An Assessment of Online Application and Registration System of AMA, Kingdom of Bahrain

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ABSTRACT

This system aims at giving an online solution for students at AMA International University-Bahrain to apply and register their subjects. The system is created as a web server which communicates with a database to process data and displays it as information in HTML format.

The documentation for this project was made up of 5 chapters, which are summarized below:

Chapter 1 was assigned to give a brief overview of the problem statement, the background, the objective of the study and the significance of the study.

Chapter 2 was dedicated to review related literatures and studies which was comparing between my system and two other systems.

Chapter 3 explains the research methodology, in which a highlight was given on how the data was gathered and interpreted using the weighted mean. Statement of the problem 2 (What are the problems in the current system?) The results of the evaluation of the questionnaire were 2.54 which mean Average for the existing system, and 4.41 which mean Excellent for the proposed system; Statement of the problem 3. (What are the data or information needed for the development of the system?) The results of the evaluation of the questionnaire were 1.75 which mean Fair for the existing system, and 3.98 which mean Good for the proposed system. Statement of the problem 4. (What features that will be implemented to solve the problems encountered in the current system?) The results of the evaluation of the questionnaire were 1.69 which mean Fair for the existing system, and 4.22 which mean Excellent for the proposed system.

In testing the hypothesis, the t-test formula was used, the computed difference is 0.0159. Therefore, there is a significant difference between the current procedure of applying and registering of subjects and the proposed system of online application and registration of subjects.

Chapter 4 was dedicated to the software analysis and design of the AMAIUB Online Application and Registration System.

Chapter 5 was dedicated for the summary, conclusion and recommendation, there were three appendices (appendix A, Appendix B, Appendix C and Appendix D) attached to the main documentation of the project, which have been dedicated for the sample of screen layout, program, sample of the questionnaire and personal vitae.

Keywords--- Online Application, Registration System, HTML

I. INTRODUCTION

The Internet is the greatest technology ever built through the years. It helps the world to be a small country that every one may contact each other smoothly and easily. The Internet is coming popular day by day with the people who are interested in communicating people, gathering information, playing games and so many advantages are coming from the World Wide Web.

Almost all of the companies and universities around the world are using the Internet technology and integrating there services online, so they can show their advertisements, offers whether buying or selling and many interesting services.

So in this project we will be focusing on online application registration of subjects and payment. This way the registration office would know how many students are enrolled in each major. Registered students would get their Admin ID and password.

The AMAIUB should have online application and registration system which will improve the speed and accuracy of student registration process, since our project is based on this feature we believe it’s the reason why the school should have this website that makes the registration process much easier and manageable for the students and University staff.

II. BACKGROUND OF STUDY

The current registration process of the university is to physically visit the university, fill up an application form and sign it by the advisor then register it in the system and submit it personally to the registrar.
Our system will improve the traditional method of registration process, where students no longer need to visit the University for registering. By implementing the system, students can fill-up the application form, pay their fees, choose their major and according to the major the student will be given an ID number automatically after that chose the subjects for the trimester schedule online and the data entered by the student will directly go into the system’s database.

In today’s world, reducing paperwork and crowd is the best form of reducing time consumption and improves efficiency. The current method of registering would require students to visit the university, wait for their turn, get in an over crowded place, which results in inconvenience of transport, time and visit. This can be easily solved by creating a website, where all the registration process can be done online at any time of the day by the students.

This website will be developed using PHP and HTML as a website interface, data processing and database communication, MySQL as a database and the whole system will be running on Apache web server.

The tables designed in MySQL database will provide fast record retrieval of students, authorization of the applying and registration process by checking registration start and end dates, keeps track of the current trimester and year, and other features which can be reviewed in the Appendices sections and in the Scope and Delimitation section.

The AMAIU should acquire the latest technologies, as it can improve the performance and also its image in the community as one of the leading university in Information Technology. Most of the universities in the Kingdom of Bahrain have either utilized or installed the latest software’s and upgraded their websites to become more effective and to minimize time consumptions.

As stated AMA International University has an outdated registration process, which consumes lots of time for both the students and the university faculty members. The university has to make lot of arrangements to accommodate the students during the registration process, which can be quite chaotic to manage.

The new website can offer the university a very simple process, which will be user friendly and easily navigable for students to check out the courses available and register themselves to the respective classes.

**III. THEORETICAL FRAMEWORK**

In this section, it will discuss how the system is analyzed and developed to solve problems that may exist on the current system. The following figure 1.1 illustrates the steps involved:

**IV. OBJECTIVES OF THE STUDY**

**General Objective**

The general objective is to design and develop a website for AMA University of Bahrain which can create more efficient way where students can apply and register online.

The new website will have interactive pages, where students can fill in their details online for admissions. These details will then be recorded into the database and the Registrar Office will see how many is registered in each major.

**Specific Objectives**

- To determine how the existing registration process of the university is implemented.
- To determine the problems encountered in the current method of registration process.
- To develop a simple interactive website that will provide: User friendly & interactive website; Efficient way of registering online for the students; Saves time and convenient.
- To determine if the proposed website is technically, operationally and economically feasible.

**V. STATEMENT OF THE PROBLEM**
The research aim is to evaluate the need of a development of website of AMAIUB Online Application and Registration System. A survey of the present AMAIUB website with the aim of determining the weak spots:

1. What type of system to be developed for the AMAIUB Application and Registration?
2. What are the problems in the current system?
3. What are the data or information needed for the development of the system?
4. What features that will be implemented to solve the problems encountered in the current system?

Hypothesis
There is no significant difference between the current procedure of applying in AMAIUB and also in registering and paying of subjects enrollment with the proposed system of AMAIUB Online Application and Registration System.

The study of the current university website has given out the following hypothesis:
1. The existing registration process of the university is physically the student should be presented in the university to check the subjects are available and the section timing and choosing them manually while standing and many mistakes may happen due to an over crowded environment.
2. The problems encountered in the existing method are inefficiency, lots of paperwork and time consumption.
3. The proposed website provides AMA University Bahrain.
   a. Avoiding queue.
   b. Efficient way of registering online for the student’s and the registrar.
   c. Saving time and is convenient.
   d. Giving the opportunity to the people who are inside or outside the Kingdom of Bahrain to register easily.
4. The proposed website is technically, operationally and economically feasible.

VI. SIGNIFICANCE OF THE STUDY

Technological Significance. This website will use the latest PHP to create and develop the software. PHP will be used for some data processing and data communication with the database. MySQL will be used to manage the database in all phases and can also provide some data processing and calculations. The significance of this technology is that the researchers can develop a creative and reliable website by using these tools.

Educational Significance. The site will help the university to save time on physical paperwork, while having a fast response to the student admission process. This type of process can create interest for the students of the university in an IT perspective.

Economical Significance. It will save time, money and effort of the university to operate in an efficient way. The designed website will not take more than three months for completion and the development cost is also very minimal.

Researcher. In this research project the researcher gained more knowledge regarding developing the AMAIUB website, by knowing more about the programming language that is used, and how the process of the webpage is going in the database.

Other Researchers. The other researchers will gain more information that how is the AMAIUB Online Application and Registration System is implemented and they would know more about the programming language that is used to develop any website.

AMAIUB Admission’s Office. The staff at the admission office will have the opportunity to use the application form and the registration of subjects online and easily, also they are capable of adding new majors.

VII. REVIEW OF RELATED LITERATURE

This chapter deals with the review of related literatures and studies that has to do with the topic, online registration of universities and educational systems. The collections of sources are from the Internet and these sources gave the author some great ideas on how to have a registration web site.

Why PHP/MySQL?
( Janet Valide, PHP & MySQL for Dummies 3rd edition, New York, 2006 ) PHP Scripting and MySQL database enables programmers to create application that will run on just about any computer, regardless of operating system.

PHP has thousands of programming functions to facilitate almost any task.

If the computer can run web server software, the PHP/MySQL application is portable across operating system and environments, PC, Mac, Linux, Unix, Windows, Internet, Intranet, etc. This means I can develop a project on my Windows PC, and see my friend who can run it on his Linux box. PHP/MySQL projects include forums or communities, organizers, project management tools, calendars, shopping carts, mailing lists, and all sorts of useful applications. Source code for many open source code projects is free, while advanced projects often require commercial use. Data can be exported from MySQL for use in spread sheets or data base on your PC. Similarly, data residing in existing PC spread sheets and data base can be imported to an online database. The probability of data opens up all of uses, especially for workgroup and for those who need to access data from both home and work.

Database Management System (DBMS)
(Silberschatz, Korth, Sudarshan. Database System Concepts. McGraw-Hill, New York, 2005) A database management system provides the ability for many different users to share data and process resources, but as
there can be many different users, there are many different database needs.

**Benefits**

Database Management systems offers a great deal of benefits to both, the users and the organizations. Amongst these benefits are the following: Improved strategic use of corporate data; Reduced complexity of the organization’s information systems environment; Reduced data redundancy and inconsistency; Enhanced data integrity; Application-data independence; Improved security; Reduced application development and maintenance costs; Improved flexibility of information systems; Increased access and availability of data and information; and Logical & Physical data independence.

**VIII. RESEARCH METHODOLOGY**

**Research Method**

The results in this project are based on data gathered from a close ended questionnaire conducted by the researchers on a specific sample of a population of 70 students studying at the AMA University and 3 employees at the admissions office. The design of the sample achieves the goal of the project and the data was weighted to help correct for any potential bias that might be introduced due to non-response.

The researchers chose to hand give the questionnaire to the respondents for the following reasons:

- Ensure that the questionnaire reaches the respondents, i.e. eliminate the chances of losing the question papers;
- Obtain on spot results; and to answer any queries or clear any doubts that may be faced by the respondents.

Additionally, closed-ended questions were chosen to make it easier and faster for the respondents to answer. In this type of questionnaire the participants are allowed to choose from a pre-existing set of answers, such as: 1- Poor, 2- Fair, 3- Average, 4- Good, 5- Excellent, and for the new online system set of answers such as: 1- Not needed, 2- Badly Needed, 3- Moderately Needed, 4- Highly Needed, Very Highly Needed. Unlike the open ended questionnaire that does not give respondents answers to choose from, but rather are phrased so that the respondents are encouraged to explain their answers and reactions to the question with a sentence, a paragraph, or even a page or more, depending on the survey.

**Respondents**

The research surveyed students randomly to cover both traditional (existing system) and online. They are students from BSBI, BSEI, BSCS, BSIS, and BSME. This was deliberate because, in real life some expected demographic factors account for some differences between existing system and researchers system. Online applying and registering system tend to be younger, better educated, and higher-income than those who have not apply or register through the internet.

The table below shows the distribution of respondents:

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Number</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>New (Online)</td>
</tr>
<tr>
<td></td>
<td>(Traditional)</td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Admission</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>73</td>
</tr>
</tbody>
</table>

**Data Gathering Instruments**

The research design envisaged two types of data would be obtained, namely primary and secondary. The Primary data would be obtained through the submission of a questionnaire to students chosen randomly from the first year student; whilst the secondary data was obtained from the net, journals and existing related projects.

**Data Gathering Procedure**

For the gathering of the secondary data, it was recognized at the beginning of making the project that the use of online applying and registering system has been researched by a number of people and in a number of countries. The lessons learnt from these experiences provide valuable insights into the nature and scope of the use of online applying and registering system, particularly within the framework of globalization and the information societies. It was also clear at the outset that there are key issues, which have shaped the e-commerce industry which profoundly affect the use of online applying and registering system. A thorough review of existing literature was therefore essential for developing appropriate research instruments, analyzing the data and increasing the knowledge and understanding of the researchers. As far as the collection of the primary data, a close-ended questionnaire was developed, which was given to
respondents for piloting purposes and was tested on a reasonable population for clarity or any ambiguities before producing the final version. After testing the questionnaire, the research team met to analyze the responses obtained and to find out if any of the questions need rephrasing or changed. Having made sure that the questions are clear and will not cause any confusion to the respondents, they were published to form the final version and were distributed to the target population.

**Data Processing and Statistical Treatment**

In order to process the data, the responses have been transferred into tabular formats, which were then counted to enable the statistical computation. The questionnaire used was a close ended one with predefined answers ranging from Excellent to Poor. In order to interpret the data and calculate mean, variance and standard deviation of the responses, weights were assigned to these ranges as can be seen in the table below:

<table>
<thead>
<tr>
<th>Weight</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.21 – 5.00</td>
<td>Excellent (E) / Very Highly Needed</td>
</tr>
<tr>
<td>3.41 – 4.20</td>
<td>Good (G) / Highly Needed</td>
</tr>
<tr>
<td>2.61 – 3.40</td>
<td>Average (A) / Moderately Needed</td>
</tr>
<tr>
<td>1.61 – 2.60</td>
<td>Fair (F) / Badly Needed</td>
</tr>
<tr>
<td>1.00 – 1.60</td>
<td>Poor (P) / Not Needed</td>
</tr>
</tbody>
</table>

**Scale Table**

**Presentation and Interpretation of Data**

The questionnaire consists of thirty different questions where the respondents are given the choice between ten answers in question one, they are: (Poor, Fair, Average, Good and Excellent) And in question two and three are: (Not Needed, Badly Needed, Moderately Needed, Highly Needed and Very Highly Needed).

**Software Analysis and Design**

This chapter discusses some of the currently implemented system specification and operation requirements alongside a brief walkthrough of the proposed system's, system development life, the hardware/software requirements and the different feasibility treatments including technical, operational economical and social aspects.

**Description of Current System**

The current Registration system of AMA Bahrain International University contains two Parts, the manual procedure, and the computerized process. The manual procedure starts with the students, the student takes the plotting form, then he goes to one of the rooms that contains his major subjects offered where it's located in the second floor, then the student selects the required subject, and writing them on the plotting form.

After that the student goes to the available adviser which is available in the same room, the adviser takes the plotting form from the students, the adviser checks the plotting form for time clashes, duplicate subjects, and prerequisites. After the adviser approves the plotting form the student signs to conform his request, the student takes the plotting form to data entry which is available in the computer labs, that are located in the first floor, the person in charge of the data entry takes the plotting form, and enters the data into the computerize system of the university.

After entering the data, the person in charge prints a Assessment Form and give it to the student, in this state the student is Unofficially Register to the subjects, to complete the registration, the student goes to the cashier and pay the required fees, the cashier conforms the registration of the student, and prints the certificate of registration.

**Hardware Setup**

The existing AMA International University website is hosted to the world from the servers stored in the IT center of Salmabad's campus. The personal computers in the IT center serves as development and editorial machines. A fully dedicated internet access is required to run any website; this makes use of the campus network infrastructure either through wired switches or wireless fidelity access-points. Since the software is focused on the requirements of the Admission Office, the following hardware are identified in the office: Intel Pentium 4; CPU 1.8 GHz;512 of RAM.;80 GB HDD.

**Software Setup.** The software that the admission's office is using is Windows XP Professional.

**Personnel.** The admission officers

**System Design and Specification**

During this phase, the System Development Life Cycle (SDLC) of the of the proposed AMAIUB Online Application and Registration System will be discussed, followed by the system's general hardware, software and human requirements. In the student's side they are capable of:

1. Login/Logout.
2. Applying Online.
3. Subject Registration.
4. View Courses Outline (Curriculum).
5. Viewing Registered Subjects.

For the admission's side they are capable of many features more than the students such as:

1. View Student Information.
2. Reject/Accept Students.
3. Add New Major.
4. Add News and Announcements.
5. Generate student, payment and class reports.
6. View, reply and delete feedback.

**System Development Life Cycle (SDLC)**

- **Software Concept**
  The first step is to identify a need for the new system. This will include determining whether a business problem or opportunity exists, conducting a feasibility study to determine if the proposed solution is cost effective, and developing a project plan. This process may involve end users who come up with an idea for improving their work or may only involve Information System (IS) people. Ideally, the process occurs in tandem with a review of the organization's strategic plan to ensure that IT is being used to help the organization achieve its strategic objectives. Management may need to approve concept ideas before any money is budgeted for its development.

- **Requirement Analysis**
  Requirement analysis is the process of analyzing the information needs of the end users, the organizational environment, and any system presently being used, developing the functional requirements of a system that can meet the needs of the users. Also, the requirements should be recorded in a document, user interface storyboard, executable prototype, or some other form. The requirements documentation should be referred to throughout the rest of the system development process to ensure the developing project aligns with user needs and requirements. IS professionals must involve end users in this process to ensure that the new system will function adequately and meets their needs and expectations.

- **Architectural Design**
  After the requirements have been determined, the necessary specifications for the hardware, software, people, and data resources, and the information products that will satisfy the functional requirements of the proposed system can be determined. The design will serve as a blueprint for the system and helps detect problems before these errors or problems are built into the final system. Information System (IS) professionals create the system design, but must review their work with the users to ensure the design meets users' needs.

- **Coding and Debugging**
  Coding and debugging is the act of creating the final system. This step is done by Information System professionals.

- **System Testing**
  The system must be tested to evaluate its actual functionality in relation to expected or intended functionality. Some other issues to consider during this stage would be converting old data into the new system and training employees to use the new system. End users will be key in determining whether the developed system meets the intended requirements, and the extent to which the system is actually used.

- **Importance of Planning**
  The planning stages, requirements analysis and architectural design, are the most important stages. Good planning will help reduce errors and reduce the chance for missing or extending production schedules. An undetected design error will take 10 times longer to fix during the debugging stage than had it been detected and corrected during the planning stage.

- **Feedback**
  It is possible to go back to previous steps as subsequent analysis warrants. Typically, the life cycle has a spiral shape rather than a linear one, with repeated steps back to prior activities as requirements are refined and new information is gathered.

- **Business Case and Project Plan**
  A business case and a project plan are created during the concept stage, and then continually updated throughout the life cycle as users and developers gain a clearer idea of the scope of the project. Management reviews both of these revised documents on a regular basis and determines whether resources should continue to be committed to the project.
Hardware Requirements
For the development of the proposed AMAIUB Online Application and Registration System of AMA International University of Bahrain the following hardware configurations were used:

- Intel® Core i5 2.2 GHz.
- 1.0 GB of RAM.
- 17 LCD Monitor.

The minimum web server specification to run the proposal proposed AMAIUB Online Application and Registration System fully online are:

- GHz Single Process (Multi or Dual/Dual Core Preferred).
- 2GB RAM.

Software Requirement
For the development of the proposed AMAIUB Online Application and Registration System of AMA International University of Bahrain the following application were used:

Adobe Dreamweaver CS3:
Is a web page development application which incorporated support for web technologies such as CSS, JavaScript, and various server-side scripting languages and framework including ASP.NET, ColdFusion, Java Server Pages and PHP.

Adobe Photoshop CS3:
Is a graphics editing program for commercial bitmap and image manipulation, and is one of the best products of Adobe Systems.

The minimum web server software requirements to run the proposed AMAIUB Online Application and Registration System fully online are:

- Operating System: Linux, Windows 2000 or Windows XP.
- Apache v1.3.x / 2.x: Mod rewrite enabled htaccess enabled.
- PHP v5: Safe mode disabled file uploads enabled Module GD v.2.0.
- Database: MySQL v.3.23.

Human Resource Requirements
Human resource required to work on online system need to be reasonably qualified personnel and computer literate. Furthermore, they need to be willing to work round the clock if the policy of the school is to offer round the clock services on registration. There are no restrictions on the sex of the workers, i.e. they could be male or female.

Project Feasibility
The registration office would have less redundant data to maintain, but most benefits would go to the students, processing the student requirements would be faster than before. The proposed system would handle most of the time consuming work, it would get rid of the most unnecessary waiting and queues. It also would be easier, and user friendly. The current system is slow in processing the manual section, going from a place to another, and standing in queues to take your turn, that would consumes a lot of time. If it happens that there is a mistake in the plotting form the student have to acquire a new one, and begin filling up the form again.

The following is some description of the data base tables for which the following Entity Relationship Diagram has been developed and used in the proposed system:

Technical Feasibility
The proposed system utilizes PHP as programming language, and MySQL as Database management system. By using PHP which is a close cousin to C++, and combining it with MySQL, that uses near to standards SQL statements, it will be familiar to any programmer with expertise in these standards, it will be an easy job for the I.T. Department, or any other programmer, upon that the system is technically feasible.

Social and Operational Feasibility
The system requires around the clock operation, there should be a server to handle this amount of hard working conditions, not any machine can handle it, and also the machine consumes power, needs Internet connection and have a trained operator, so this system can work as long as possible in the right condition.

IX. CONCLUSION
Almost all universities have online registration due to the widespread of technology, and the reasons for this technology is obvious for any university that it would cause an organized positive affect on the staff and the student themselves.
Since the records will be on a database it would be easier to control the data and it would effect greatly on common human errors in manual registration. Also, the records can be monitored and retrieved for verifications and other purposes. The registration will be a lot easier on the students, and the students can easily register from home, so it won't so be packed in the university.

X. RECOMMENDATION

Since AMA has already a database system that is used internally in the university to register students. The recommendation should be to implement this system by importing the data from the previous database available from the current system since both systems have similar structured databases which are compatible, where MySQL can import data from SQL server. This process won't take much time to do and would make this system ready to use almost in an instant. For expanding the system's features for the future to a much broader view would be a campus management system, that will include teacher submitting grades and posting notes for students, also to include messaging for all users, and many other features.

REFERENCES


