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Content Management System For Collage

A project
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SUPERVISORS CERTIFICATION

We certify that this project entitled "Content Management System For Collage " was prepared under our supervision at the Computer and Software Engineering Department/College of Engineering by((Walaa K. Azeez ,Zeena S. Ali)) as a partial fulfillment the requirements for the degree of B. Sc. in Computer and Software Engineering.

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CERTIFICATION OF THE EXAMINATION COMMITTEE

We certify that we have read this project entitled " Content Management System For Collage" and as examining committee examined the students((Walaa K. Azeez ,Zeena S. Ali)) in its contents and that in our opinion it meets the standards of a project for the degree of B. Sc. in Computer and Software Engineering.

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كلمة شكر

ونحن على أبواب إنهاء دراستنا الجامعية وبداية مرحلة جديدة في حياتنا

فإننا نقدم جزيل الشكر والاحترام للذين كانوا شموعاً أضاءت لنا طريق العلم

والمعرفة, شكراً لكل من كان نبراساً اهتدينا بعلمه ومعرفته. مهما كثرت

المصاعب والعقبات في طريق الإنسان فلا بد أن يصل إلى نهاية الطريق

وعندها لا بد من قول كلمة حق لمن وجه الإنسان إلى الطريق الصحيح .

لهذا نقف لنقول

شكراً

للأستاذ غسان خزعل علي الذي أشرف على هذا المشروع.

شكراً

لكل من وقف معنا من الأساتذة والطلبة في قسم هندسة الحاسبات والبرامجيات,لهم منا جزيل الشكر والتقدير....

الإهداء

إلى سيد العلم والعلماء. وخاتم الأنبياء..

إلى الرحمة المهداة للبشريةسيدنا محمد (صل الله عليه واله وسلم)

إلى هذاالوطن الجريح وكل من سقط شهيداً على ترابه

إلى كل من علمنا حرفاً وسقانا علماً فأنار لنا الدرب شموعاً

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إلى جميع أساتذتنا ومعلمينا الذين علمونا من أول يوم درسنا

فيه في حياتنا

إلى إخواننا.....وأخواتنا

إلى كل قلب خفق حبا من أجلنا

إلى زملائنا وزميلاتنا في مرحلتنا

إلى كلية الهندسة.....جامعة ديالى

نهدي ثمرة هذا الجهد المتواضع

طلبة المشروع

Abstract

With the fast development of information technology and revolution of informatics, network has already become the main carrier of fast information distribution and exchange information between institutions, companies and governments. However, the system have become the main portal of entry to any institution and the exchange of information rapidly and more efficiently

The main reason for establishing the system of administration and economics college came from the increasing demand for the existence of sober system representing the college to keep up with the rising pace in this field in the civilized world where the network and the system are an integral and indispensable part in the faculties administration through fast communications and response to different requests which became the actual scale for measuring efficiency of any institute in the world today, as well as, the scale efficiency of system dependent on ability to satisfy user's thirst for information, also response rapidly for users requests, while ensure the security operations and stability and biggest interaction with end user

The content Management system is a framework for organizing all the activities such as usability, accessibility, publishing and security of site administration. Therefore, it identifies the people, processes, technology and other resources you need to support a system.

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LIST OF ABBREVIATIONS

ASP.Net	Active Server Page
CMS	Content Management System
CSS	Cascading Style Sheets
DBMS	Database Management System
HTML	Hyper Text Markup Language
HTTP	Hypertext Transfer Protocol
IS	Information System
JS	JavaScript
PDF	Portable Document Format
PHP	Personal Home Page
SQL	Structured Query Language
URL	Uniform Resource Locator
XHTML	Extensible Hypertext Markup Language
XML	Extensible Markup Language
WCMS	Website Content Management System
WMM	Website Management Model

CHAPTER 1

INTRODUCTION

After the rapid development in the Internet and e-learning technology in the last 20 years, the web site has already become the main medium for fast information distribution and the exchange of information between institutions, companies and governments [1]. The fast growth of the Internet supports huge sharing of information. Moreover, web sites have become the main gate for entry to most institutions and firms.

The establishment of system for a collage arise from the real need for the existence of academic sites representing the collage to keep up with the progressing in this field in the developed countries [2], where system and networks are integrated with faculty administrations through fast communications and responses to different requirements which have become the real scale for measuring performance of any collage in the world today. The measuring of system performance depends on its ability to responding rapidly to users' requests and need for information, in addition, ensuring security and stability.

Nowadays most collage use CMS to gives students an interactive system which speed up communication to increase of knowledge in any field of study. Students are able to access systems from any part of the world and access any material using the Web [3].

This study will include design and managing new system for the collage as well as improving the usability of system and providing activities and services to the end user.

1.1 Scope of Study

Collage of engineering is one of Iraqi estate collage located in Diyala province in the east of Iraq about 60 kilometers away from Baghdad. It was established in 1999 as a collage .it has 8 academic departments which is department of electric power engineering and machinery , electronic engineering department , computing and software engineering , department of telecommunications engineering , department of civil engineering, department of mechanical engineering, chemical engineering department, department of materials engineering. Since all administrative work until now is a paper work, the students have to come to the collage in order to filling the admission form .The system help students to see their incepting with it.

A proposed system can achieve the automation to administrative and educational works in the collage through transfer some of paper works to electronic works, such as admission, homework, evaluation and academic calendar. Moreover, we will discuss a CMS design and the ability of managing system contents as well as improving the usability of a system and providing services and activities for users.

1.2 Advantages and Challenges of the proposed system

The advantages[23]

Some of the advantages of using CMS website are as follows:

- **Centralized System**: A Centralized system brings all your data under one section which serves as centralized repository. Without any such system, the data might get scattered resulting in redundancy.
- **Accuracy**: All the content in CMS has to be stored only once, which can be reused multiple times, giving flexibility of usage. Additionally, CMS keeps track of content reuse and relevant updates to the content if any, thus, keeping the content updated and accurate.
- **Secured Usage**: By assigning user privileges, it is easy to keep the data secure through which only authorized people are allowed to edit the content.

- **SEO friendly**: Best practices for search engine optimization like meaningful URL's, inclusion of page titles, correct metadata etc. are prevalent with the use of CMS.
- **Low Cost**: Some Content Management Platforms like Drupal, WordPress, Joomla! are open source while for others minimal cost can be incurred

The challenges[24]

- **Constraints**: If the organization is driven by dedicated individuals, a corporate governed system may reduce the dynamics of the organization. Politics may also render a centralized system impossible.
- **One system doesn't fit all**: It is impossible to find a CMS that fits all the different requirements and use scenarios of all the subsidiaries in the organization.
- **Local vendor presence**: If your organization is global you'll need to find a system that is supported worldwide by local vendors – otherwise all system maintenance and development has to be done centrally.
- **Local customer and developer community**: Sharing knowledge and best practices can save your organization much money. This requires an active, local customer and developer community.
- **Roadmap**: If the vendor of the consolidated Web CMS decides to go in a different direction from that set out in your digital strategy, you'll find yourself in an awkward position. Make sure that the system has the required flexibility, and that the roadmap supports your organization's vision for the future.
- **Lock in**: With one system taking care of all the organization's business critical online activities, you'd better maintain a good relationship with the vendor. An enterprise-wide migration can be very costly and challenging.

1.3 Problems of Study

In this study, a diagnostic of the problems of the collage and the way in which it managed and the traditional work mechanism. Besides, it did not get benefits of fast progress in the e-learning technology .Furthermore, the mail and official books are still hand-delivered by a postman. The e-mail service represents the point of communication between the collage and the ministry of higher Education in addition to being a communication service between students and lecturer of the collage.

1.4 The Purpose of the Study

This study aims to automation the administrative and educational work in collage of engineering through the creation of a system which is considered as an Interactive interface for communication between both the student and the lecturer , by using *Microsoft Visual Studio 2010 Ultimate* and *ASP.net "Active Server pages"* which has many useful tools to help the designer to design and manage system content easily and more flexibly. The goals are the treating of the existing problems of the old fashion works and try to enter new techniques to improving management of collage. Moreover, enhancing the communication between students and lecturer through creating accounts for each of them in order to deliver information to students, such as curriculum, courses schedules and exams results .The use of e-learning techniques has become a necessity in modern collage, which helps to develop education through improved lecturer skills Wu students and raise their ability to use these techniques and the most important of which is the use of system and look at everything new, which allows users to browse system pages on the Internet without difficulty or complexity.

1.5 Importance of Study

The main portal to any collage or institute is through its web site, which represents a connection point between that collage and the outside world. The system is expected to provide services to people, especially to students and lecturer. The importance of the study can be summarized as follows:

- The educational purpose through delivering activities and services to students, and lecturer
- Insurance of communication between collage and ministry of education via the e-mail service of the system, especially operations of sending and receiving formal papers.
- Activating the role of the collage activity through the dissemination of events and activities related to professional sports and cover collage science fairs that are held by the collage or the ministry of Education.
- Access to advanced centers in the classification of system through the establishing of an integrated system that meets the requirements related to the educational operation..
- Establishing special accounts for the collage in social media networks, such as *Facebook*, *Twitter* and *Google Plus* and publishing the activities and events of the collage by placing links of system onto social media sites.

1.6 Contribution to the Field

In this study we address the automation of administrative and educational work in the college of engineering for the purpose of the transformation of the classical collage to electronic collage by using specialized software such as *Visual Studio 2010* and *ASP.Net* to deal with databases through insertion, updating and retrieval of data.. Moreover, we will use one of *Content Management System (CSM)* in order to control website content. CSM does not needs to a professional person to manage the system. The main advantage of webmail is to exchange the information and formal papers between collage and Ministry of higher Education as well as creating new accounts for each lecturer to maintain contact with students .Additionally, one can create an account for the collage system on social media sites such as *Facebook*, *Twitter* and *Instagram* and publishing all activities and events that occur at the collage . The

assessment of the system is depends on the quality of the information and services that are offered to users, especially students and lecturer.

The questions arising from the aim of the study are as follows:

- How we can design the CMS of the collage?
- How we can manage and modify the system content?
- How can we achieve automation?
- How can we take advantage of the E-learning techniques?

CHAPTER 2

BACKGROUND AND LITERATURE REVIEW

2.1 Background

Automation is the deletion of human intervention in totally or in partially in the execution of industrial or domestic, administrative or practical tasks, word of automation appeared at the mid-thirties of the twentieth century to express all operations managed human use of mechanical machines to do it instead of him. After that it was developed to use in electronic systems [4]. system Management Model can be defined as a framework for arranging the activities such as ease of use, accessibility and security of system administration. Therefore, it can specify the processes ,people, technology and other resources you need to support a system [5].

Content Management System "WCMS" is an application platform system constituent to design the system and the distribution of information; it is also a tool to help develop the system [6]. It allows the programmer to quickly develop, manage and maintain the high performance dynamic system [7]. This study includes possibility design and manages system contents by using software ASP.Net that is part of "Microsoft Visual Studio 2010 environment.

ASP.Net is a web application framework developed by Microsoft which enables programmers to construct dynamic page and static page of system as well as allows using full facility of programming language such as visual Basic to construct system applications easily [8].Moreover, it contains many tools which enable the programmer to design and manage the system contents easily and more flexible.

The database of system will establish by using ASP.Net in addition to SQL Server and Access database which enables user to design and manage of system's database.

2.2 Literature Review

A literature review is read and summaries knowledge from all the related studies with topic of thesis where review should evaluate, describe and explain this literature as well as to support a theoretical base for the thesis.
In this section, we will focus on the scientific references that specialized in automation of administrative works and educational works at e-collage . Moreover, we will discuss the researches about management and development the system of schools and universities or institutes in addition to the user-friendliness of system and prospect of accessing to site pages. There are many studies in this fields some of these studies are for collage and the other studies for universities and institutions. The following is a summary of each study in terms of its purpose, importance and the conclusions reached by.

2.2.1 Literature review which have relation with system management

There are many studies interested in the system administration specially the educational system. In this part it can know methodology to system management through what come in the literature review [9], [10], [11], [12], [14] and [15].

The main purpose of study [19] is ability of finding solutions for processing the defects and restrictions of classical system management, in addition to using of specialist software in the design and mange system contents like Microsoft Visual Studio ASP.Net, PHP and Microsoft SQL Server. Moreover, the method of system management is the unavoidable trend in collage system establishing and management. This is the efficient way to raise the system management level.

To sum up, this study are addressed the system group management model that contains new generation and independent work in the designing and management system of school or university .In addition to execute project of ststem group platform that solved most of administrative challenges by classify the administrator into system administrator and secondary administrator where allocation the tasks for each administrator.

System administrator represented on the upper level of the managers where observe the flow of works and the distribution of jobs. Another kind of administrator called "sub system administrators" in charge of modifies, update and delete the system contents.

The purpose of study [10] is enhancing system management through using web content management system ,this system contains three layers are: frontend layer, backend layer and graphical layer. Frontend layer manages the system through structure and presents the content that reacts with the user. The backend layer manages content of system by database management system "DBMS" through deploying and storage content.
The last layer concerned with visional design and information strategy. On the other hand the software platform use for constructing of systems and web applications, also create and showing different pages dependent on users demands and needs.

This study was focused on the easy managing of the system contents are comes from classification of administrative tasks to more than one team under the surveillance of web content management system. Moreover, flexibility in terms of content submission, content updates and custom functionality should be taken in considered when select the web content management platform. The working principle of a content management system on the Internet enables the user to access information in a flexible manner through usable graphical user interface.

The main purpose of the study [11] is to meet the demands of users through the creation of a flexible system. In addition, the process of building a specific system must be characterized by the speed and easily in terms of determining the quality of the information required by the user .Beside that support the system by important and basic software that help to execute of most types of files, such as adobe flash player and PDF that user does not require installing extra program, which making the system use and management is very suitable. Finally, it is focused on usability and flexibility in navigate the website pages .To sum up this study, the main idea of content management system CMS is the separation between the design and content management. Design of Page is saved in the template where the content is saved in a database .Give a safety to system data from unauthorized login by its support for a secure system site to be more trusted .Page rank algorithm means if reference was

made to this page in many other web pages, are expected to be important page. This page does not recur in spite of the reference, but is considered as an important reference page.

In the study [12] a group of university students by using "wiki" whom were able to design and implement the system which is a system that allows for cooperation of a group of users who can change, delete, add, and modify the content of web pages into the site through the establishment of small system , for instance, the system of the collage and student Club, Inc., the system has at least eight of web pages using a fixed navigation system .We can infer from this study that using system that specialized in building and designing system, such as “Wikis” which considered helpful for improve the student ability to design and manage traditional system however, incapable to design huge system .In conclusion there are many educational sites specialist in the designing and management the system where considered useful for beginners’ designers that using to construction the small systems, but does not supply all tools to building perfect system.

The goal of study [14] the programmer has ability to manage the pages of system easily by using WCMS. In addition, WCMS can consider as one of the famous content management systems. Characterized by flexible architecture and its ability to meet the webmaster needs.

It can conclude from this study that WCMS has a very good reputation for its security, constancy and ease of use as well as the WCMS assume as a basic tool of establishing the system for education ,governments, firms and media. It supplies a conjoint solution for all webmasters levels.

In the study [15] WCMS program supports editing tools that enables users with little knowledge of programming to easily design, create and manage content on the Internet. The non-technical staff in certain restrictions of rules, workflow to create and processes manages, edit, and control a large, dynamic collection of system content such as HTML documents, video, audio, and images.

In conclusion of this study WCMS embrace three layers of technical structure to design and manage the system, which composed of presentation layer, persistence layer and business logic layer.

Presentation layer is responsible for providing the user interface to react with the applications by providing model data.

Persistence layer can supports ability for data modification and retrieval, database connection pooling, management of transaction ,programmatic also declarative entity relationship management, and declarative queries.
Business logic layer or services, the last layer, this layer enable interfaces for interaction with other layers, adding some flexibility between the presentation layer and the persistence layer, managing dependencies among business level objects.

2.2.2 Literature review which have relation with usability of system

There are many studies related with system usability especially the educational system. In this part it can know methodology to system usability through what come in the literature review [13], [16], [17]
The main objective of study [13] is elucidating the usability of system and easily of navigation system pages by using simple user interface. The estimation of collages system in Jordan has dependent on the convenience of educational systems through classified into three parts. The first one is employed in identifying usability problems are evaluator-based methods, user-based, the last one is tool-based method .Moreover, the usability can achieved the domain to which a system can be used by particular users to fulfill concrete objectives with effectiveness, efficiency, and satisfaction in a specified context of use.

It can extrapolate from this study that appraisal of the usability of collages systems and to find out the powerful and poor design. In addition to examine usability of educational system from the opinions of students, and ask them to report qualitatively what they disliked and liked in connection with the design of the examined system .Finally, the usability measured by different basic elements like easy of navigation, accessibility ,powerful designing, creative architecture and contents of system.

The study [16] address the usability of systems by making a study that includes 41 questions were carved out. This questions had been accumulated under 6 key factors; learn ability, controllability, helping, appearance, performance and satisfaction. From other side the education level dependent on the number of student whose use the system and how the interaction occurs between student and the system.

It could be concluded from this study that improved of distance education system to achieve the usability concepts for the system is very useful to the students' efforts to learning .The aim of this study is analyzing the kind of relationship between students' imagining of distance education in relation to gender and age, as well as calibrates the system's usability level .The results of this study dependent on the demographic characteristics of the students participating in the study by making statistics included participants by gender, age, classes and geographic region of living.

The aim of the study [17] is addressing the usability issues and the impact of the email system that evaluates the language used as well as offering some suggestions for the system. However, usability denote to the ease with which visitors can use a system where most of visitors aimed to find out sufficient information that they need.

It can extract from this study that most of system usability dependent on providing the following basic elements:

- Designing of pages and the interface should be compatible particularly when selecting the colors, font size, font type and harmony between the contents of the site.
- The system which supports more Languages and expressions mean this system will be more readable to many users around the world which is very necessary for the users to understand the content of the system
- Smoother transitions between pages of the system and easy access to information.
- Using of email in order to achieve the communication and as an interactive tool for website.

2.2.3 Other Studies

The other studies [18] and [19] talked about system performance as well as system' designing. The purpose of the study [18] is to assess the quality of the that depends on the model of the process of evaluating this model focus on activities that will be achieved to finish system quality assessment .However, the quality of system could be measured through its ability to support the usability and accessibility to the contents of system .The systems should gain the end-user satisfaction, in addition the quality of the system depends on the quality of services and how much information to be exchanged with the end user.

It can infer from this study which Highlighted on the issue of supplying a framework to give a fantastic basis for a system quality assessment process. From other hand, discovering the problems of assessment system quality through a concept based on a model of the quality of services as well as, identifies and analyses the quality divide and give a convenient solutions.

The main purpose of study [19] User-based design is a probably the main idea for designing a system whose final target is to construct a user-friendly interfaces which are simple and appropriate for many classes of users to work on .The ideal design based on an achieving the next terms: ease of use, type of contents and prospect of accessing to information. Beside, selecting the colors, font size, font type and coordination between the system contents .We can conclude from this study through the progress stages, the writers have adopted the idea of user based design with the collection and analysis the information, also gives services and activities for the end user. To understand the contents of the system by foreign users, the language used and the terms should be very clear, readable and uncomplicated. Therefore, most academic sites had been supported by more than one language in addition to main language.

2.3 Discussion

In accordance with analysis to the preceding studies and looking at the experiences and the details of the techniques used in upgrading and management system where reached to the following conclusions.

we can accept what came in studies [9], [10] and [11] about adopting a certain solutions for challenges of classical management through using of WCMS which facilitate working and tasks for content management, as well as, its scalability, powerful architecture, and flexibility can well meet the webmaster needs.

In the study [12] is beneficial for training the student to design and manage ordinary system however, this system "Wikis" incapable to design big sites because it does not support all tools to establishing huge system.

It is axiomatic to agree with sources [14] and [15] especially in the procedure of distribution the administration jobs as well as adopt last technical to administer and design the system furthermore division between system contents and probability of easily accessing to pages. It gives a promising solution for all webmaster's levels.

In resources[13] and [16] it is obvious they are focused mainly on the usability which is very significant for system assessment where based on the quality and quantity of information which user needs for. The source [13] based on making a comparison among nine system of collage where the usability was the base of evaluation for these systems.

In study [16] it relied on the wipe which was contained set of questions for assessment the systems in addition, distance learning systems established on the regards to the ease of use concepts and that will be helpful to the students learning.

In studies [18] and [19] we see that both of them highlighted on the designing and type of information which using to construct an educational system as well as addressing and analysis the quality gaps and introduce suitable solutions. Those studies might be helpful for assessment of the collage' systems

The study [17] might be the best among preceding studies, where it explained most of the principles that will help in the designing and management of collages sites in

addition ;it had highlighted the basic concepts that will help in the establishment of comprehensive educational system.

Due to the above, it is considered typical in overcoming the difficulties facing the collage system management operation therefore, the building of system and the analysis the problem of the study through using of the right tools and the components, Hardware and Software, to reach the desired goals in the management and development of the system of the collage are the best successful strategy.
In spite of that, there are some difficulties that may face the building of system such as technical, financial and human obstacles. These challenges can be overcome and achieving collage system by some training courses for the admins about system management.

CHAPTER 3

METHODOLOGY

In this study, we will propose a new website application for Collage of engineering. It an accomplish this process in three stages. First stage is including the site interface designing by using *Microsoft Visual Studio 2010 and ASP.Net*. The second stage is constructing pages of the website that comprise static pages and dynamic pages.

By using of two programming languages these pages would be constructed, the first one is ASP.Net,It is considered as the more famous language and most useful approach to develop interchanged web applications. Besides,it contains most helpful tools for constructing interactive websites from logic of programming. At this layer, we will use *Visual Studio* programming language codes.*ASP.Net is one of the Microsoft Visual Studio* applications that include a program editor, a compiler to find out errors and a designer in order to construct web sites [20].

The another language is Hypertext Markup Language (HTML) which is responsible of the computer language coding that transform the normal text into suitable text for show and use on the Web [21].

The last stage is constructing a database for some of web sites pages by using SQL server, which has many facilities that gives the user an ability to design and manage databases smoothly and more flexibly.

3.1 What are the Benefits of a Web site?

It can be summarized basicreasons whymost ofthepeoplevisitthe websites by the following:

- To access information needed by a user.
- For educational, recreational or commercial purposes.
- For communication and exchange of information.

3.2 The Basic Elements of Building a Web site

- **Hardware:**This part comprises all devices and stuff, like computers, printers,

scanners, cameras, routers, servers, which support designing and implementation of web sites. Hardware can range from personal computer to a single computer in a group of computers or a set of computers.

- **Software:**involve different types of software, such as ASP.Net, PHP, HTML, CSS, Java Script, SQL Server, which used in the design and management of web sites. This software has many tools to design static pages and dynamics pages in addition to tools to build databases for data storing.
- **People:**This part includes the group of web designers, web developers, administrators and end users who work simultaneously to manage and develop the contents of the web site as well as testing and updating the site on a daily basis. The web site developers are predicted to communicate with end-users and understand their needs.
- **Information:** It can be considered as the most important in web site construction because the value of the web site is dependent on the type and quantity of information and the importance of the database through interactions with end-users also providing the site with all information that users required. The database of the web enables the user to access information flexibly through an easy graphical user interface.
- **Procedures:** This element represents the rules and instructions which manage and design the web site. The administrators who run the database need to document any procedures on how to store and retrieve data and information.

3.3 Requirements Analysis for the Database of a Web site

This is determined according to the actual needs of the collage. The important issue in building a database of the web site is in meeting the needs of the collage and the end-user. However, we can analyse the construction of a web site through what came in previous studies which were mentioned in Chapter 2. These studies depended on designing and managing web site contents. Firstly, this entailed designing the interface of the web site and building the pages according to web site requirements. Secondly, controlling the web contents by was carried out by using a content management system, such as updates of the site, adding new pages or removing pages. Finally, a database for a web site includes the essential information that meets user needs.

3.4 Web site Management Model

Web Site Management Model “WMM” is a framework for the organization of all the contents and activities of site administration. That is, it determines the users, processes, technologies and other resources needed to support and develop the web site. [6]

A set of management jobs includes:

• Web site Development

• Web site Maintenance

• Web site Infrastructure

• Web site Governance

To introduce the model, we will start with a summarized overview of the elements from which it is composed. These elements considered as the basic structure to construct an integrated web site.

3.4.1 Web site Development

This section contains the set of designers, programmers and technicians who are in charge of adding, modifying and deleting the contents of the web site, in addition to examine and updating the site on a daily basis [6].

Web site developers are expected to communicate with end-users and understand their needs.

3.4.2 Web site Maintenance

This section composed of a group of engineers, technicians and specialists in processing any technical problems as well as testing the software and improving web site performance in order to ensure the operational integrity of a site [6].The committee of maintenance is responsible for fixing all technical problems such as service quality and speed of response in addition to repairing devices, conductors and other parts of the system.

3.4.3 Web site Governance

This object is one of the most critical elements for the creation of any web site where the presiding elements of maintenance and development in addition to controlling and monitoring of all activities and events through supervising on the workflow procedure is considered to be important [6]. The objective of Web site governance is to ensure a controlled approach to site management – from planning and design through to maintenance and infrastructure.

3.4.4 Web site Infrastructure

To build any web site, the infrastructure has to be available which includes all tools and requirements, such as hardware, software and laboratories [6]. Web site infrastructure includes all activities, resources and staff skills and experience, all of which lead to constructing an integrated web site. Without infrastructure, it is impossible to introduce a perfect web site as a response for all user requirements.

3.5 Description and Structure Design the Web site

Before starting to design a site interface, the basic tools and software should be included:

- *ASP.NET,* an open source server-side Web application framework designed for Web development to produce dynamic Web pages. It was developed by Microsoft to allow programmers to design and build dynamic web sites, web applications and web services. [20]
- *Cascading Style Sheets* (CSS), a style sheet language used for describing the look and formatting a document written in a markup language while most often used to change the style of web pages and user interfaces written in HTML and XHTML [21] to help designers to build and design web site interfaces.
- *SQL Server* to build the database of a web site.

3.6 Web site Structure

3.6.1 Headers

The header can be likened to miniature versions of the main page that sit atop each page and do many of the things that home pages do, but in a limited space. Headers provide site identity and global navigation, with search, logo and other tools according to the type of web site. The web site header of the collage should consist of the following fields (as shown in figure 1):

- Name of collage;
- Login for Admin;
- Webmail button;
- Student Portal;
- Staff portal;
- Menu bar.

In Menu bar we will see many useful commands that have met the needs of end users such as *Home*, *About collage*, *Deanship*, *library*, *Administrative unit student affairs* ,*departments* and *Contact Us.*

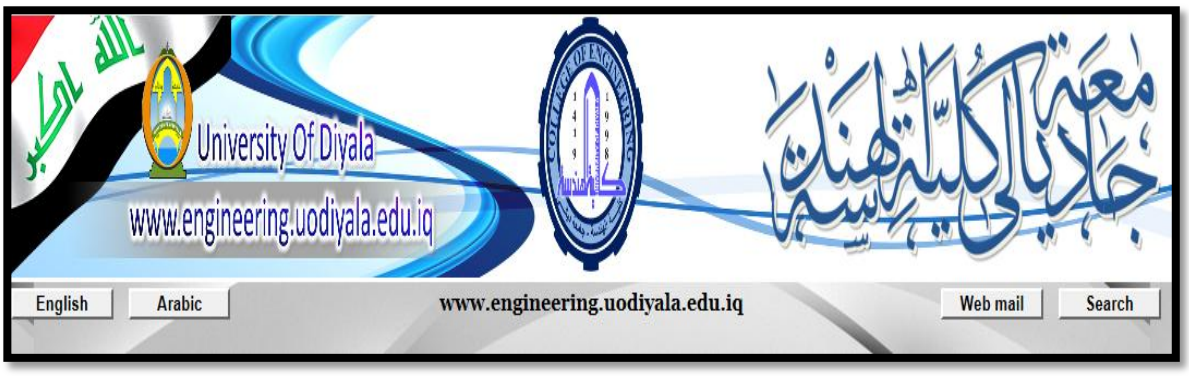


Figure 1 Header of CMS

3.6.2 Body

These areas include vertical templates, fields, photos, ads and a set of links which interact with the end-user.

The web site body almost contains the following fields:

- Vertical templates, including the latest news of the collage and updated events and activities subtitle of the collage in addition to, Read more command to display the hole of the news or events and quick links.
- Animation or dynamic pages that include all advertising related to the collage and General Directorate and a set of rapid news at the bottom the moving pictures, as shown in Figure 2.

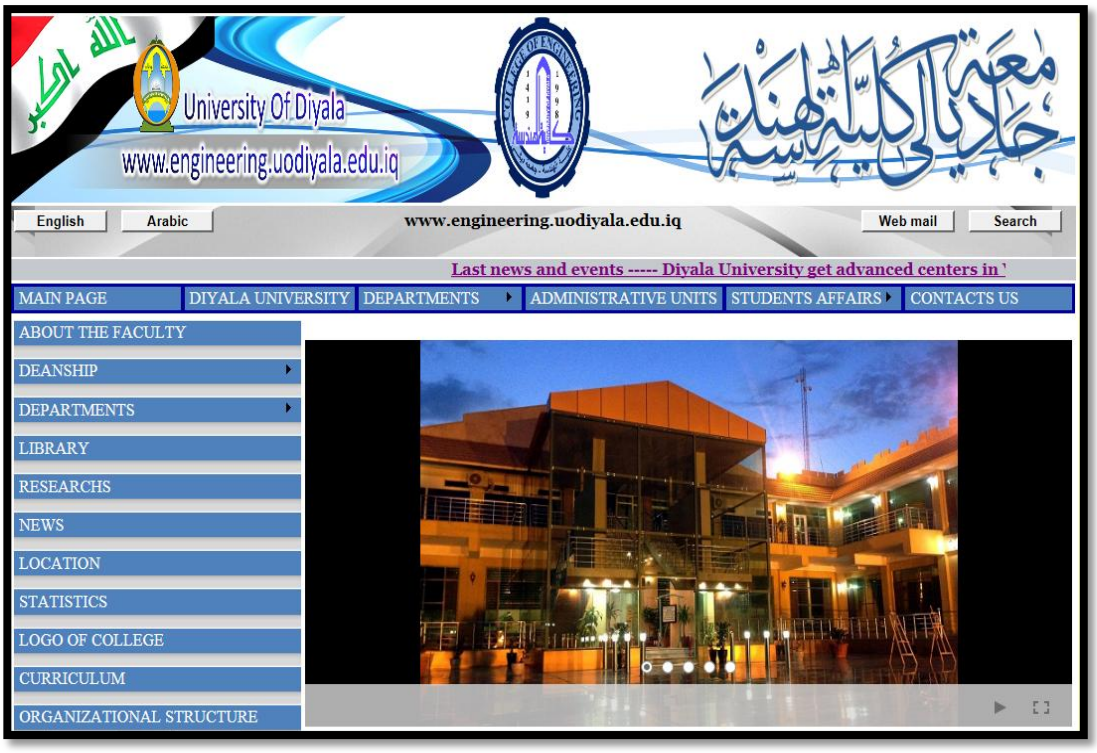


Figure 2 Body of CMS

3.6.3 Footer:

The footer is the lower area of the web site which always consists of any housekeeping and legal matters, such as copyright statements,links to social media sites, email, as shown in Figure 3.

Figure 3 Footer of CMS

3.7 Logical Structure Design of Web Interface

In this study, we will designing the web interface and building pages using *ASP.Net*, which is part of the *Microsoft Visual Studio 2010* environment, by segmenting the main page into three regions: *Header*, *Body* and *Footer*, each of which contain a set of codes behind the page design according to the type of content existing in the main interface. When designing a web site, the following elements should be emphasized:

- Colors, which should be coordinated, especially on the home page;
- Size and type of font;
- Navigation pages of the web;
- Accessibility;
- Coordination between content of the web; and
- Dimensions of site interface and pages.

3.8 Web Site Programming

The operation of designing and building any web site requires a high level programming language such as *ASP.Net* or *Visual Basic.NET*, the content of which contains basic tools that enable users to create static and dynamic pages with flexible control in page properties. After designing the main page and building it, databases should be provided for most pages by using *Microsoft SQL Server*.

3.8.1 What is ASP.Net?

ASP.Net is a web application framework developed by Microsoft to build dynamic data-driven web applications and services. *ASP.Net* is considered to be the most popular and most powerful way to develop interactive Web Applications and is also the most flexible tool for building interactive web sites. Programmatic logics and algorithms are used with the .css file extension. In this layer, *Visual Basic.NET* programming language codes are used [20].

Why ASP.Net?

- It allows users to design and manage web sites by providing all necessary tools.
- It enables users to control and manage web content easily.
- It is a powerful and flexible tool for building interactive web sites.
- It enables users to change the contents of sites easily and rapidly.
- It enables users to build web applications or windows applications.

3.8.2 Cascading Style Sheets

Cascading Style Sheets CSS is a style sheet language used to describe the look and format of a document written in a markup language. While most often used to change the style of web pages, the user interfaces are written in HTML and XHTML [21]. This is a very powerful, flexible and easy language to use. However, CSS is designed primarily to enable the separation of document contents from document presentation,

and includes such elements as layout, colors and fonts. This separation can improve content accessibility and provide more flexibility.

3.8.3 SQL Server

SQL Server is a database management system from Microsoft that combines the relational *Microsoft Jet Database Engine* with a graphical user interface and software-development tools. *SQL Server*is perfectly suitable for work requirements [22].

*SQL Server*enables users to design and manage databases easily and more flexibly in addition to editing, adding, deleting and reporting on all contents of a database.

3.9 Database of Website

When designing the main page of a web site, a database should be built which includes information needed by users**.** *ASP.Net* has many tools whichenable designers and administrators to design web pages and build databases for each page according to page requirements as well as using *SQL Server*to building some pages of website.

3.10 Description and Structure Design of Database

In this study, we will use *SQL server* to create some tables relating to students, staff , , coursesand absent. In the following tables show the logical construction of the data in the main tables, The teacher information table is describe in Table 1, the scheduleinformation table is describe in Table 2,The studentinformation table is describe in Table 3, Theabsentinformation table is describe in table 4, the homework information table is describe in Table 5,as shown in the following tables.

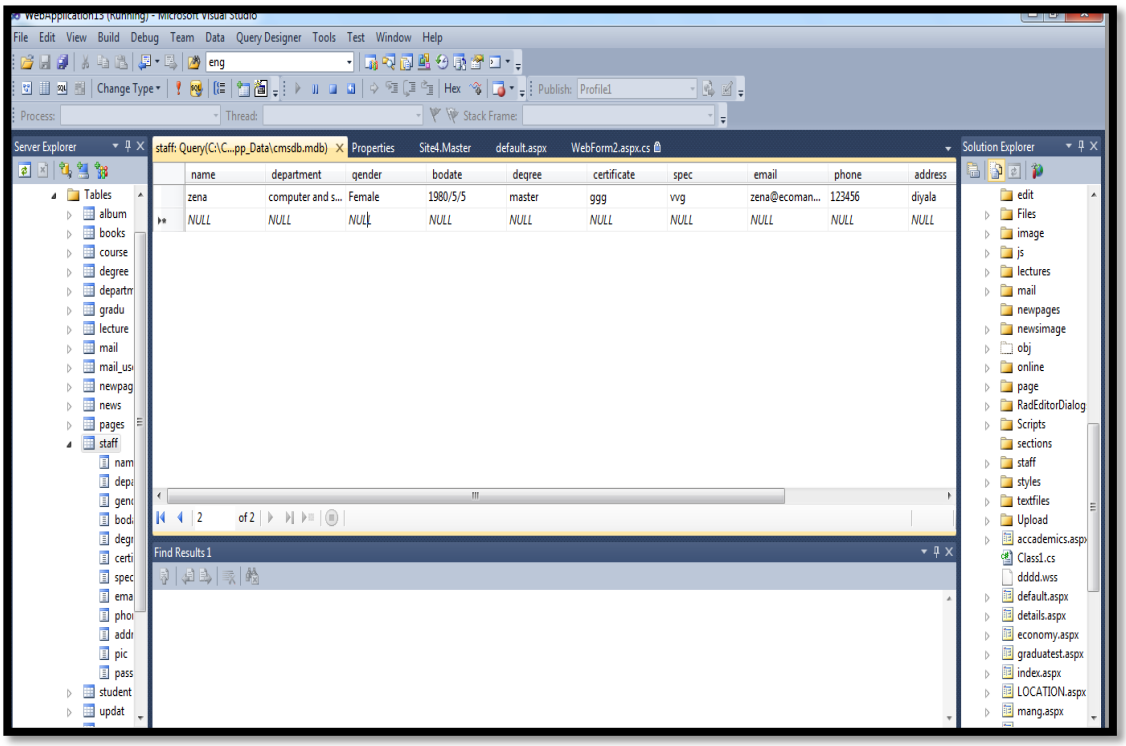


Table 1 Staff Information

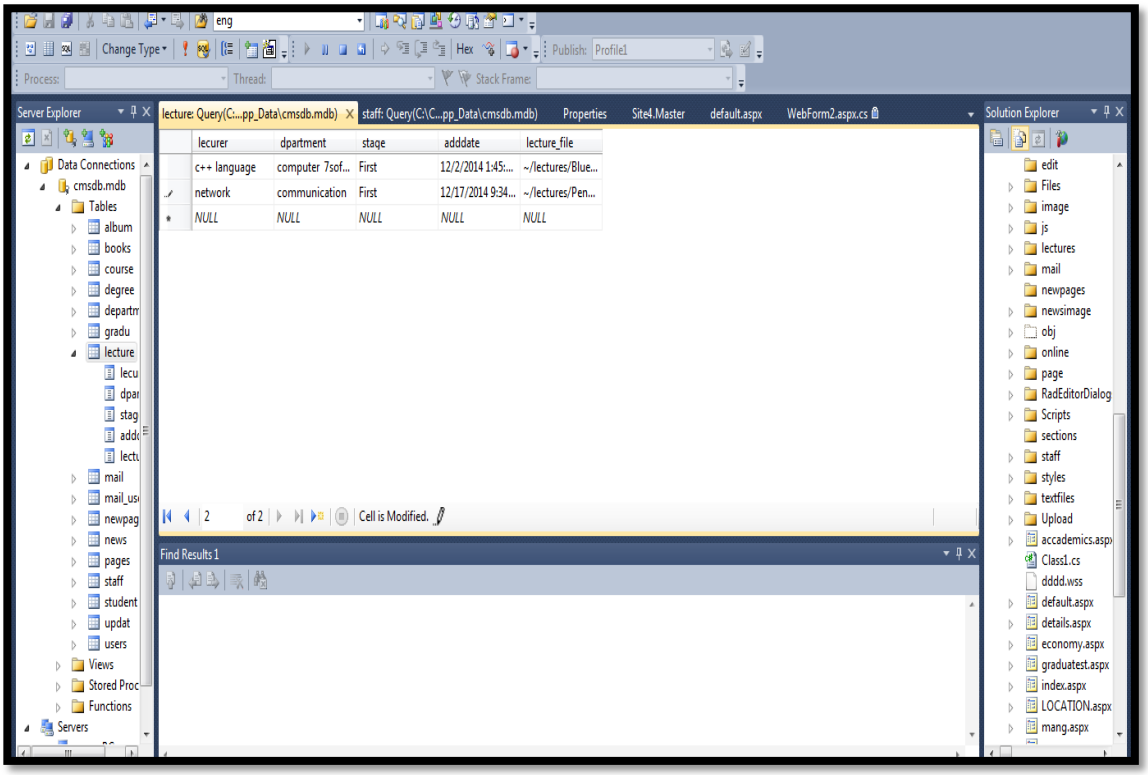


Table 2 Schedule Information

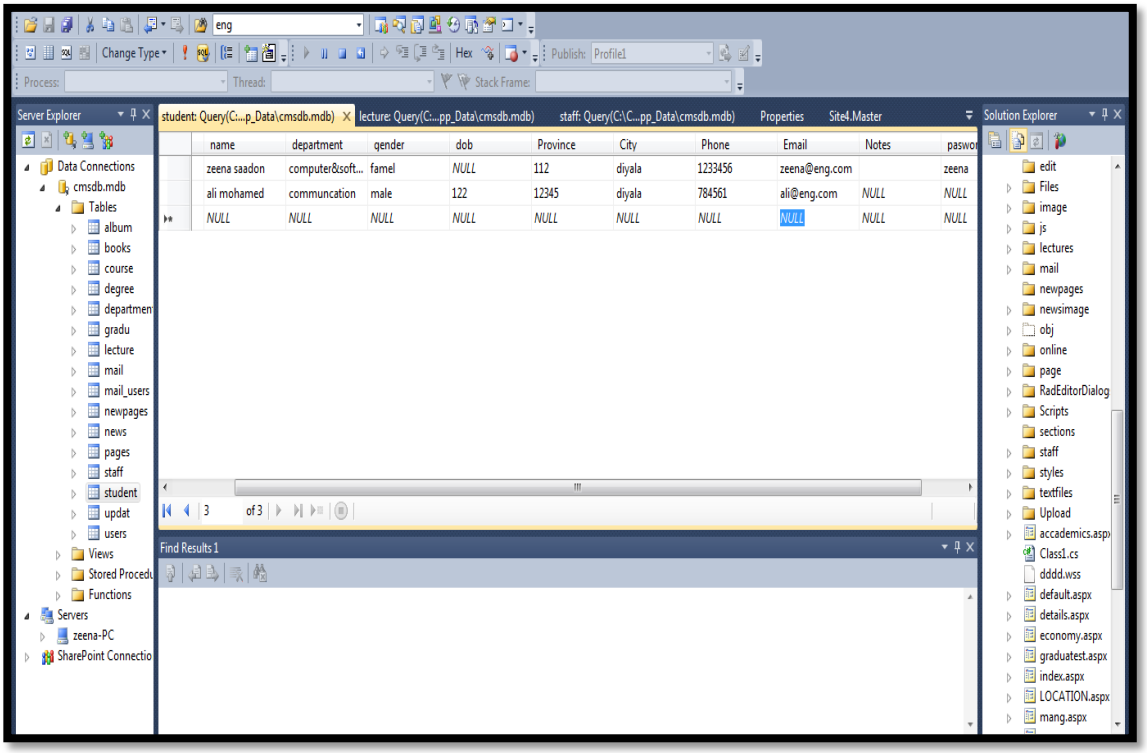


Table 3 Student Information

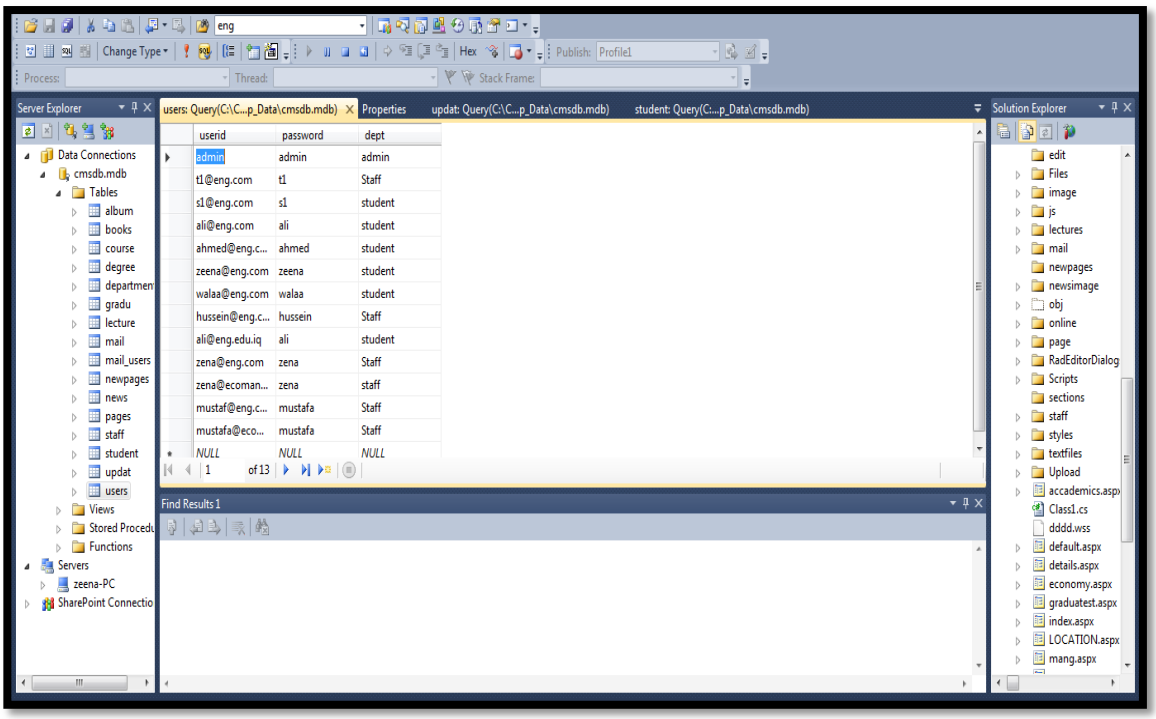


Table 4 about Information

	lecid	stdname	adddate	path
▶	L1507302821	s1@school.co...	7/30/2015	~/hw/h1507303...
	L1507302821	s1@school.co...	7/30/2015	~/hw/h1507303...
*	NULL	NULL	NULL	NULL

Table 5 Homework Information

3.11 Designing theInterfaceof Website

Prior to beginning the design of a web site, we should take advantage of previous studies relating to the design and management of web sites, such as the study [18] which focused on the basic elements in web site design, including web site languages, navigation and email services.

- The first step is to open *Microsoft Visual Studio 2010, ASP.Net* and to select "New Project" as shown in Figure 4.

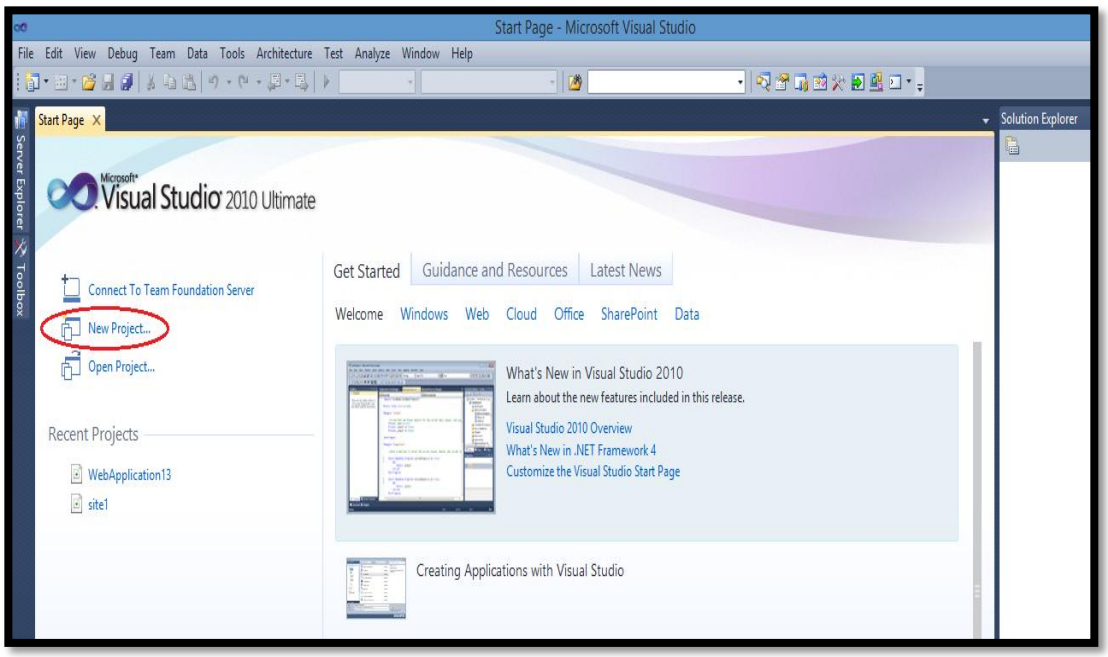


Figure 4 Opining Microsoft Visual Studio 2010

- From the installed templates, select “Visual Basic” and select web. In the middle list, select “Net Framework4” and select *ASP.Net Web Application*. Finally, we write the name of the web in the name field to create a new web site. Pressing “OK” completes the process. Figure 5.

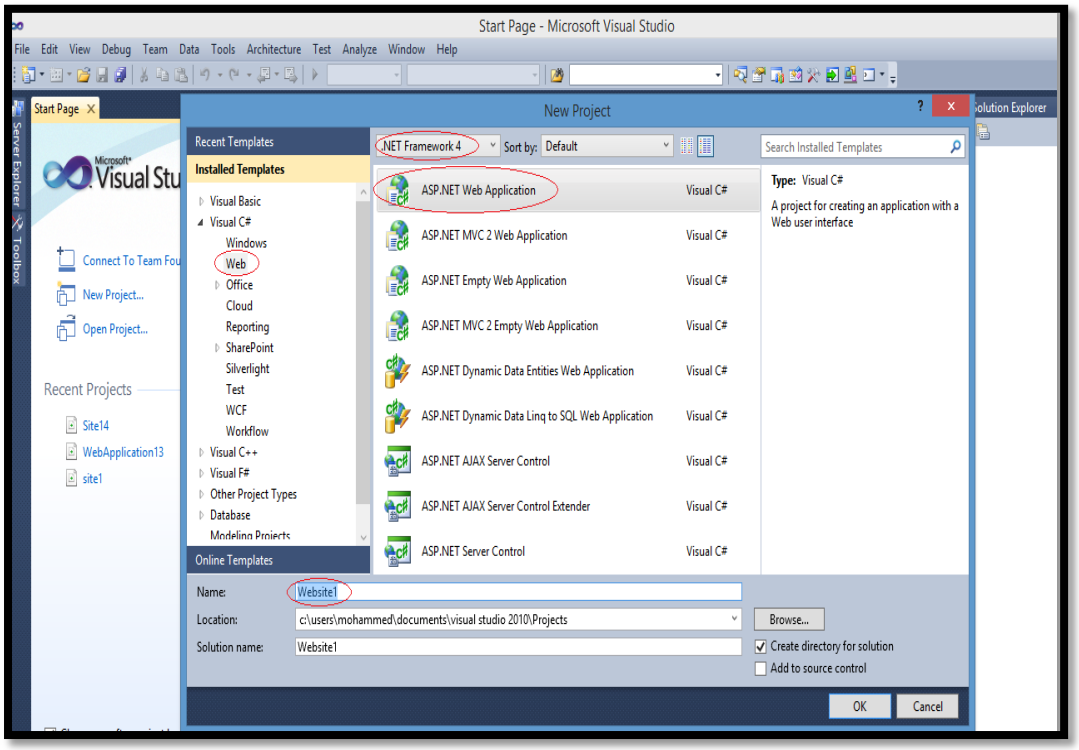


Figure 5 Create New CMS

- After selecting the program language and name of the web site, it will open the main page of *ASP.Net*, which contains three basic elements: *Tools*, *Properties* and *Solution Explorer,* which help the user to design and build static and dynamic pages, as shown in Figure 6.

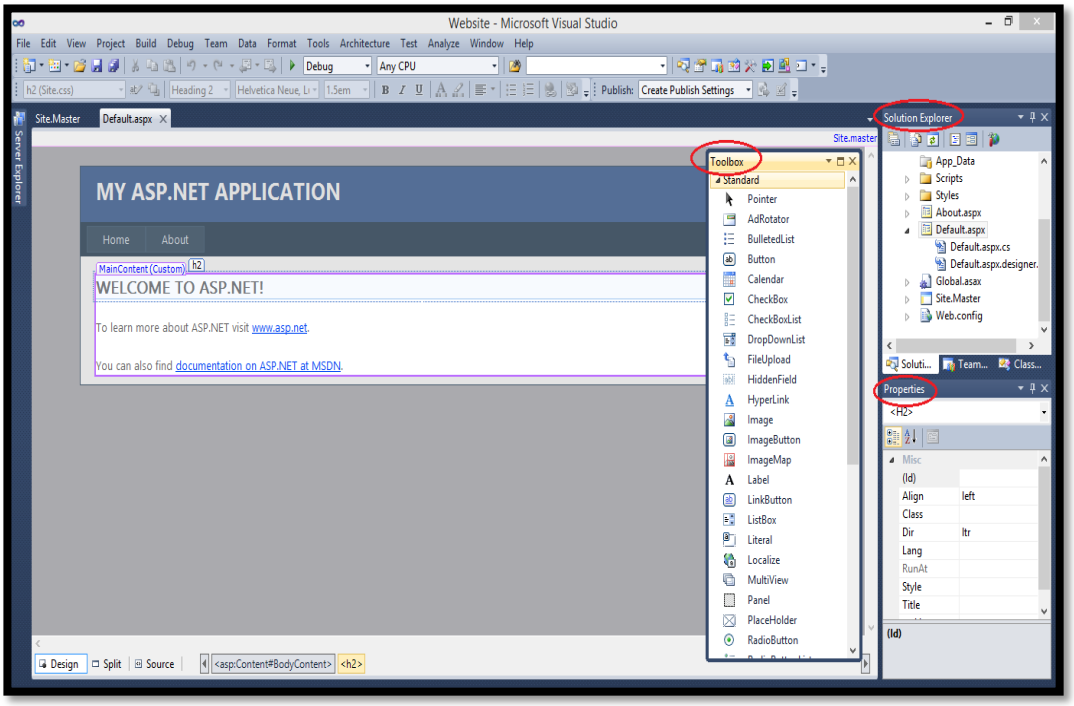


Figure 6 Opining the Main Page of ASP.Net

- Create webmail page

After opining the main page of *Visual Studio* and selecting *ASP.Net*, a web application will begin to build the first page by going to "File" and selecting "New" then selecting "Web Site…", as shown in Figure 7.

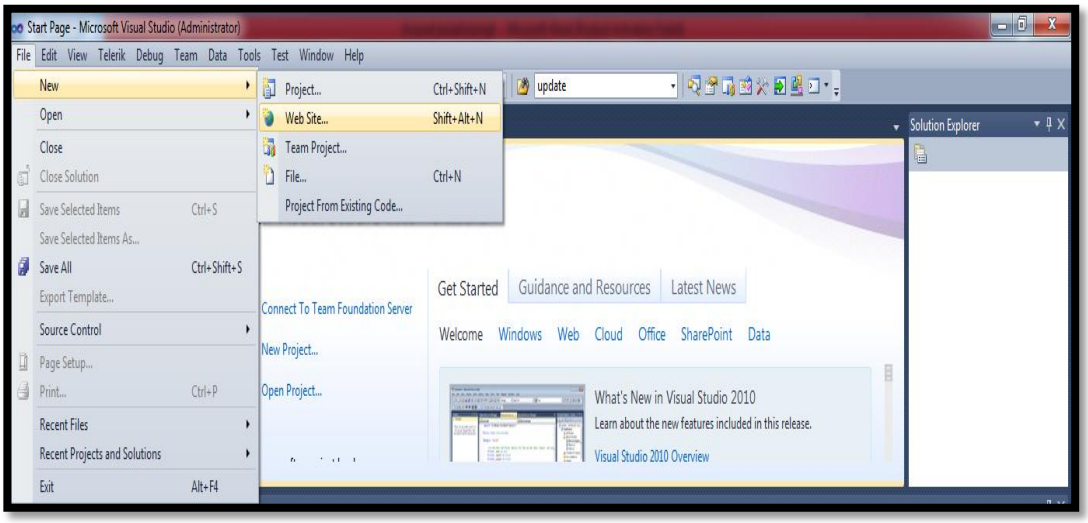


Figure 7 Create Webmail Page

- After selecting "New" then "New Web Site" will appear. From the "Installed Templates" list select "Visual Basic" then select *"ASP.Net"*, and press "OK." This will open the webmail page. Here, we select the login page, then right click selecting "Add New Item" as shown in Figures 8 and 9.

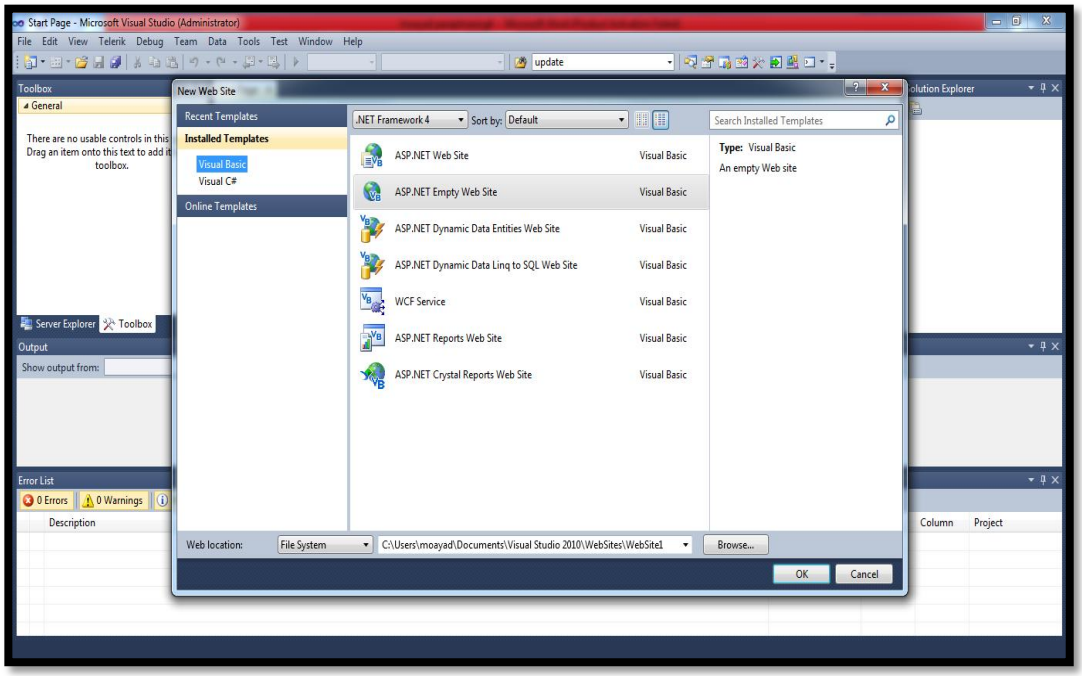


Figure 8 Opining Page of Webmail

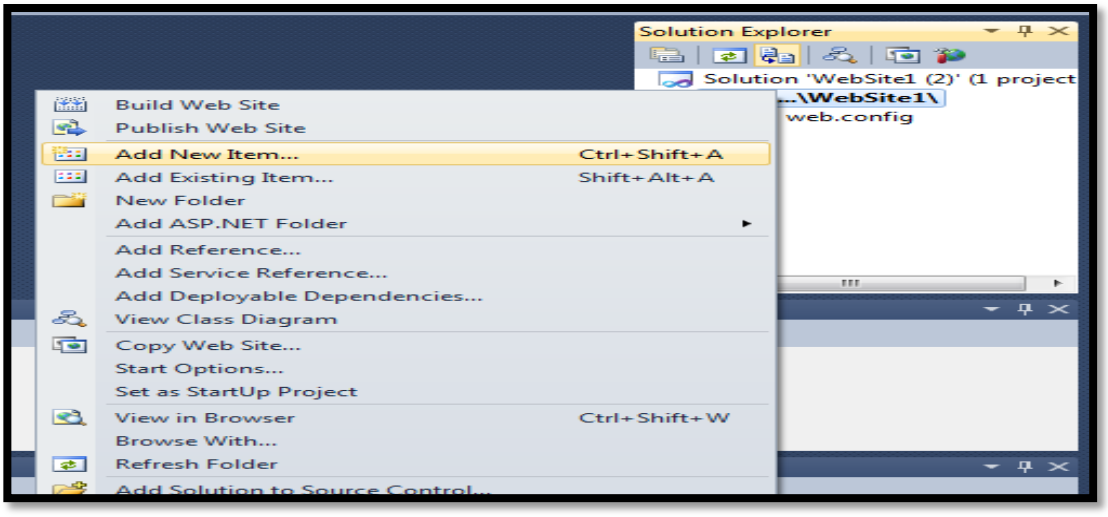


Figure 9 Add New Item

- After selecting “Add New Item,” a list will appear. We select “Visual Basic” then web form and determine the name of the page. Then we press “Add,” after which we create a table that includes seven rows and three columns as shown in Figure 10.

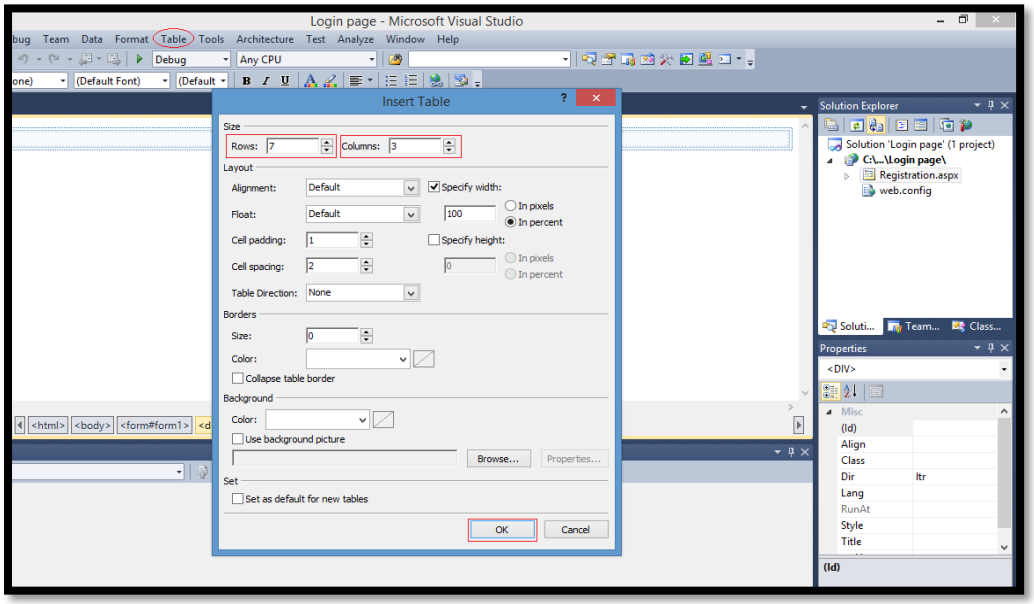


Figure 10 Create Table

- The table contains a set of fields: *User Name*, *E-mail*, *Password*, *Confirm password*, *Department*, *Gender*, *Address*, *Photo*, *Login* This table determines the properties of each field, as shown in Figures 11 and 12.

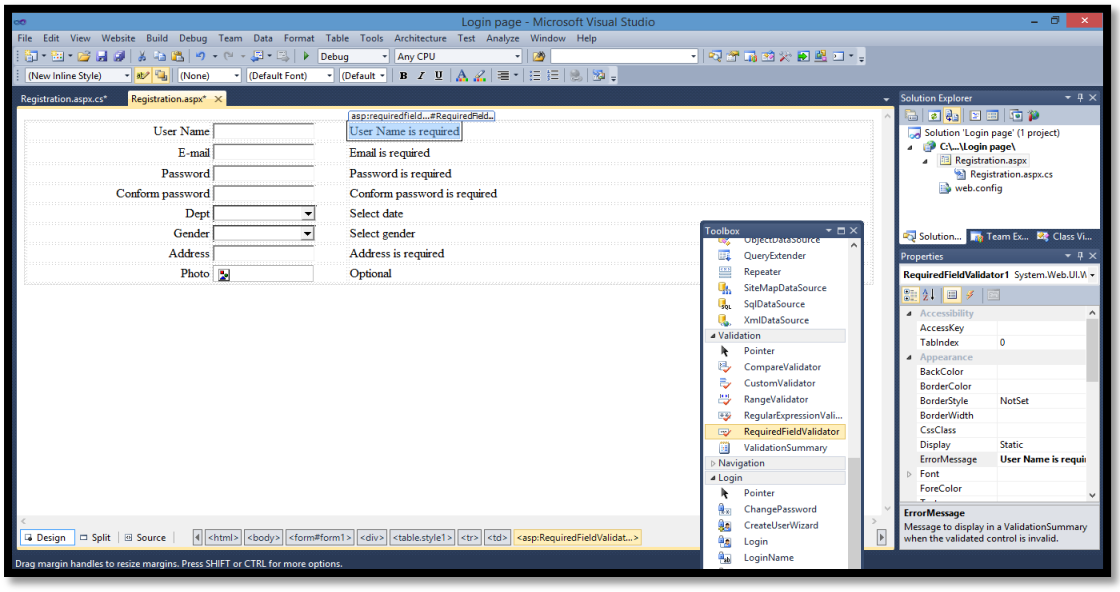


Figure 11 Selecting Names of Fields

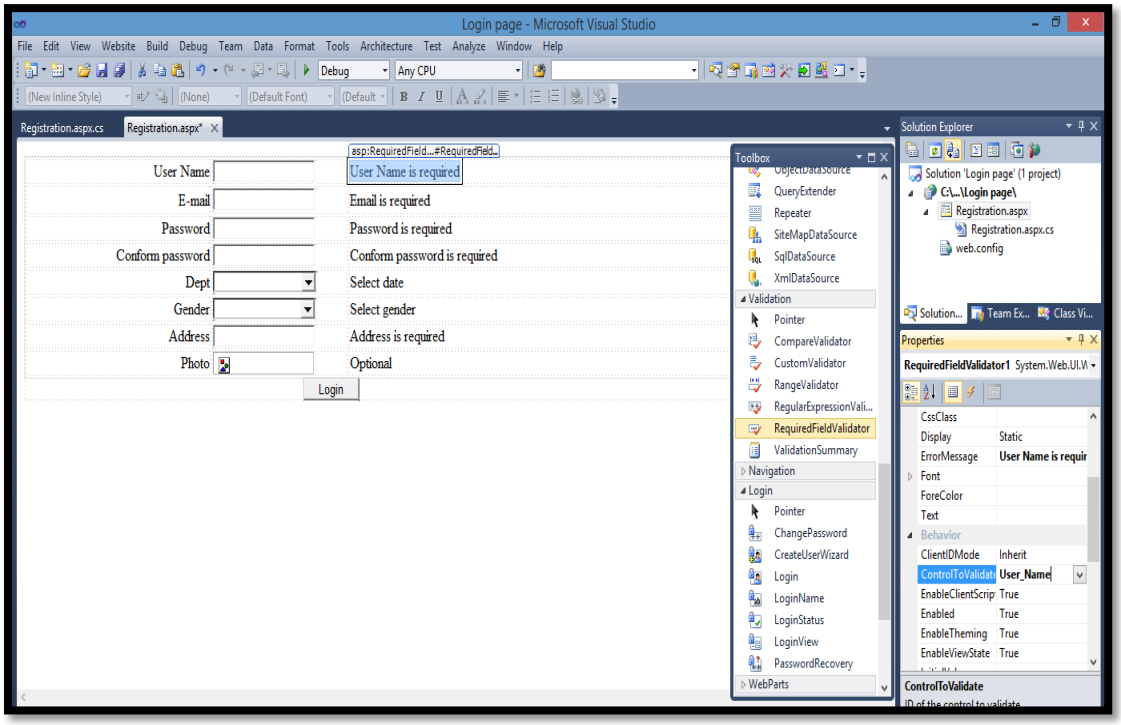


Figure 12 Selecting Properties of Each Field

3.12Connecting the Interfaces of Web site with Database

Most pages of the web site containing the database include information according to the type of page due to the fact that the database was designed using *Microsoft SQL Server*. When linking a specific page with the database, we should follow the following steps: After opening Microsoft visual studio and open a particular page, followed by clicking "Tools" on the menu bar. From here, we select "Connect to Database," After that, from "Data sources" we select the *Microsoft SQL Server* database file and press "*Continue,"* which will open a new form with several fields, the first of which is "Data source." The second field is "Database file name." This field can determine the type of file that is contained in the database and then links with page. Finally we press "Ok." as shown in Figures 13 and 14

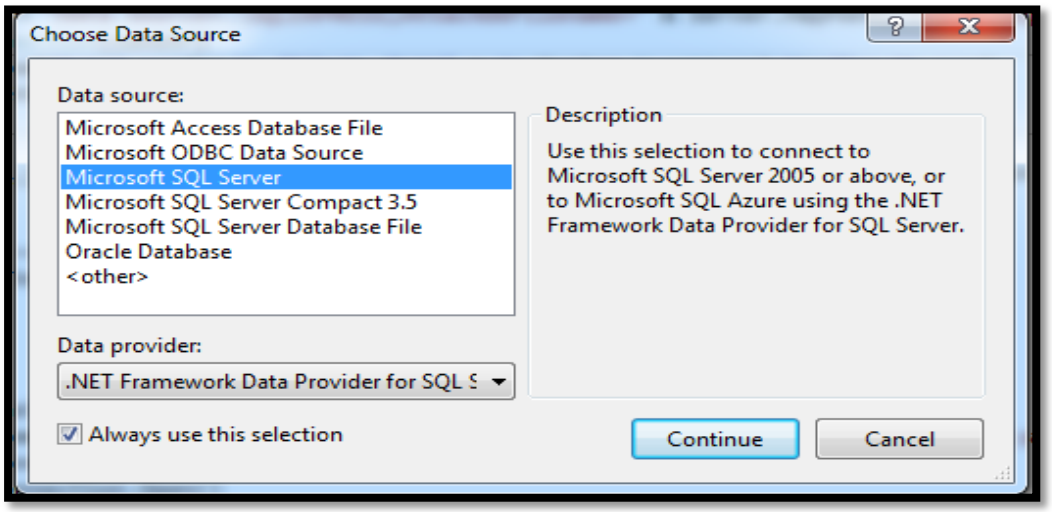


Figure 13 Database Connection

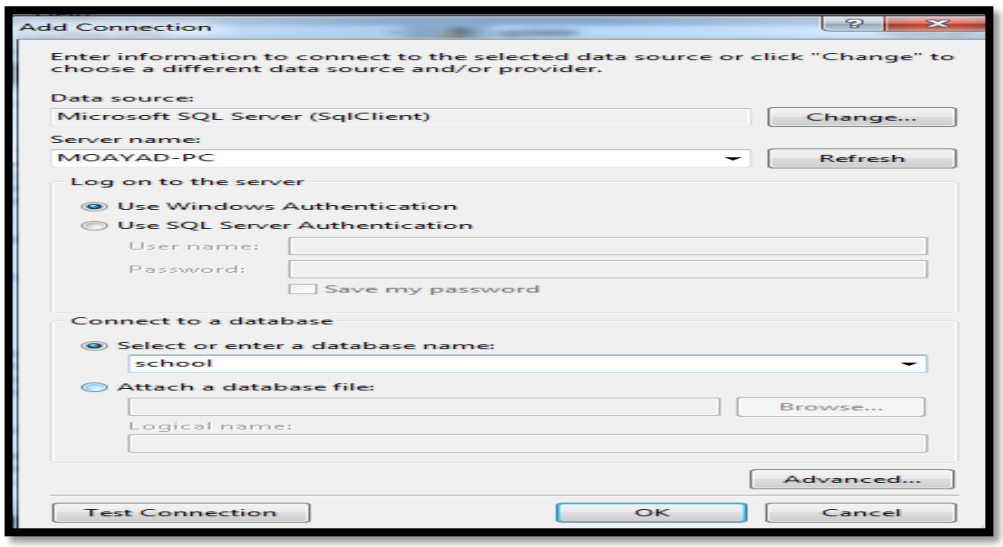


Figure 14 Linking Database

3.13 Website Protection

Web site security is a very important issue due to the Web being widely used in public life. Moreover, it suffers from attacks due in no small part to its interconnection, openness and other features [23]. A user with entry permission and who manages site contents is called “Admin.” The admin page should include a username and password in order to prevent unauthorized access to the control panel and database of the web site.

3.14 Results of the System Designed

After analyzing the previous studies and looking at the experiences and details of the techniques used in designing and managing web sites, the author has compiled the information to design and build a web site collage of engineering .This web site facilitates access to the collage in addition to facilitating the dissemination of information throughpublishing activities and issues concerning the collage or The Directorate. Furthermore, it achieves communication between students and master by delivering homework and exam grades via the webmail. A page is created for the collage in order to publish activities, such as schedules, advertisements and exam results. Finally, according to the techniques and information previously discussed about building these web site pages, the following results were reached.

3.14.1 Webmail Service

This page is the most important on the web site and represents the connection point between the collage and other institutions as well as among masters and students. This service is designed exclusively for collage members. The registration operation and creation of new accounts for students or any component is generate automatically for each of them when register to the collage web site. This page enables users to send and receive information, documents and other files, as shown in Figures 15.

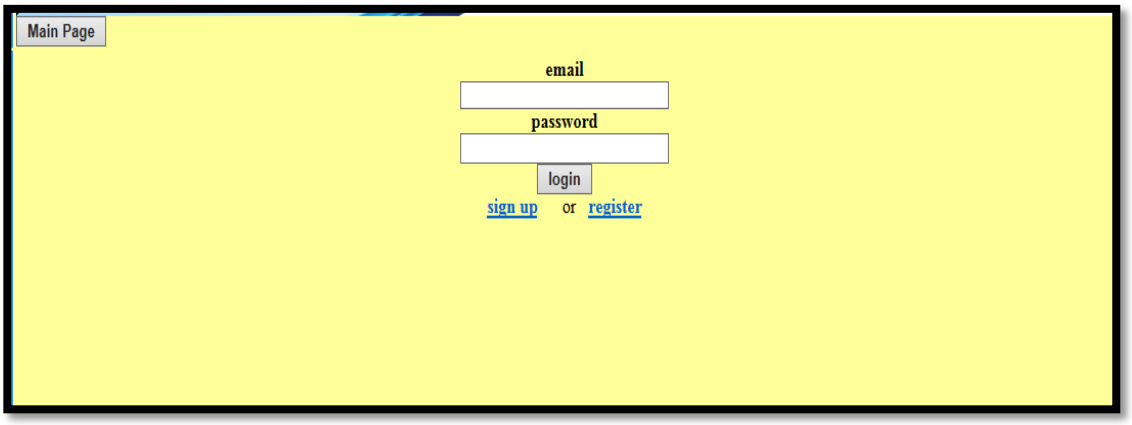


Figure 15 Webmail Service

3.14.2Admin Page

The admin page is the point of entry to the administrator control panel of the web site by authorized persons with a user name and password which enables him to enter andcontrol the site contents, as show in Figure 16.

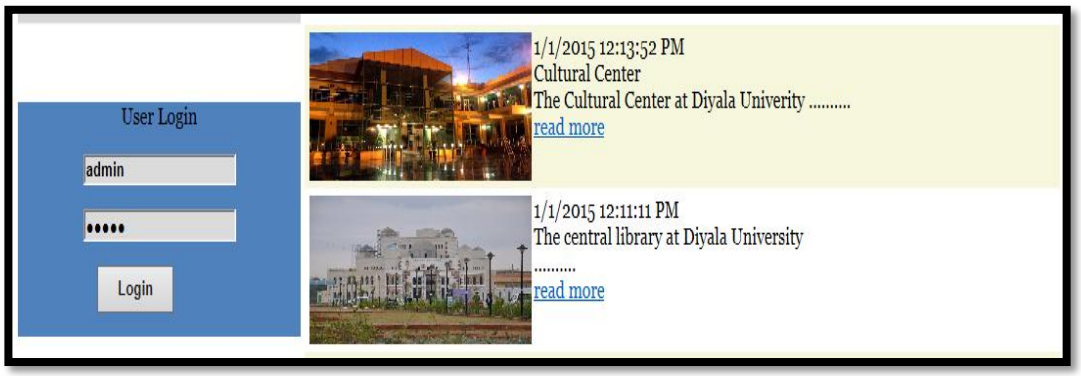


Figure 16 Admin Page

3.14.3 Page of Administrator

This page contains a menu bar each command is responsible for managing specific pages, such as publishing news, advertising and all activities of the collage as well as the possibility of editing, adding and removing site contents. It can be summarized thus: See Figure 17

Add user

- Add news
- Add Ad
- Multimedia
- Database
- Add courses
- Add photo
- Edit pages
- Add book
- Add pages
- News page
- Change header

Figure 17 Page of Administrator

3.14.4Staff Registration Page

This page functions as the staff registration portal and includes information about staff such as name, photo, field, password; confirm password, phone no. and e-mail. The email extension should consist of the extension of the collage, as seen in Figure18

Figure 18 Staff Registration Page

3.14.5 Student Registration Page

This page functions as the student registration portal of the collage and includes student information such as name, password, class, student ID, gender, birth date, e-mail, province and city. Here, each student has his own page, which enables the student to connect with staffs or the collage, as shown in Figure 19.

Figure 19 Student Registration Page

3.14.6 Student Portal

After he finished his registration operation, the student now can use his page and get advantage of this site. This portal or page contains some important functions to the student such as *Profile*, *Degrees*, *lectures*,*absen*t and *Mail*. Moreover, in the *Lecture* interface the student can download homework or lectures that uploaded by the teacher as shown in Figure 20.

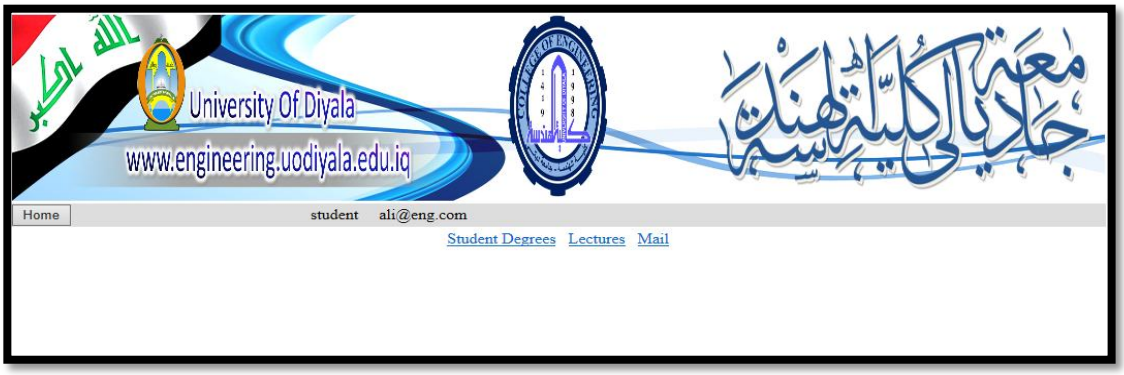


Figure 20 Student Portal

3.1.4.7 Staff Portal

This page specified to the staff who were already registered in the staff registration page. This portal enables the staff to upload lectures and homework which will be seen by all the students who enrolled in the same class. In addition, he can add degrees and absent to each student in the class as shown in Figure21.

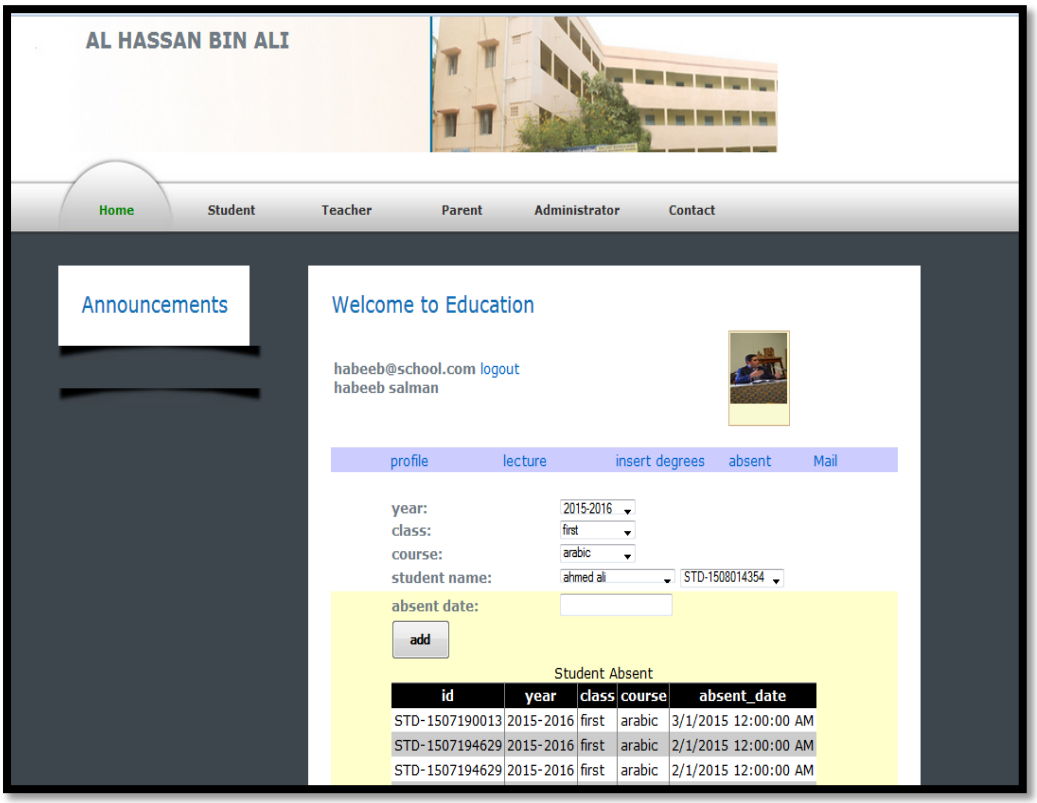


Figure 21 Teacher Portal

3.15 Menu Bar

The Menu bar contains much useful commands which help users to easily find what they needs. Moreover, this menu bar will make the web site navigation more flexible.

3.15.1 About collage Page

This page contain more than one property, we can find *Principle message, mission and vision, Organizational structure* and *location*,as shown in Figure 22.

Figure 22 Mission and Vision Page

3.15.2 Organizational Structure

This page contains the organizational structure of collage of engineering and explains the relationship between the principle and staff ,as well as students ..

3.15.3 collage Location

This page includes the geographical location of the engineering collage located in Diyala- Baquba, as shown in Figure 23.

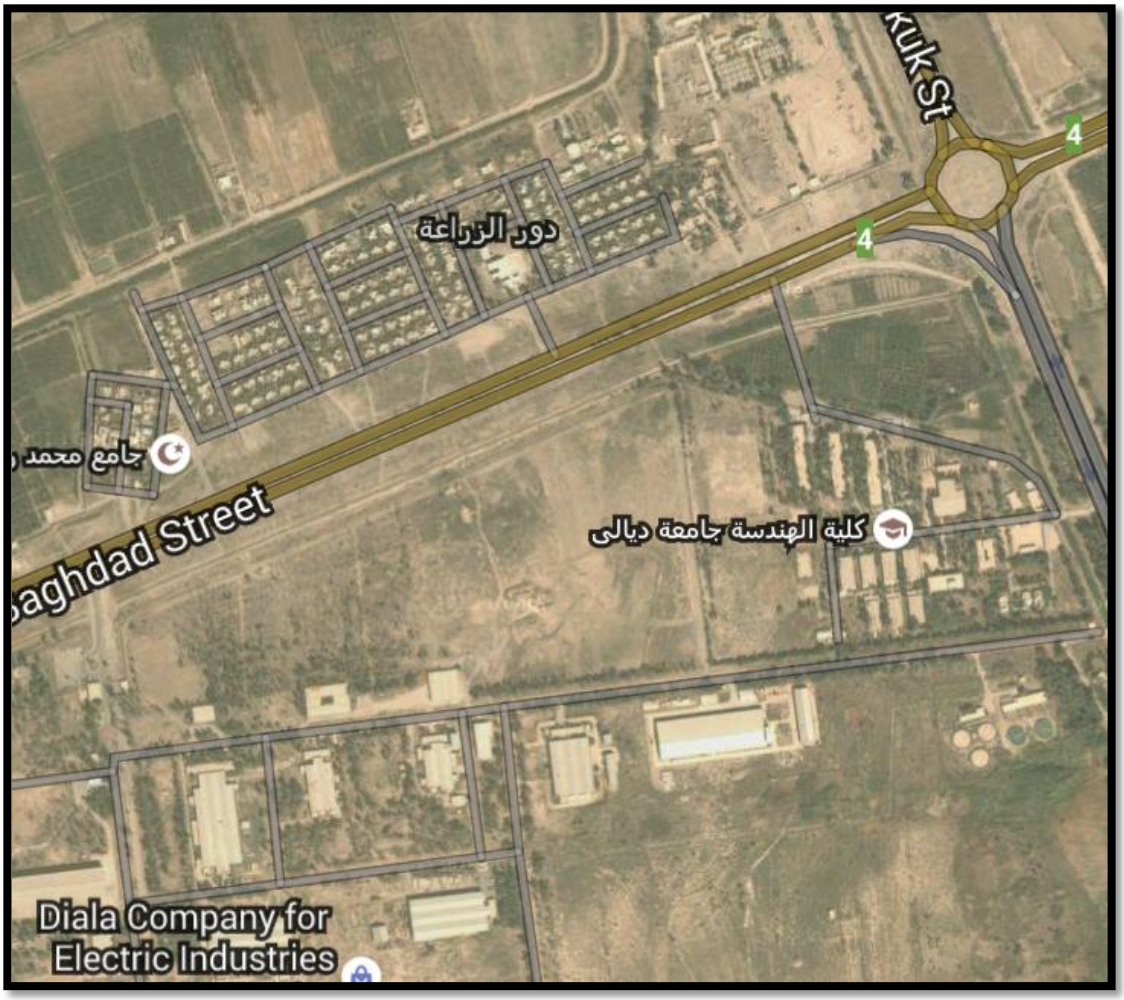
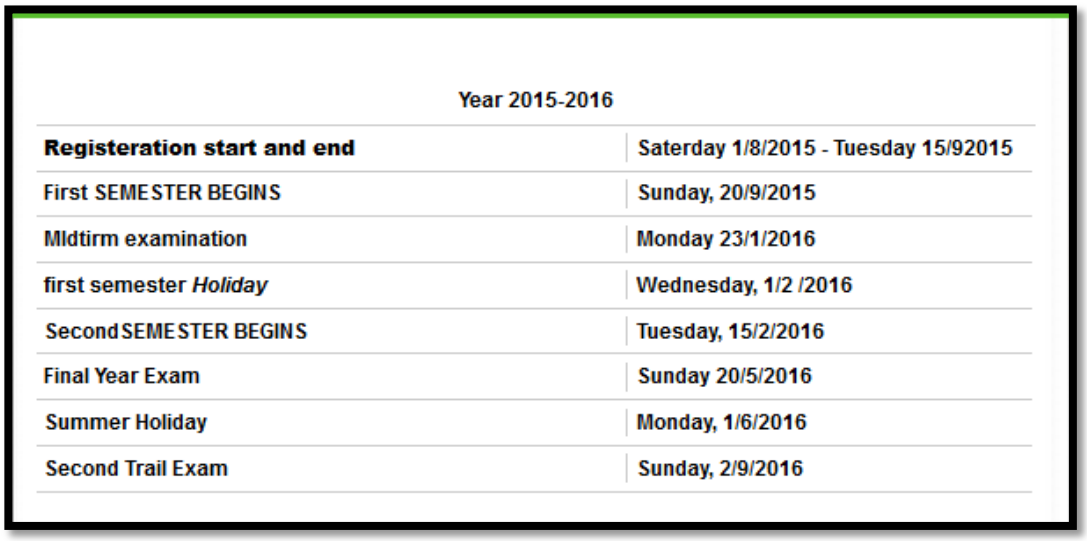


Figure23 collage location

3.15.4 Academic Calendar

This page contains an important dates such as start and end of registration and midterm exams dates or final exam dates...etc. In addition, these dates' helps parents to engorge them sons to but a schedule till the exam date, as shown in Figure 24.



Year 2015-2016

Registeration start and end	Saterday 1/8/2015 - Tuesday 15/92015
First SEMESTER BEGINS	Sunday, 20/9/2015
Mldtirm examination	Monday 23/1/2016
first semester *Holiday*	Wednesday, 1/2 /2016
SecondSEMESTER BEGINS	Tuesday, 15/2/2016
Final Year Exam	Sunday 20/5/2016
Summer Holiday	Monday, 1/6/2016
Second Trail Exam	Sunday, 2/9/2016

Figure 24 Academic Calendar

3.15.5 Contact Us

This page includes a set of addresses which enable users to contact the school by email or phone number, as shown in Figure 25.

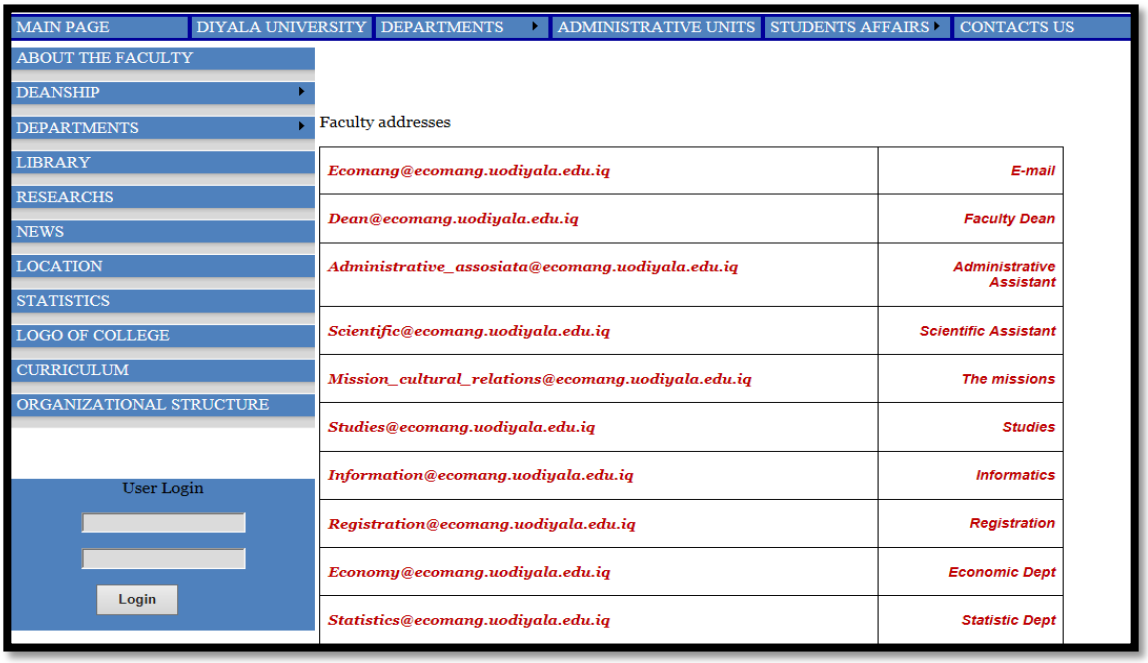


Figure 25 Contact Us

3.15.6 The Middle Template

This area is allocated for publishing news. The latest activates in the school or General directorate, with photographs. Moreover, it is contains welcoming message to the website visitors, shown in Figure 27.

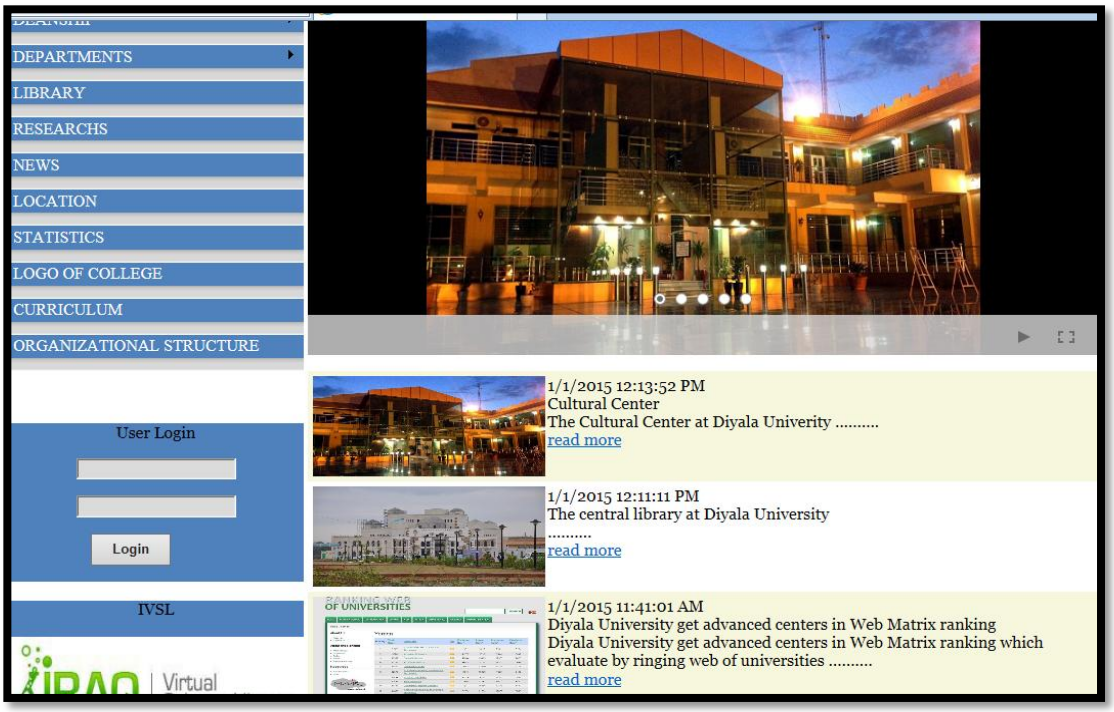


Figure 26 The Middle Template

3.15.7 Follow us

Nowadays, social media sites have become one of the important facilities in the electronic media. Therefore, it is made available to each user around the world. Examples include Facebook, Twitter, and YouTube, which enable people to exchange ideas and information in addition to pictures and videos in virtual communities and networks, as shown Figure 27.

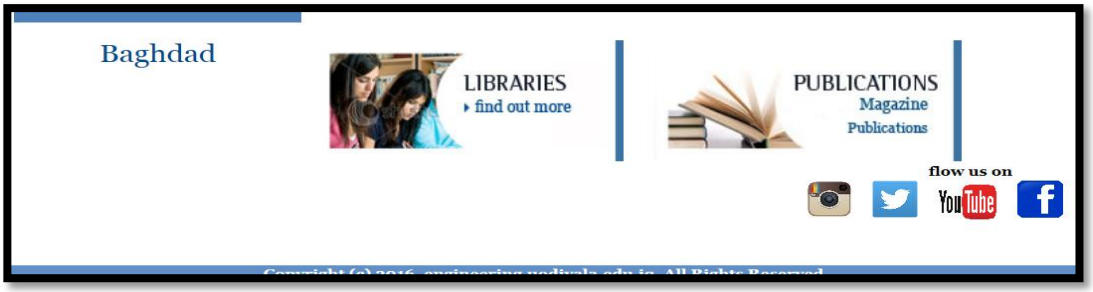


Figure 27 Flow us

CHAPTER 4

CONCLUSION

In this study, we have introduced the system for the collage– General Directorate for Education in Diyala. The main objective was to reduce or eliminate the paper work and converts to electronic work in both of administrative and educational operations in the collage through design and manages the system by using *Microsoft Visual Studio 2010 Ultimate* and *ASP.Net*, which has many tools that helps the designer to build and manage system easily and more flexibly. Moreover, improve relationship between students and teachers by delivering homework, exam dates and exam results. The functions for which they were designed have been achieved. In this study, the programming languages were used to design and manage the system including *ASP.Net*, which includes the *Visual Basic NET* language and Access with *SQL server* being used to build databases for some pages of the system ..In addition, each user is able to access and browse the system easily and take advantage of the contents of the system . Moreover, this system can improve the management of the collage to carry out its tasks efficiently through the exchange of formal papers between collage and the ministry through the email service of the system . The system enables the admin to add ,delete , change and edit all news which occur at the collage . The proposed system has achieved the purpose of this study, which includes the possibility of automate the administrative and educational operations in the collage by designing and managing the system for Diyala university collage of engineering .The characteristics of this system are the answer to most of the questions raised from the purpose of this study. The scale of efficiency of the system is dependent on its ability to satisfy the user's requirements for the quality of information. Currently most collage use CMS to provide students, teachers and with interactive systems which accelerate communication and increase knowledge in every field of study.

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