value:11
Value:21
Value:10
Value:20
Value:20
Value:40
Value:10.0
Value:20.0

4.2. Comparison Operators

Python comparison operators are used to compare two variables or values

Operator	Description	Using
==	Equal	d == e
!=	Not equal	d != e
>	Greater than	d > e
<	Less than	d < e
>=	Greater than or equal to	d >= e
<=	Less than or equal to	d <= e

```
d = 10
e = 20
print(d == e)
print(d != e)
print(d < e)
print(d > e)
print(d <= e)
print(d >= e)
```

Result:
False
True
True
False
True

False

4.2. Logical Operators

These operators combine more conditional statements.

Operator	Description	Using
and	True if both statements are true	d < 10 and d <20
or	True if one of the statements is true	d < 1 or d < 2
not	False if the result is true	not(d < 10 and d < 20)

```
d = 10
if(d>=10 and d<=20):
    print("Value is between 10 - 20")
e = 5
if(e>10 or e<20):
    print("Value greater than 10 or less than 20 ")
d = -5
if(not(d>=10 and d<=20)):
    print("Value is not between 10 - 20")
```

Result:
Value is between 10 - 20
Value greater than 10 or less than 20
Value is not between 10 – 20

4.2. Identity Operators

Identity operators are used to compare the objects, not if they are equal, but if they are actually the same object, with the same memory location

Operator	Description	Using
is	True if both variables are the same object	d is e
is not	True if both variables are not the same object	d is not e

```
d = ["car", "bike"]
e = ["car", "bike"]
f = d
print(d is f)
print(d is e)
print(d is not e)
```

Result:
True
False
True

4.2. Membership Operators

These operators are used to test if a sequence is presented in an object.

Operator	Description	Using
in	True if a sequence with the specified value is present in the object	d in e
Not in	True if a sequence with the specified value is not present in the object	d not in e


```
d = ["car", "bike"]
e = ["car", "bike"]
print("car" in d)
if("bike" in d):
    print("Your vehicle is bike")
```

Result:
True
Your vehicle is bike

4.2. Bitwise Operators

Operator	Logical Mean	Description
&	AND	Perform And operation in bit level
|	OR	Perform Or operation in bit level
^	XOR	Perform Xor (Exclusive Or. 1 Xor 1 : 0) operation in bit level
~	NOT	Reverse all the bits. 1 → 0 , 0 →1
<<	Left shift	Shift left by pushing zeros
>>	Right shift	Shift right

```
d = 5
e = 6
f = d & e # Bitwise and operation
print(f) # Decimal 4
f = d | e # Bitwise or operation
print(f) # Decimal 7
f = d ^ e # Bitwise Xor operation
print(f) # Decimal 3
f = d << 2 # d shift left 2 bit
print(f)
f = d >> 2 # d shift right 2 bit
print(f) # Decimal 1
```

Result:
4
7
3
20
1

5. Python Lists

There are four collection data types in the Python programming language. These are similar arrays.

- List is a collection which is ordered and changeable. Allows duplicate members.
- Tuple is a collection which is ordered and unchangeable. Allows duplicate members.
- Set is a collection which is unordered and unindexed. No duplicate members.
- Dictionary is a collection which is unordered, changeable and indexed. No duplicate members.

List;
Lists are used with “[ ]” characters

```
cars = ["Bmw", "Mercedes", "Toyota"]
print(cars) # ['Bmw', 'Mercedes', 'Toyota']
```


Access values
```
print(cars[1]) # 'Mercedes'
```

Change values
```
cars[1] = "Audi"
print(cars) # ['Bmw', 'Audi', 'Toyota']
```

Loop in List
```
cars = ["Bmw", "Mercedes", "Toyota"]
print(cars) # ['Bmw', 'Mercedes', 'Toyota']
for i in cars:
    print(i)
```

Result:
['Bmw', 'Mercedes', 'Toyota']
Bmw
Mercedes
Toyota

Learn list length
```
print(len(cars)) # 3
```
Add new item
```
cars = ["Bmw", "Mercedes", "Toyota"]
cars.append("Honda")
cars.append("Fiat")
for i in cars:
    print(i)
```

Result:
Bmw
Mercedes
Toyota
Honda
Fiat

```
cars.insert(2,"Seat") # ;Insert 2. position
```

Remove list item
```
cars = ["Bmw", "Mercedes", "Toyota"]
cars.append("Honda")
cars.append("Fiat")
cars.remove("Toyota")
for i in cars:
    print(i)
```

Result:
Bmw
Mercedes
Honda
Fiat

pop() method, remove the specified index. If index not gived, remove last object.
```
cars.pop()
```

del() keyword, removes given index
```
del cars[0]
```

Python Dictionary;

A dictionary is a collection which is unordered, changeable and indexed. In Python dictionaries are written with curly brackets, and they have keys and values.

```
person = {
    "name":"Mustafa OF",
    "department":"Computer Technology",
    "age":47
    }
```

If you print command
{'name': 'Mustafa OF', 'department': 'Computer Technology', 'age': 47}

Access item
```
name = person["name"] # “Mustafa OF”
```

Change item values
```
person["name"] = "Nihan Cemre"
```

Loop items
```
person = {
    "name":"Mustafa OF",
    "department":"Computer Technology",
    "age":47
    }
for i in person:
    print(i)
for i in person:
    print(person[i])

for i in person.values():
    print(i)

for i,j in person.items():
    print(i,j)
```

Result:
name
department
age
Mustafa OF
Computer Technology
47
Mustafa OF
Computer Technology
47
name Mustafa OF
department Computer Technology
age 47

Add new item
```
person["lesson"] = "Python"
```

Remove item
```
del person["lesson"]
```

popitem() method, remove last inserted item.
```
person.popitem()
```


6. Decision Keywords

if keyword;
You can use the if keyword for decision making. You can route the program's stream with the if word. If keyword use the condition statements.

Usage

if (contition): Command

if (contition):
Command or Commands

```
d = 100
e = 50
if(d > e ):
    print("d is greater than e")
```

if d is greater than e, write “d is greater than e” .

Python relies on indentation, using whitespace, to define scope in the code. Other programming languages often use {} for this goal.

elif keyword;

The elif keyword says "if the previous conditions were not true, then try this condition".

```
d = 50
e = 50
if(d > e):
    print("d is greater than e")
elif d == e:
    print("d and e are equal")
```

Result:
d and e are equal

else keyword;
This keyword run if any condition is not true.

```
d = 3
if(d == 1):
    print("d is One")
elif d == 2:
    print("d is Two")
elif d == 3:
    print("d is Three")
else:
    print("d is unknown")
```

Result:
d is Three

if d = 5 then print “d is unknown”

Conclusions

Developing a program is not as difficult as it is thought. Anyone with an analysis ability and who is in the world of computing can develop an application. Developing a software and running it is a really good feeling. Starting

with high-level programming languages is much more reasonable. Using a good development environment (IDE), an application can be said to be a simple operation. In today's world the need for programmers is increasing day by day. Programming has become a profession with high income and can be used in all areas. Consideration should be given to the advanced features of the Python programming language, such as the easy structure and fast operation. Python is a language that can be used in various fields and is easy to learn. It is a language with a library according to the desired needs. Programming can be started with Python. Especially high school and higher level students must meet Python. According to research, students have shown more interest in simple programming languages. Python stands out with ease here.

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RESEARCHER IN CHEMISTRY: LİBERTY AND ETHICAL WAY*

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Abstract. Chemistry is probably one of the best sciences to feature in a series on the history of ideas. Maybe, most philosophers of science have taken physics as their favorite or the other sciences as by astronomy, engineering and mathematics. Chemistry has a kind of poor relation of physics but many secret models still waiting for good mathematical models cannot yet be applied fully to give us good formulas to make life richer and more colorful.
The scientific products of synthetic chemistry present us new materials that change our physical world for the use of active. In this paper, we give some analysis of ethical matters coming from chemical synthesis by help of the researches conducted on the subject, based on concepts of accountability of human to world. We focused on the chemical arms research, ethical oppositions against educating material settings of life by chemical income, and choice of research (Schummer, 2001). It is aimed at if a basis for ethical decisions of chemistry and a basic approach for chemists to echo on the ethical ways of their studies.
Keywords: ethics, synthetic chemistry, accountability, ethical matters

Introduction

Some chemist suggest that chemistry is probably the best science to study in the context of professional and scientific ethics (Schummer, 2001: Durak at all, 2015; Bunnett, 1999; Kovac, 2000; Holton, 1994). They stressed that chemistry has created the most to define itself as a living in the similar sense that medication and engineering are professions. Chemistry has a rich environment arising from the work of scientific. As a special way, chemists should be close to experiment in a laboratory or in an open area. A famous word says that "chemists must think with their pointers" much more than most other experts that use paper and pencil studies. Also, much of chemists work in a diversity of frameworks and naturally are met with some ethical problems. Because of that the chemical world is get into the fabric of culture and to complex matters regarding the connection of scientific area and culture (Matthews, 2003; Kovac, 2000).
Gordon at all. (2001) presented a philosophy of chemistry as a profession and to explore the relationship between professionalism and ethics. They characterized as a contribution to engineering ethics and the philosophy of a profession (Schummer, 2001). According to Matthews (2003), "The Ethical Chemist" has the meaning that a collection of cases and explanations for the education of science ethics to chemistry researcher. Also, this team tried to present the parts of scientific ethics that go outside the expectations of regular ethicality and the necessities of rule. In this phrase, we can ask that what are the ethical standards of scientists? For this question, Kovac (2004) proposed a professional approach that "to understand the ethics of scientists we must understand science as a profession". As a scientist, we know that science is not a unique and unified subject; each scientific (sub)discipline has its own history and culture.
By the nature of its scientific context, chemistry go on the screen spot of philosophers in ethical. Also, philosophers are aware of ethical matters related to the subject, such as chemical arms, ecological pollution and chemical chances. But, it can be said that philosophers seem to be powerless to relate these critical matters to chemistry (Schummer, 2001). And, they focus the subject with the perspective of critical point such as warfare ethics, ecological ethics and medical ethics. It is vital to take chemistry seriously from an ethical point of view and to fill the large gap came from the technological world (Schummer, 2001; Bunnett, 1999).

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The Accountability

The concept of accountability is given a different perspective by Schummer, (2001) that "If *x* is accountable for *y* to *z*, we might extricate between different kinds of accountability affording to different examples of *x*, *y*, and *z*. regularly *x*, the question or manager of accountability, is a different person of sound mind." He explained this argument as, people hold corporations, accountable for something depending on the communal construction of the corporation if all memberships share the similar accountability. Than he stressed that a chemist can be accountable as an individual accountability and an associate of the chemical organization, a chemical culture, or a company as corporate accountability.

According to the transitive consequences of Schummer, (2001); *x*'s travels are the *y* for which *x* is held *achievement accountability*. For these activities it is essential that *x* can operate then that *x* has a free special between options and that the choice is founded on *x*'s favorites. In this step, accountability construct a fundamental credit of the *y* to an agent *x*. There is an alteration between past significances and coming significances, whereas future consequences are necessarily over to indeterminate forecasts of possible moments of some actions. Because of the criminal law is limited to surveying accountability, future accountability is a special arena of ethicality and the matter of ethical requests. When the possibility of well-organizing is enough condition that something can be matter to care accountability, it may be included more subject as social structures. The *z* in our expression '*x* is accountable for *y* to *z*' is the university to which chemist are made thankful to justify his actions related to *y* in a ethical environment.

In the cases of culture accountability, problems do not come quickly because orientating the standards of the ethical discourse of the corresponding organization is usually part of a simple rules of combination that everyone must sign to become a part of this organization (Schummer, 2001; Coppola and Smith, 1996). Now, we can turn to the famous question: should everyone take universal accountability to humanity in this organization? In this point Schummer, (2001) stressed that "we have not any contract or definite standards of an ethical discourse, but we have many different universal ethical systems. Hence, we go to the most important and difficult question that if everyone must to accept any universal ethical system.

The answer of Schummer, (2001) is that "all universal ethical system of obligations, contains the universal right that everyone must to receive universal ethics, because their responsibilities are talked to everyone and not only to members of specific groups, publics, or humanities". This mean that demanding universal accountability is a universal claim of all universal ethical systems of rules. Adaptation of this approach the Kovac's module is that "if *x* denied universal accountability, there is of course no way to convince *x* complete universal ethical influences, because x so discards any universal ethical dissertation whatsoever". So, cancelling universal accountability is a negative position that cannot be defensible by universal ethical influences.

Moreover, Schummer (2001) stayed that "we have the strongest kind of ethical defense likely in the kingdom of morals, since holding everyone accountable to people is a defensible right in every universal ethical system". We can understand from above words holding chemists, accountable to humanity for the consequences of their movements is justified. Also, Gordon picked up only one sort of chemical movements, the synthesis of new materials, and analyze possible ethical matters from the point of view of universal ethicality. He stressed that before this step, the thought of a universal ethical system wants extra explanation.

A universal ethical system outlines the morals, the standards, averages, duties, and rubrics of a universal ethical discourse that somebody takes by taking accountability to people (Schummer, 2001; Kovac, 2004). Schummer stayed that the morals must be supposedly advanced done in the field of ethical model, since there is not real ethical discourse among all members of humanity. Rossi at all. (2008) formulated that there is much argument between ethical scholars about facts resultant in different universal ethical systems. They stressed there are about universal settings that every ethical system must chance to be careful a universal ethical system; this research team present three situations as important the base of universal ethical systems for managerial actions.

- The important cost is the happiness of people, the *z* in our idea of universal accountability
- The ethical standards and duties must be connected to the chief cost
- The ethical norms and obligations must be similarly talked to everyone

Rossi and his friends stressed that these trifling necessities are needed to eliminate interests for ethical duties of universal ethicality and to promise universal accountability of everyone. Also, there is alternatives for allowance to cover all main methods of moral theory.

Liberty for Research

Scientists occasionally state to 'liberty of research' as a certificate to do what they want (Clark and Macquarrie, 2002). They stayed that taking liberty of research as a 'complex' cost, researchers castoff any claims of humanities

to the switch of their investigation. if it is correct that liberty of study is a 'complex' cost than goods of humanities, then it must have its defense on the universal ethical level. Schummer (2001) explained this situation that experts mentioning to liberty of research as a 'complex' price accept universal ethicality as acceptable morals of controlling methodical research. In this situation, it is clear to say that the topic 'liberty of research' allows short the ethical matters of the research study. Later, they focused on the liberty of research in copied chemistry is ethically right only on the parks and to the extent of liberty of ethical awareness.

In his philosophical study, Schummer, (2001) ask that "is liberty of research is an unreal?" and "Does universal ethicality require useful research to be ethically regulated even in the minimum detail?". According to his approach, liberty of research ought to be given as an independent principle that keeps scientists free for ethical value. If that should be an ethical argument, then liberty of research cannot be accepted as a ethically independent opinion. In this context, one could make some points saying that much restricted system is unsuccessful and that scientific creativity requires some liberty to develop. Schummer pointed out that does not allow experts to disturb important ethical standards during their researches.

A widely known idea about the subject denoted from Schummer (2001) that "compliant liberty of research as a complex value than those of particular groups, publics, and humanities means accepting it as a charge of humanity". For the academic world, this idea has a very clear meaning that scientists believing the value as the guidelines of the research, naturally takes universal accountability to humanity for the judgement of the research. The fusion of new materials as an end cannot be checked on the base of universal ethical system without special contributions to information of universal environment (Schummer, 2001; Holdon, 1994). He argued that the research based on his model dosn't be justified by referring to liberty of research. Also, theese synthetic research based on producing materials which is unfavorable for humanity, for example chemical arms research or productions turn out with ecological pollution, are to be judged ethically wrong.

The universal limit of liberty of research can be determined by the limit of objection in the universal ethical systems, which is have the similar meaning to the choice of liberty of ethical perception (Rossi, 2008). So, we need a ethical defense of liberty of ethical consciousness to justify liberty of research. This justification should have the limit containing the characters of universal ethical systems. Universal ethical systems contain a prerequisite universal accountability of everyone (Schummer, 2001; Clark, 2002). He stayed that the meaning of "contain" of the above argument is only if everyone has universal accountability and feels thankful to a universal ethical treatise ruled by the ethical principles and the researcher is willing to accept it.

Result

Chemistry is a science and also, an employment. In this study, we tried to give a new perspective inspired by historical approaches that looking at chemistry as a profession, at least in the context of clarifying the ethics of science. As Kovac stressed that chemistry has played many important end effective roles from yesterday to today. Many scientific environments are talking that it is time for chemistry to play another efficient role, as the "paradigm" for scientific professions.

In synthetic chemistry, all harm to nonhuman living made by ecological pollution of new materials is ethically related. Making a choice between particular ethical systems is only a modification and not a solution, since universal liberty of research is based on liberty of ethical excellent. Finally, chemists should reflect their ethical options above and beyond the common basis of universal ethicality.

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SOME ANALYSE ON THE ZERO DIVISOR GRAPH OF A SPECİAL RING: CENTER, MEDIAN AND CORE*

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Abstract. In ring theory, a main part of abstract algebra, a (special) commutative ring that the basic operation with multiple function is commutative. The main area of this abstract mathematic of commutative rings is presented commutative algebra. A nonzero element z in a commutative ring is defined as zero divisor element if it has a nonzero element x with zx = 0 and xz =0. Let Γ(R) be the zero-divisor graph for a commutative ring with identity. In this study, we focused and presented the center and the core of a commutative ring. Also, we noted the connection of this element that the center and the zero-divisor graph in a such a ring.
Keywords: commutative ring, center of a graph, median of a graph, core of a graph

Introduction

The conceptual definition of the zero devisor in a Ring is given as a nonzero element z in a ring is called zero divisor that it has a special element x such that zx = 0 and xz =0. Beck (1988) defined the zero-divisor graph of a commutative ring R coloring a graph of a clear set R, and two vertices are adjacent if their product is zero. Later, Anderson and Livingston (1999) modified the vertex set to $Z^*(R)$, the set of nonzero zero divisors of R, this graph is identicated by Γ(R) (Redmond, S.P. 2006; Nazzal, K 2012).

Γ(R) and some types of graphs associated with rings, have been analysed by many authors (Anderson at all., 2011and Abu Osba, 2012). Abu Osba et al. (2011) presented the zero-divisor graph for the ring of Gaussian integers modulo n, in which the number of vertices, the diameter, and the girth are determined. Finally, Nazzal and Ghanem (2012) presented the line graph of $\Gamma(Z_n[i])$ and $\Gamma(Z_n[i])$.

The set of Gaussian integers, denoted by, Z[i], is given by

$$Z[i] = \{a + bi: a,b \in Z \text{ and } i= \sqrt{-1}\}.$$

It is obvious that Z[i] is a ring with the very familiar operation that complex operations. A Gaussian prime integer is a unit multiple as that one of them is 1+i, or a prime integer q in Z which is congruent to 3 (mod 4), or a+bi, a−bi, where $a^2+b^2 = p$ and p is a prime integer in Z which is congruent to 1 (mod 4). In the study, p and p_j with the mean prime integers which are congruent to 1 (mod 4), that the index are define prime integers congruent and modulo relation three and four, respectively (Nazzal and Ghanem, 2012).

Let <n> be the principal ideal created by n in Z[i], which n is a positive integer number greater than 1, and let $Z_n = \{0,1,2,3,4, \ldots ,n-1\}$ be the ring of integers modulo n. This factor ring Z[i]/<n> is congruent to to $Z_n[i] = \{a +bi: a,b \in Z_n\}$. Clearly, $Z_n[i]$ with addition and multiplication modulo n is a ring. That special ring is given by the ring of Gaussian integers with n modul. The zero-divisor graph of a commutative ring R, defined by Γ(R), is the graph which vertex set is the set of the nonzero zero divisors of R, denoted by $Z^*(R)$, and the element group (Redmond, S.P. 2006; Nazzal, K 2012).

$$E(\Gamma(R)) = \{xy: x,y \in Z^*(R) \text{ and } xy = 0\}$$ (Redmond, S.P. 2006; Nazzal, K 2012).

The interval area d (u,v) between two element x and y is the lowest of the interval of x−y of G with the graph of the group. The relation of a vertex v in the group is the maximum interval for x to any vertex in this gorup. The radius of G, rad (G), is the minimum level in the vertices of the group (Osba et al., 2011). The set $N(x) = \{y: xy \in E(G)\}$ is the open neighborhood of a vertex x in Group, while the closed element of a vertex x in G is the set $N[x] = N(x) \cup \{x\}$. The minimum degree of Group denoted by δ(G) is defined by $\min\{deg(x): x \in V(G)\}$ (Redmond, S.P. 2006; Nazzal, K 2012) .

In the article, it is given a full sembolization for the center, the median, and the core of $\Gamma(Z_n[i])$ (Osba et al., 2011).

The Center of $\Gamma(Z_n[i])$

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The center of group is defined as the set of all vertices of group with minimum eccentricity. For any vertex x of a related graph of the group, the position of x, given by s(x), is the sum of the interval from the element x to the element of the group. The all special set of vertices with lowest level is named the median of the graph (Redmond, S.P. 2006; Nazzal, K 2012). The center of $\Gamma(Z_n[i])$ which n is a power of an element with prime is studied (Nazzal and Ghanem, 2012) where it was shown that the center of $\Gamma(Z_2m[i])$ consists of one vertex, namely $\{(1+i)2^{m-1}\}$ and the center of $\Gamma(Z_qm[i])$ is the following set

$$\{aq^{m-1}+bq^{m-1}i: a,b \in U(Z_q)\}-\{0\}.$$

Also, we add that $Z_pm[i] \cong Z_pm \times Z_pm$, the center of $\Gamma(Z_pm \times Z_pm)$ is the set $\{(x,y): x,y \in Z(Z_pm)\}-\{(0,0)\}$. We will give the "center" for the general case. Let be that the element m and n natural number. Let $R = R_1 \times R_2 \times \cdots \times R_n \times F_1 \times F_2 \times \cdots \times F_m$, that every R_j is a commutative Artinian local ring with unity which is not a field and every F_j is a field. For each j = 1,2,... ,m, define the ideal $I_j = \{0\}\times\{0\}\times\cdots\times F_j \times\{0\}\times\cdots\times\{0\}$. So, the center of $\Gamma(R)$ is the following set

$$C = J(R) \cup (\bigcup_{j=1}^{m} I_j) - \{(0,0,\ldots,0)\}, \text{ where } J(R)$$

is the Jacobson radical of R (Redmond, 2006).

If M_j is the maximal ideal of R_j, then $J(R) = M_1 \times M_2 \times \cdots \times M_n \times \{0\} \times \{0\}\times\cdots\times\{0\}$. Now, let us study the maximal ideals of the elements in the *Artinian decomposition* of $Z_n[i]$ where

$$n = 2^m \prod_{j=1}^{r} p_j^{r_j} \prod_{j=1}^{s} q_j^{s_j} \prod_{j=1}^{t} q_j$$

with $s_j \geq 2$ (Osba et al., 2011). The maximal ideal in $Z_2m[i]$ is $<1 + i>$. For $Z_qm[i]$, the maximal ideal is $<q>$, while $Z_pm[i] \cong Z_pm \times Z_pm$ and the maximal ideal in Z_pm is $<p>$. Thus each $p_j^{r_j}$ in the decomposition of n gives rise to two factors in the Artinian decomposition of $Z_n[i]$. If the Artinian decomposition of $Z_n[i] = R_1 \times R_2 \times\cdots \times R_l \times F_1 \times F_2 \times\cdots \times F_t$, then $R_1 = Z_2m[i]$ if n is even. Otherwise, R_j is either of the form $Z_qm[i]$ or Z_pm and $F_j = Z_q[i]$ for some q. If l is the number of local rings in the Artinian decomposition of $Z_n[i]$, then $J(R) = \{(z_1,z_2,...,z_l,0,0,... ,0) : z_j \in Z(R_j)\}$. The following theorem is reached (Osba et al., 2011).

Theorem 1.1. If the Artinian decomposition of $Z_n[i] = R_1 \times R_2 \times \cdots \times R_l \times F_1 \times F_2 \times \cdots \times F_t$, where n is divisible by at least two distinct primes, then the center of $\Gamma(Z_n[i])$ is given by

$$C = \{(z_1,z_2,...,z_l,0, ... ,0): z_j \in Z(R_j)\}$$

$$\cup(\bigcup_{j=1}^{t} I_j) - \{(0,0,\ldots,0)\}, \text{ where } I_j = \{0\}\times\{0\}\times\cdots\times Zq_j[i]\times\{0\}\times\cdots\times\{0\}.$$

If $n = p$ or $n = q_1q_2$, then $\Gamma(Z_n[i])$ is complete bipartite and ecc(v) = 2 for each vertex in $\Gamma(Z_n[i])$. Hence, the center of $\Gamma(Z_n[i])$ is V ($\Gamma(Z_n[i])$); i.e., in this condition, V ($\Gamma(Z_n[i])$) is self-centered.

The eccentricity of each vertex in $\Gamma(Z_n[i])$, where n is a power of a prime, is determined by Nazzal and Ghanem (2012). If $n \neq q_1q_2$, and n is divisible by at least two distinct primes, so, diam($\Gamma(Z_n[i])$) = 3, this together with the above theorem give the eccentricity of each vertex in $\Gamma(Z_n[i])$ when n is divisible by at least two distinct primes.

Corollary 1.2**.** If n is divisible by at minimum two different prime numbers, $n \neq q_1q_2$ and $v \in V(\Gamma(Z_n[i]))$, then

$$ecc(v) = 2, \text{ if } v \in C, \quad \text{otherwise } ecc(v) = 3,$$

where C is the center of $\Gamma(Z_n[i])$ (Osba et al. (2011).

The cardinality of the center of $\Gamma(Z_n[i])$, when n is divisible by two different primes, could easily be computed using appropriate formulas for the cardinality of each $Z(R_j)$ (Abu Ash at all., 2008).

Corollary 1.3**.** The cardinality of the center of $\Gamma(Z_n[i])$ is

(1) 1, if $n = 2^m$,

(2) $q^2 - 1$, if $n = q^m$,

(3) $p^{2m-2} + 2p^{m-1} - 2p^{m-1} - 1$, *if* $n = p^m$, $m \geq 2$.

(4) $(\prod_{j=1}^{l} |Z(R_j)|)+(\prod_{j=1}^{t} q_j)-1$, *if* $\mathbb{Z}_n[i] = R_1\times R_2\times\cdots\times R_l\times F_1\times F_2\times\cdots\times F_t$,

where n is divisible by two distinct primes. (Osba et al. (2011).

The correlation between the center and the "median" of $\Gamma(R)$ is investigated by Redmond (2006), who proved the rule by "if R is a fine commutative R with unity that is not an integral domain, where the center and the median of sigma (the ring) then the median and the center of $\Gamma(R)$ are equivalent if the radius of $\Gamma(R)$ is, maximum, 1 with addition of this set the median of the ring is a subset of the center if the radius is 2 in this ring $\Gamma(R)$" (Redmond, S.P. 2006; Nazzal, K 2012).

Median of $\Gamma(Z_n[i])$

Theorem 1.4**.**

(i) The median of $\Gamma(Z_2m[i])$ is $\{(1 + i)2^{m-1}\}$ and the median of $\Gamma(Z_qm[i])$ is $\{\alpha q^{m-1} + \beta q^{m-1}i : \alpha,\beta \in U(Z_q)\} - \{0\}, m \geq 2$.

(ii) The median of $\Gamma(Z_p[i])$ is $Z^*(Z_p[i])$.

(iii) if $n = q_1q_2 ...q_t, t \geq 2$ and $q_1 < q_2 < \cdots < q_t$, then the median of $\Gamma(Z_n[i])$ is the set $\{(u,0,0,... ,0): u \in U(Z_{q1}[i])\}$.

(iv) Let $Z_n[i] = R_1 \times R_2 \times \cdots \times R_l \times F_1 \times F_2 \times \cdots \times F_t$, $l \geq 1$, be the Artinian decomposition of $|Z_n[i]$.

Let $S = \{s: 1 < s < l, |Z^*(R_s)| \Pi_{j\neq k} |R_j| = \max\{ |Z^*(R_k)| \Pi_{j\neq k} |R_j|: 1 \leq j, k \leq l\}\}$.

If $Z_n[i]$ is not local, then the median of $\Gamma(Z_n[i])$ is given by

$$\{y : y = (y_j)_{j=1}^{l+t} \text{ where if } j \in S, \text{ then } yj = uz, u \in U(Rj) \text{ and, } ann(z) = Z(Rj), \text{ otherwise, } yj = 0\}.$$

Proof.

(i) If the ring is local, then $\Gamma(R)$ has a vertex or set of vertices each of which is adjacent to all other vertices (Redmond, 2006). Thus, in this case, the median is equal to the center. So, the median of $\Gamma(Z_2m[i])$ is $\{(1+i)2^{m-1}\}$, and the median of $\Gamma(Z_qm[i])$ is $\{\alpha q^{m-1} + \beta q^{m-1} i: \alpha, \beta \in U(Zq)\} - \{(0)\}$, $m \geq 2$ $\Gamma(R)$ (Nazzal and Ghanem, 2012).

(ii) If $Z_n[i]$ is not local, then from (Abu at all., 2011) the radius of $\Gamma(Z_n[i])$ is 2. We remember the relation that if x is in the center of $\Gamma(Z_n[i])$, then the eccentricity of x is 2. So, $s(x) = \deg(x) + 2(|Z^*(R)| - \deg(x) - 1)$, thus $s(x) = 2|Z^*(R)| - \deg(x) - 2$. Therefore, vertices in the median of $\Gamma(Z_n[i])$ are precisely those vertices of the center of maximum degree in $\Gamma(Z_n[i])$. Since $\Gamma(Z_p[i])$ is regular graph then the median of $\Gamma(Z_p[i]))$ is $Z^*(Z_p[i])$ $\Gamma(R)$ (Nazzal and Ghanem, 2012).

(iii) The proof comes by the argument in the proof of (ii) and the fact that vertices of maximum degree are vertices in the given set.

(iv) Since R_j is local, it contains an element z, such that $ann(z) = Z(R_i)$. Using the argument to the proof of (ii) and then we will present the vertices of maximum degree in $\Gamma(Zn[i])$ at the next step.

The Core of $\Gamma(Z_n[i])$

In his article, Abu Osba (2012) and Nazzal, K (2012) noted the chromatic number that "the chromatic number of a graph group, $\chi(G)$, is the least number k such that G can be colored using k different colors with no two adjacent vertices having the same color". Also, he added the definition of the clique number as "the clique, $\omega(G)$ in the group, of a graph group is the maximum power in the subgraphs of the group". it is a clear result from the definitions of graph, core and homeomorphism that "a graph G is a core if any homomorphism from G to G is an automorphism". Finally, he presented in his article definition of a core of a group that a subgraph H of G is called a core of G if H is a core itself, and so, there is a homomorphism from G to H (Abu Osba, 2012).

If R is a ring such that its chromatic number and clique number coincide, i.e., $\chi(\Gamma(R)) = \omega(\Gamma(R))$. So, the core of Γ(ring) is the maximal clique in Γ(ring), (Cordova at all. 2005). Moreover, $\chi(\Gamma(Z_n[i]))$, and $\omega(\Gamma(Z_n[i]))$, when n is a power of a prime are calculated (Abu Osba at all., 2011). Furthermore, the maximal clique, at the time that n is a power of a prime, is determined (Nazzal and Ghanem, 2012) comparing the results in the two papers, it is concluded that, $\chi(\Gamma(Z_n[i]))$, and $\omega(\Gamma(Z_n[i]))$ are equal.

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SUSTAINABLE CHEMICAL PROCESS INDUSTRIES: PROCESS-INTENSIFYING METHODS*

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Abstract. The harmonizing communal, environmental and financial purposes in firms' growth have produced a rising consciousness on the maintainable strategy. Many investigation studies had been dedicated to extending existing methods to arrest the purposes to provide continuity. Catalogue administration, creation plan, controller for producing, creation repossession, and contrary logistics have focused more attention in the literature.
A great amount of manufacturing works, last progresses from the chemical industry and experimental research studies are presented. As a production, many of them contain to chemistry, innovative procedure plan and new apparatus. In this study we focus to bridge any existing gap between academic world and engineering encounters required to confirm chemistry investigation accessible a additional maintainable upcoming chemical industry.
Key words: chemical engineering, chemical process industries, equipment

Introduction

By the consequence of the rising environmental agreement budgets and conservational principles, significant consideration on manufacturing processes has been made on diminishing the environmental impression of procedure plan and expansion (Nikolopoulou & Lerapetirou, 2012; Bisschops at all., 1997).
Siirola (1998) stayed that the efficient way of corresponding communal, environmental and commercial purposes in corporations' maintainable expansion has produced a rising consciousness on maintainable plan and scheduling of source sequences. He also expressed that the research studies have been created an extending current approach to arrest a wider series of commercial performs. The grouping of environmental administration and supply chain management in a unique context has lately directed to a new department (Nikolopoulou & Lerapetirou, 2012).
Static mixers are relatively high sensitivity to clogging by solids (Stankiewichz & Moulijin, 2000; Stringaro at all., 1998). Stankiewichz and Moulijin (2000) stayed that the effectiveness for feedbacks including slurry catalysts is restricted. Planned filling has effective static- mixing possessions. One version is open-crossflow-structure catalysts that are applied in a lots of gas-phase exothermic oxidation.

Monolithic catalysts

The main material of the monolithic substrates using for catalytic submissions are (non)metallic forms creating a traditional narrow canal of organised cross-sectional profiles (Stankiewichz & Moulijin, 2000; Adris and Grace, 1997). To control enough penetrability and improve the efficient structures, Stankiewichz and Moulijin (2000) proposed that the internal surfaces of the monolith stations are enclosed with a tinny coat of pelage. They stressed that the most significant structures of the monoliths are next subjects;

- low pressure drops,
- high catalytic efficiency,
- exceptionally good performance.

According to Stankiewichz and Moulijin (2000) research team, open-crossflow-structure catalysts have powerful mingling and heat transmission features (Figure 1).

* A brief version of this article presented at ISTEC 2018

Figure 1. Integrated catalyst and monolithic catalyst
(http://www.catator.se/technology/)

Rotating devices

Stankiewichz and Moulijin (2000) noted that an interesting example for rotating devices was given by Boodhoo, Jachuck, and Ramshaw (1997). High heat-transfer constants are reachable in the rotating disk reactor in the parts (Figure 2). They stayed that the unit primarily is planned at rapid liquid replies with huge heat action, as polymerizations; In spinning disk reactor, a very thin layer of liquid transfers. In the very short residence times, heat is powerfully transferred from the retorting liquid at heat-transfer numbers.

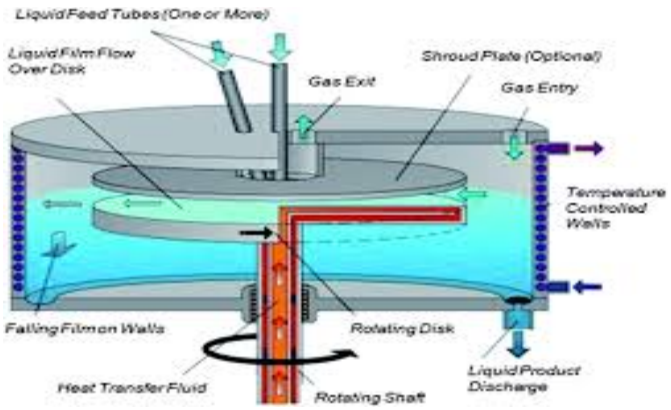

Figure 2. The spinning-disk reactor.
(https://www.google.com/search?q=The+spinning-disk+reactor&rlz=1C1CHZL_trTR721TR721)

Hauptmann, Rae, and Guenkel, (1995) stayed that the former applies a shockwave to separate gas to foams. They also added mixers, that are planned for procedures demanding rapid mixing on a low measure. Moreover, they underlined that in mixers similar to centrifugal drives and the device could donate to propelling the liquids.

Membrane Reactors

The membrane could show many roles in the reactor systems. That could be applied for discriminating departure of the reply crops providing a positive equilibrium shift (Tsotsis at all., 1992). They also expressed that it could be used for a measured dispersed food of the retorting types to rise product. Additionally, the membrane could apply departure of catalyst elements from reply crops (Stankiewichz and Moulijin 2000; Falconer at all., 1995). Moreover, the membrane can incorporate catalytic material, mean that the membrane flattering a extremely discerning reply organization. Finally, we can say that the works about catalytic membrane reactors is very power (Figure 3).

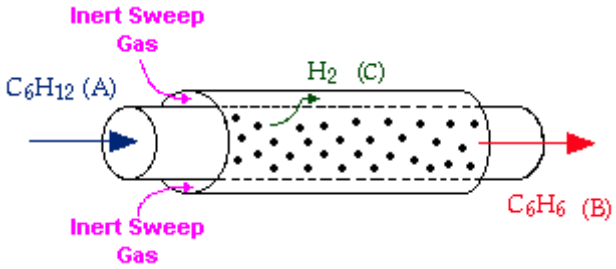

Figure 3. Membrane reactors can be used to achieve conversions
(http://www.umich.edu/~elements/fogler&gurmen/html/asyLearn/bits/membrane/index.htm)

Multifunctional reactors combine reaction and phase transition. They also integrate reaction and heat transfer (Stankiewichz and Moulijin 2000; Jansen, Klaassen, and Feron, 1995). According to Stankiewichz and Moulijin (2000) research team, reactive extrusion is a good example for such a combination. They explained the properties of this production;

- process at much temperatures,
- ability of multilevel,
- reactions in extruders are with little phase reactions,
- reactive extruders are used in the polymer productions,
- reactive extruders aid reactive processing of many things not necessitating the large of solvents,
- twin-screw extruders are active mixing,
- with catalyst, it immobilizes on the surface.

Hybrid Separations

According to Poddar, Majumdar, and Sirkar, (1996), many of the developments in hybrid separation sector contain mixing of membranes with other methods. It uses as a penetrable blockade between the gas and liquid flats. The Poddar research group stayed that by applying fiber membrane units, big transmission zones could be constructed in compressed elements. Furthermore, fascination membranes make independent action of gas- and liquid current levels (Stankiewichz and Moulijin, 2000) (Figure 4).

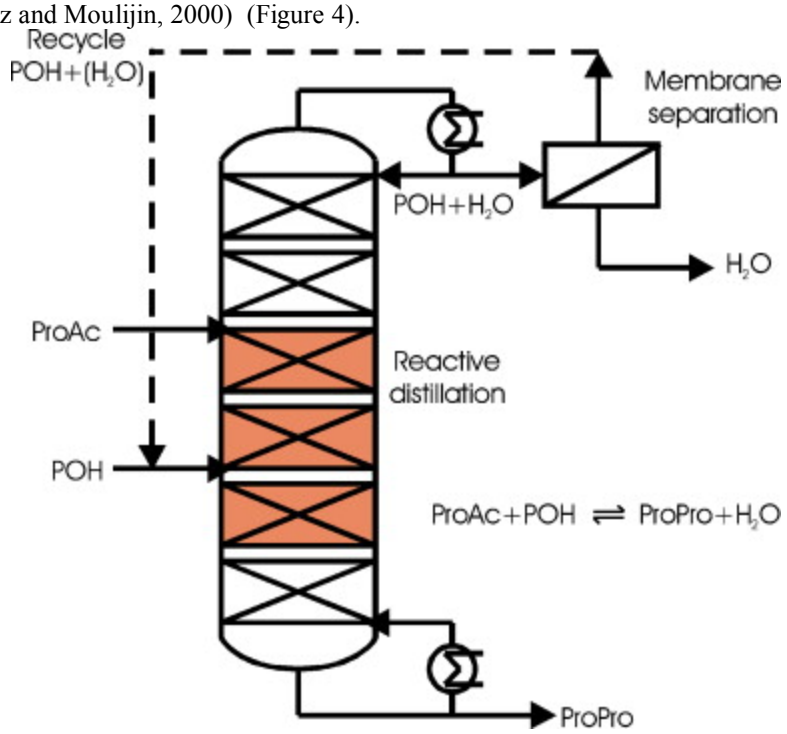

Figure 4. Hybrid separation processes
(https://www.google.com/search?q=Hybrid+Separations&rlz=1C1CHZL_trTR721TR721)

Foster, Burgoyne, and Vahdati, (1998) noted that membrane concentration mainly contains of transporting a volatile module of a liquid stream over a permeable membrane. They determined the benefits of membrane condensation;

- full refusal, macro elements,
- the membrane than lower operating pressure across,
- less membrane fouling,

- minor functioning infections than in vaporization.

Several promising methods don't include in the 3 classes that it was analysed. Many of them are recognized and have been applied in different sectors.

Result

There are many research studies that conducted on the membrane reactors. Moreover, no big scale manufacturing presentations have been noted practically up to now. According to Uhde, Sundmacher and Hoffmann (1996), the main purpose for this situation is the comparatively much worth of membrane parts. They also stayed that other factors that low permeability, mechanical fragileness have efficient position. We hope that new advances in the sector of material engineering would transform the negative situation.

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THE EFFECT TO CHEMICAL SPECIES: FROM HISTORICAL STEPS TO TODAY'S APPROACH*

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Abstract. Every science department is working on certain objects or entities. Studying with about objects in a constant way requires a notion of character which is special for the science area. Researchers usually use a certain notion without further reflection not to be contradiction in terms. chemists have many classificatory problems about the concepts and materials. To solve the problems, highly efforts are necessary to organize millions of materials today and most of them vague with the unclothed eyes.
The character matter is also an ontological subject. But, this subject need be stay different position from the epistemological approach. This is necessary to achieve of the chemical documentation problem. We clearly stay that chemical documentation presume a concept of species character for the real determination of materials. This presume is also necessary when a new species is found or produced to establish the character of the species with its characteristic possessions. The aim of this study is the impact of old-time arrangement on chemical classes character. For this reason, we focused on how species character was defined and determined in this period.
Key words: chemical species, a notion of identify, classification of materials

Introduction

From old to today, ontological matters emerge in the vanguard of technical research, such as the well-known ontological complications of quantum mechanics (Schummer, 2002). With the same perspective we can say that theorists of knowledge have much focused on the quantum matters, every classificatory knowledge is more interested in ontological matters than pure physical subjects. Schummer stayed that a lot of critical affairs in the history of chemistry are direct connected with the character matters of materials. His interesting example is the alchemical quest for production costly metals such as gold. According to this argument, non-natural gold cannot be the same as natural gold for ontological details; the empirical possessions are the same, but natural materials are strictly different. Ritter and Bergstrom (2001) gave a reference for a non-empirical impression of factual character that they found provision in the interpretation of Aristotales' distinction between natural things and artifacts,
Dobs and Siegfried (1968) stayed that the idea of species character being past to epistemological requests must not be static once forever. Because, the idea has renewed sometimes in the history of chemistry. Dobs and Siegfried stressed that it is not near ontology in the usual perspective but about the ontological defiance of chemists. They also expressed that the ontological ideas of chemists must be came from their practice, since an plain discourse is not about the idea of classes character in chemistry. In this condition, chemists have created the character of new species in synthetic chemistry.

Species character in classical chemistry

Merton (1957) and Hooykaas (1958) first formulated and applied the classical approach to material character. He determined material character with composition linked the determination tentative analysis and tentative synthesis. Merton didn't care about the philosophical fundamentals for the of material documentation. Composition had to be formulated in terms of simple materials with the starting point of tentative synthesis. Later, Merton approach was reformulated by Bergman. Then, the next chemists defined tentative standard procedures for fundamental analysis of all kind of materials.
The number of chemical possessions of materials is unlimited (Sener at all, 2010; Schummer, 1997). He stayed that if we extend the official set and reflect all chemical possessions as basic possessions, there are extremely many possessions to be processed: "two models belong to the same chemical material, if all of their basic possessions are the similar. If there is only a solitary basic property in which they change from each other they belong to different chemical species". This mean that nobody can reach the inference on a understandably complete basis

* A brief version of this article presented at ISTEC 2018

that two models actually belong to the similar chemical material, since it is practically impossible to define extremely many possessions. Shummer concluded that "all character claims in chemistry are necessarily only provisional".

If chemists say, "material character" in the metaphysical or in the chemical sense, they usually linked this idea to 'pure materials' (Brock, 1992). Brock stayed that there is little recognized about the history of the most essential chemical idea. And, he added that "we have good details to trust that the standard methods for cleansing liquids and things remained roughly the similar at least since the 18th century. In this period, some chemists constantly used "solubility and mineral form" or "hot point" as succeeding possessions of the elements (Ewing and Laitinen, 1997). They expressed that we may accept that our idea of cleanliness was already well traditional in 18th century, since there was no way to express the idea of material cleanliness. Ewing and Laitinen underlined that this approach remained basically the same until the middle of 20th century, some chemists characterized, and fixed the character of new chemical materials in the first half of 20th century.

The classical chemistry has the following categories (Schummer, 2002):

- description of preparation from starting materials including yield,
- results of fundamental analysis including empirical formula,
- boiling point including pressure,
- visual characteristics,
- solubility in several solvents,
- exemplary chemical reactivities.

According to Schummer, all these possessions doesn't satisfy to fix chemical species character in a certain way.

The chemical construction model is the central position of entering the microcosm of molecules and atomic construction (Schummer, 2002). He argued that the problem of chemical species character in the realm of organic chemistry had caused serious problems. Schummer detailed this situation as that since there are several characteristic possessions in which chemical things can differ from each other, one must determine and compare many possessions of two models in order to prove their material character. The mean of above difficulty is all character claims in chemistry founded on a set of characteristic possessions are not sustained.

The matter of material character has also an important social event that has been the power for solutions. The production of new materials is the key role to the progress of chemistry for a chemist, since he is also the producer of new kinds of material components (Gurol at all, 2008). Brock (1992) stayed that every researcher used to with the history and sociology of importance in knowledge knows how important rules and knowledge are necessary for the progress of knowledge. He added that, priority claims to new materials also play a central role for patent systems, and thus need a power basis for legal matters. Also, it should be easy to check whether a certain species is a new one or not.

The Effect of Classification

Chemical construction model was largely founded on chemical possessions and axioms. From a scientific view, chemical possessions differ from physical possessions in that they make relations between chemical materials, between reaction materials and reaction products linked by chemical changes (Taylor, 1986).

According to Taylor, all chemical knowledge comes from a connected construction in which every material is linked to every extra material by direct or indirect connections. In such a connection, the character of each material pair with its connected location determined by its characteristic relations to other materials. Taylor also stayed that classical chemical construction model reproduces that connection on a theoretical and sophisticated level, such that the relations between materials pair with relations between chemical constructions. Another words, we can say that if the identities of chemical materials are determined by relations with each other, then chemical materials are relational parts of the system.

Laszlo (1998) suggested chemists and historians of twentieth century chemistry are powerfully challenged by the giant volume of scientific study realased in the past 100 years: "we have now a hundred times more chemists, chemical papers, chemical materials, etc. than at the beginning of the century". He also stayed that historians of knowledge need to refer to primary sources that are likely to be in some sense characteristic of the subject under study: "In contradiction of the background of some 3 million chemists and more than 700,000 chemical journals a year today, every selection is running the risk of being arbitrary". Therefore, historians of this century's chemistry are forced to focus on particular events and slim scientific themes, if they want to apply old-style methods in a different and original way.

The special methods provide physical possessions, mainly electromagnetic possessions, on various high levels (Bair, 1993). He underlined the point that unlike chemical possessions, the physical possessions do not determine relationships between changed chemical tools. It is possible that the logical difference between chemical and physical possessions may appear to researchers. According to Bair, the interesting relation of equipment in chemistry is an interesting relation of physical possessions which species character has been altered and reformed to the new possessions.

The central question of the study is how the instrumental development has affected the concept of chemical species character. We can say that the way chemists have implicitly dealt with the matter suggests usually three more or less important scientific ideas. Schummer (1997) argued that the first two are adaptive strategies and the third one, in some sense a consequence of the second one, gives to a fundamental ontological change.
The characterization of new compounds remained powerful and active until the end of 20th century (Baird, 1993). The data were used as extra characteristic features of new compounds. Also, spectrographic plots give rich knowledge to distinguish between a lot of pure materials. Baird stayed that more than any property of the characterization, including the refraction index that was constructed for that determination, meets the requirement for defining material character. Baird also note that some chemists were finding mixed melting points with the models and they were proving character by comparing the spectra with the method that when enough number of spectra were registered, the next problem was how to match a new spectrum with a lot of spectra of the data bank. We note that a mechanical device was constructed for that determination before the discovery of computers. But, the mechanical device never used as an efficient material at the chemical laboratories.
Chemists used spectroscopic data in constitution analysis is substantiation (Brock, 1992). Later, the substantiation is determined by means of traditional chemical methods. This substantiation method was the main part of chemists' research papers as 'tentative' part. According to Brock, the substantiation was achieved rather by a complete structural interpretation of the spectra. The kind of explicit argumentation changed in the late 1980s. He stayed that substantiation was still determined in the traditional way, mainly by following reaction steps on the substantiation level by a reaction mechanism. We see that there are still a few cases in natural products chemistry where researchers claim to have determined the substantiation by purely chemical means

Result

Chemical classification is much more complex and allows deriving more differentiated concepts than the classification made before. Also, the change turns out to be many new ontological and conceptual problems that most chemists are probably not aware of this generation. Additionality, there is a lack of well-defined character criteria for the new quasi-molecular species due to the term 'molecular construction'. If there in not a selected criterion for species character of the constructions, chemical species classification would be failure. We know that spectroscopic instrumentation does not provide such criteria. So, it is a tool that is going to challenge chemists to move on their ontological approaches.
We observed that classical chemistry gave up metaphysical principles and applied tentative possessions as basic for determining the character of chemical materials. Because of that concept of species character applied on an infinite set of basic possessions, material documentation by comparing possessions of models was conditional.

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THE MEANING OF CHEMISTRY FOR TOMORROW I: TRUST, EDUCATION AND INNOVATION*

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Abstract. Universal transformation producing serious encounters connecting to energy sources as weather change, intervention is essential and crucial. The Royal Society of Chemistry has identified that the chemical sciences could present rapidly technological and maintainable resolutions. This big organization is in the efficient location to find resolutions to the difficulties by making in corporation with countries, informal organizations, at the manufacturing sectors. We believe that international active networks of this organization could be instrumental in implementing of the possible chemical solutions.
Keywords: chemistry, global world, ecological problem, energy sources

Introduction

The environmental difficulties turned out by life activity as weather change and food problems are some serious deterioration. "It is estimated that more than one billion people now live in poverty without enough food, water or adequate sanitation and healthcare provision" in many countries, especially in Africa (Prest, 2009; The world bank, 2008). Environmental change is creating serious encounters for people from all over the world. By 2040 the world's population is estimated to have increased by 1.9 billion, with most of the publics staying in cities (United Nations, 2014). According to this report, environmental energy necessities would stay to rise. It is noted in this report that the developed countries of Asia and Latin America are undergoing very fast economic development which is transporting contemporary humanity's environmental difficulties (Prest, 2009).
The chemical sciences, according to our approach, can play a clear and an efficient role in following maintainable progress and in presenting technological resolutions to the encounter's humanity (figure 1). The technologies which the chemical sciences create would advance the value of life for a livable environment or for a health world (Prest, 2009; RSC, 2009).

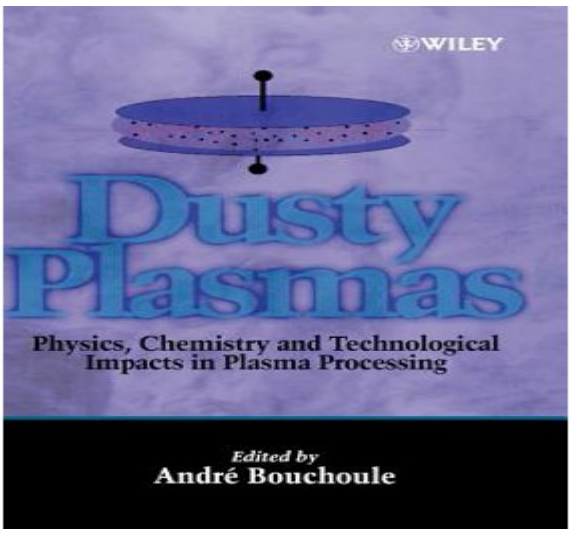

Figure 1. An example on the technological solutions for chemical sciences (https://i5.walmartimages.com/asr/b6f9419c-ba06-4e1b-b341-752823de81b0_1.1bdf7c71a95f0255ab0313933361b105.jpeg?odnHeight=450&odnWidth=450&odnBg=ffffff)

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Generating a livable atmosphere

Developments in the chemical sciences is essential to offer the technological explanations required by humanity and administrations, to answer the environmental encounters in energy, food, health, water in the totally of the world (figure 2). Accomplishing of the situation does not hinge only on main investigation and technological developments in the sectors deliberated in the paper. That needs evolving a helpful environmental area (Prest, 2009; European Communities, 2004).

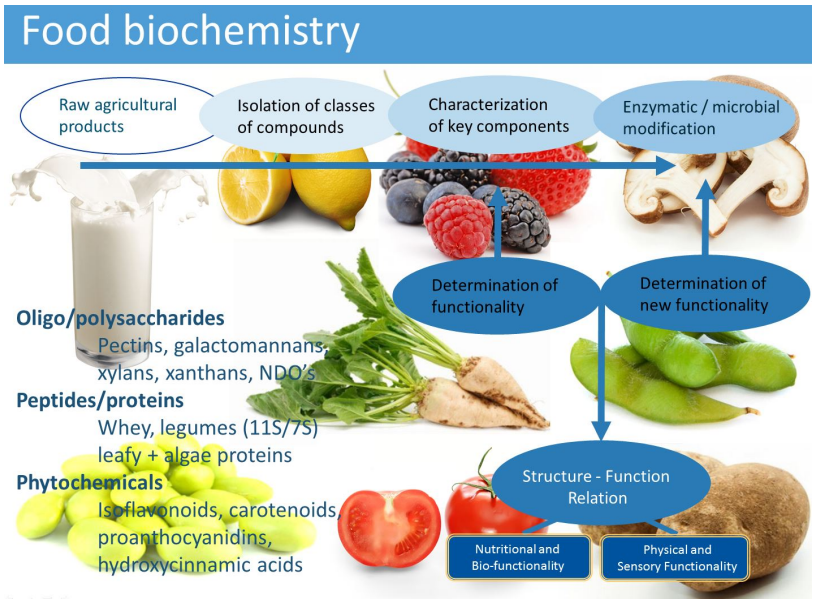

Figure 2. Food chemistry research in a technological laboratory (https://www.wur.nl/en/Research-Results/Chair-groups/Agrotechnology-and-Food-Sciences/Laboratory-of-Food-Chemistry/Research.htm)

The helpful environment needs the source of a suitably various scientific labor force, advancing in investigation and supervisory context which keeps humanity. We believe that it wants assignation with main shareholders, extending from manufacturers, researchers to administrations and big informal corporation and organizations. There is also a necessity to advance in modernization. The transformation of scientific discoveries into practical application and new progresses will be a real and powerful solutions. Society and company's necessity to be obviously conscious of the matters and (Prest, 2009; International Energy Agency, 2006).

The issues in this paper are based on activities of some important society as the RSC aggregated from an environmental perspective. These subjects are as below;

- Trust
- Education
- Innovation

Trust

A developed environment needs attractive with main shareholders and with the community to confirm the effective overview of last and evolving technologies (Prest, 2009). According to Prest, that is a multifaceted procedure which frequently needs a continued study for a long way. Also, this rest on real shareholder interchange on the prices, profits and dangers to customers and the situation of the technology connected the subject. Moreover, he pointed out that observations of danger change extensively in the world of the chemicals area.

According to us, the people is not much information about the effect of the chemical sciences to the humanity. The profits of the chemical sciences to vital productions are ineffectively connected. To develop at the science and technology, it is essential to make an interchange between shareholders. It should be a simple accepting of the profits of modern technologies to construct confidence between all shareholders (Prest, 2009; www.energysavingtrust.org.uk, last available at 21.06.2018).

Serious sustenance and protection subjects comprise the topics related with biological corruption and the communal reason of healthiness difficulties for clients (figure 4). It could be turned out by reduced heath at any phase of the sustenance sequence. (British Wind Energy Association, 2008).

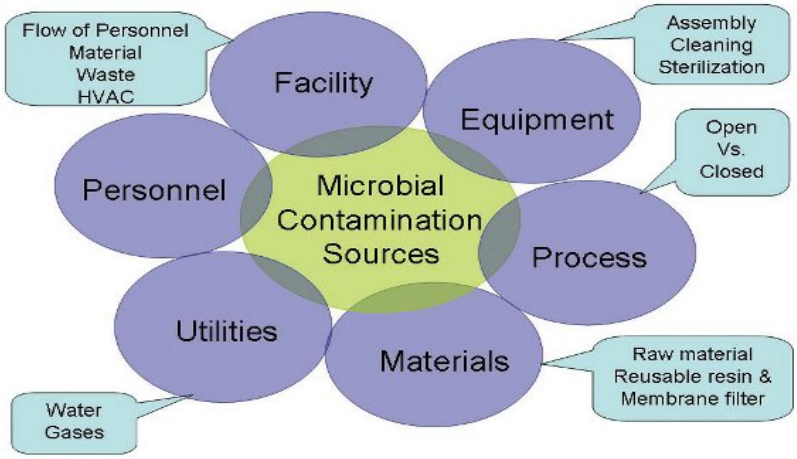

Figure 4. Case Studies of Microbial Contamination from BWEA
(https://media.americanpharmaceuticalreview.com/m/28/article/36755-fig1.jpg)

Education

A satisfactory source of qualified researchers would be essential to confirm the continuing feasibility (Prest, 2009). Many countries in the world has adopted the essential position of growing the statistics of the searcher in science, technology, engineering and mathematics (STEM) focusses (Prest, 2009; Teitelbaum, 2007). According to Prest and Teitelbaum, the source of STEM cause on all parts of investigation and advance.

We believe that long-term applications essential to be completed in the parts of teaching, skills to manage the environmental encounters fronting humanity. All stages of instruction have an important action to show in generating a helpful environment and so, a comfortable life all over the world. Teitelbaum also noted that basic education's action is to body the base for teaching and learning, to increase students' attention in the sciences and to inspire attention in the study of the chemical sciences coming from science and technology. The instructors must be educated in the topic and should be reinforced in a college with contemporary services (Prest, 2009).

According to Prest (2009), investigation in science education present strong strategies for the types of program constructions and education methods which could reach the goals (figure 5). He noted that investigation has exposed constantly the key issues are the real program method with the study of teachers.

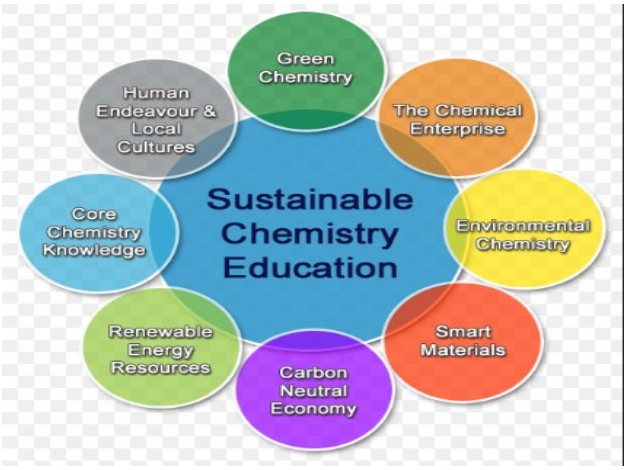

Figure 5. Dimensions of sustainable chemistry education.
(http://www.theaic.org/pub_thechemist_journals/Vol-86-No-1/Images/imag-6.png)

Innovation

We believe that developing the chemical manufacturing would aid to the aim of accomplishing a stability for sharing among shareholders in the higher technology areas of innovation. Manufacturing's dedication to improved clarity would aid in the procedure (Prest, 2009). Moreover, it would want sustained community sustenance by connected institutes, projects and big companies' effort.

Technological improvement needed requires investment in investigation for invention. European invention presentation has been weak likened to conflicting sections in all over the countries (HM Treasury, 2004). Some

countries in Europe have made first to report by founding a Technology Tactic Boarding in 2004 and by founding the Knowledge Transfer Networks (KTNs). KTN has delivered a central area for enriched invention in businesses of the nations, growing the capacity to change information and knowledge to modern technologies and yields (figure 6).

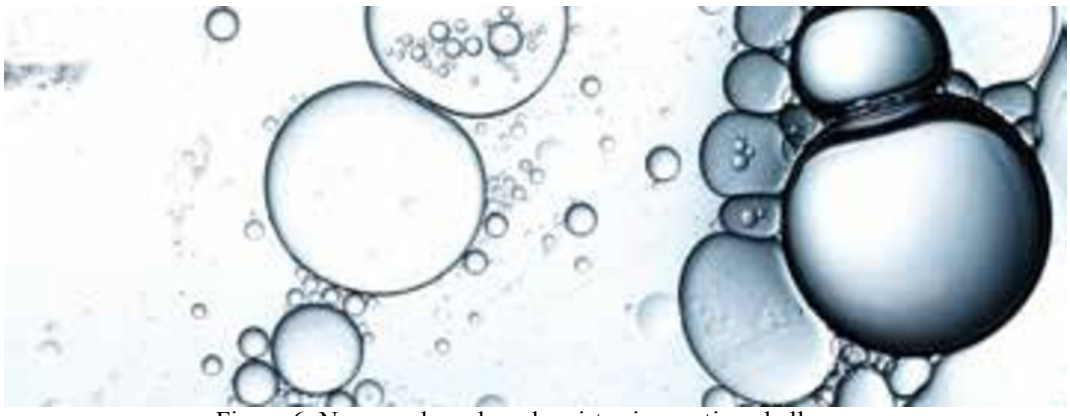

Figure 6. Nouryon launches chemistry innovation challenge (https://www.miningmagazine.com/w-images/ea8cdf9d-19ef-435e-ab40-61d11fc87a2a/3/Nouyonchemicals-1680x600.jpg)

Result

Environmental encounters has the meaning that progressing vital scientific information, motivating quality in chemical science investigation and exploiting the amount of next innovations. It would need a multidisciplinary method which would construct connections among chemistry's sub-sections, and with some disciplines and manufacturing.

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