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Research paper

Proposed literature review on ASIA pacific university assignment submission and feedback system for future development

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Abstract

This paper will explain about the proposed literature review about assignment submission system for Asia Pacific University, Malaysia. Currently this university operating to receive assignments from students directly also students need to be in queue by spending time for the submission of assignment. Still most of the universities here in Malaysia following traditional way to manage student's assignments within a given time frame. Thus, students are facing many troublesome issues while submitting their assignments. Wasting money is one the most important issues while submitting assignment. They need to print and bind then submit at admin desk which is sometime costly. Besides, day by day living cost is becoming expensive compare to previous time. So, it is impossible for students to cope up with so much expenses. The main aims to help students to understand the importance of submitting assignments on time as well as reinforcing the essential skill of time management, so that students are aware of the importance of submitting assignments on time despite any circumstances. Here proposed the literature review in detail for the future development of easy assignment submission system for Asia Pacific University, Malaysia.

Keywords: *Assignment Submission; Design; Functionalities; Methodology; Implementation*.

1. Introduction

One of the common problem face by most of the industry is integrating a completely new system within the existing system. The reason behind is that they are already used to with the existing system, so changing to the new system they needed to be trained up. Students of APU facing some problems while following the current system of assignment submission. As the university, does not have any system where students can submit their assignment online, students need to undergo some rules and regulations. To submit their assignments, they need to print and do cover binding from the printing stations. Currently, the cost of papers as well as printing is much costly compare to any previous time in Malaysia. So, students need to pay from their pocket money for printing and binding which is costly. Along with that, they need to buy CD and attach with their assignments as a softcopy of their entire working projects. Sometimes students need to wait in a long queue in front of printing stations which is also time consuming. As result, some students fail to submit their assignments on time. Moreover, it seems on the peak hour time, students from different departments gather at admin office to submit their assignments which deteriorate the entire environment. It is because admin office deals with local and international students those are having problems with academic results, attendance etc. so there is always a chaos at admin office. Students also need to provide CFF form where they need to write details such as name, id, module name, lecturers name etc. as a reference for the admin so that they can pass the assignments to the right lecturer on time. Although CFF form is providing by APU, sometimes students need to buy from admin office if they forget to bring along with them which is costly for students. Admin plays an important role from receiving assignments until publishing on student's portal. As they also follow the current system, they need to go through some difficulties while dealing with student's feedback regarding the assignments, modules or lecturers teaching quality. Although students sometimes launch complain, admin can't track the improvement of the facts which will ensure the elimination of the complaining materials. So, there is hardly any follow up for the improvement of student service by admin panel. Moreover, less of evidence from student's side has also become facts where admin cannot take decisions whether they will call a board meeting to eliminate the circumstances or not. To be added, some students visiting admin office just for no reason also waste their time.

1.1. Rationale

The proposed idea going to introduce a new system which is completely online web based where students will be able to upload their assignments and give feedback regarding the lecturers teaching quality as well. On the other hand, lecturers will be able to upload module assignments and provide feedback regarding the individual and group assignments of the students. Moreover, admin panel can keep tracking lecturer's performance based on the student's feedback and reviews. As there will be client and server side transaction at the same time for the security standards the encryption algorithm will be using for improving the security. Currently, the number of students are increasing at APU in every intakes. Most of them are coming from different continent. Thus, the number of submitting assignment to admin office also for the

admin to keep track on the increasing numbers of assignments. In order to eliminate the issues this new system has been proposed. Another important reason for developing this system is students those are travelling outside Malaysia for emergency purposes can also submit their assignments online if they have the internet access. This will make the system more user friendly it will be access from anywhere in this world.

1.2. Potential benefits

Although latest infrastructure of the information technology has been made much easier to develop the software system in current era, there should be some benefits behind every development. This secured online assignment submission and feedback system which I have given a name called "UNISYS" also has some benefits towards the students, lecturers as well as admin panels of APU. The benefits are divided into two major areas which are:

- Tangible
- Intangible

1.3. Aims

The aim of this project is to develop a secure assignment submission and feedback system for APU students.

1.4. Objectives

To secure the assignments and other details in database using encryption algorithm as for example: AES_128, AES_192 etc.
To implement the encrypted stored procedure into the database to make sure users inserted data are secured enough all over the application process. It will also secure the data from hacker as they use database rules to break the programmability sections of database server.

- To allow students to check their assignments for plagiarism before they submit through the system.
- To secure the connection socket using SSL (Secured Socket Layers). The system will host using third party SSL Certificate (VeriSign, Digicert etc.) which will ensure the users that their session in secured from third party interference.
- To view the outcome of their assignments and individual feedback.
- To submit late assignments with electronic EC form.

2. Literature review

The current system takes much longer to give feedback as lecturers need to fill up the form and write down their comments and pass it to the students. The more the time takes to give feedback the less effective will become. So, giving feedback as early as possible is important. Again, hand written feedback sometimes hard to read for the students. The quality of the feedback depends on what are the media lecturer relying on. As for example: when the lecturer give the feedback, it must meet the achievement of the students their nature and personality which will surely distinguish them from others as well [1].
Now-a-days, e-submission has become increasingly important because of the availability of internet connections around the world. So, assessment using online has become easier compare to any previous time. Below are the chart showing how the students reacts towards the online assignment submission system implementing at their university and the value of assignment feedback comment they usually receive from the lecturers: [2].

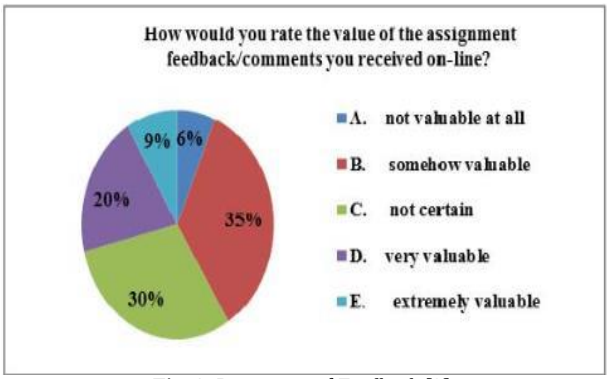

Fig. 1: Percentage of Feedback [2].

From the above pie chart "Fig.1", we can see that the result has been split out into [5] categories. Out if [5] categories the highest one is "Somehow Valuable" which scores 35% of the total. It represents that assignment submission through online including the feedback somehow have a positive impact on the mind of the university students as well. Besides, some of the students also commented regarding the online assignment submission and feedback system are given below:

- Enjoying the online assignment submission.
- Mostly prefer this system.
- This system is simple to be used.
- Convenient for the university students.
- Read the instructor comments carefully [2]

On the contrary, feedback system will help to evaluate the teaching quality of the university. Mostly the satisfaction level of individual students can be determining based on their feedbacks. From the feedback university, can find out the performance of the lecturers and their experiences regarding teaching [3]. To be expected inexperience lecturer score is less than experience lectures regarding the performances. It shows that the overall teaching quality fully depends on the feedback of the students received the university. Sometimes the teaching quality not only depends on lecturer's performance but also depends on student's capabilities, attitudes, enthusiasm as well as dedication [3].
The implementation of service through cloud is available to all clients over the internet. The overall process of the system used to call SAAS (Software as a Service). Besides, privacy also an issue in case of cloud data storage. So, users need to make data less accessible for client side which will enhance the security of cloud database. The advantages of this cloud infrastructure are less expensive to be implemented. Currently most of company from different sectors are going with cloud system because they don't need to invest huge amount of money for database administrators, people resources to manage the system etc [4].
Moreover, our proposed system is going to be on cloud architecture. So, ensuring the security from both client and server side will be an issue. As a result, we need to select the best encryption algorithm to secure the overall process. Although the level of security is completely depending on our application layers, there are some algorithm which is not much suitable for the application layer as well data layer. Now-a-days web application is vulnerable to attack that gives the attackers to access the data layer of the application easily. SQL injection is a burning issue and a common fact in this case. There are many ways that usually hackers follow to hack the database such as Tautologies, Illegal / Logically Incorrect Queries, Union Query, Piggy-Backed Queries, Timing Attacks and so. According to Huang and his colleagues there are some initial steps that an I can consider preventing this SQL injection. The steps that can take into consideration are: CANDID, AMNESIA, WEBSSARI etc [5].
Like our proposed system, Trillium is another submission system highly used by Washington State University Vancouver. Students of this university submit their programing language assignment through this system. This system having have two functions which are: submission and receiving feedback. Students are allowing to

submit before deadline and can update until the time limit. As this system is implemented for programming language submission, so students writing the programs in any language can accept [6]. One of the survey from this university admin has been conducted to evaluate result of the students taking computer science courses after the implementation of this system.
Currently developers are keen to use frameworks that can make the development much easy for them. There are two most popular frameworks where most of the developers under it. They are: PHP/LARAVEL and .NET.

2.1. NET framework

The NET framework was introduced by Microsoft in the year 1990. In the year 2007, they introduced source code for .NET FRAMEWORK and include ASP.NET, Windows Form, WPF (Windows Presentation Foundation), XML (Xtensive Markup Language) together with C#. It consists the CLR (Common language Runtime) including the .net framework libraries. It used to be known as foundation of the .NET framework. It also supports third-party runtime hosts. One of the best example is Internet Explorer. It is an unmanaged application that can host the runtime.

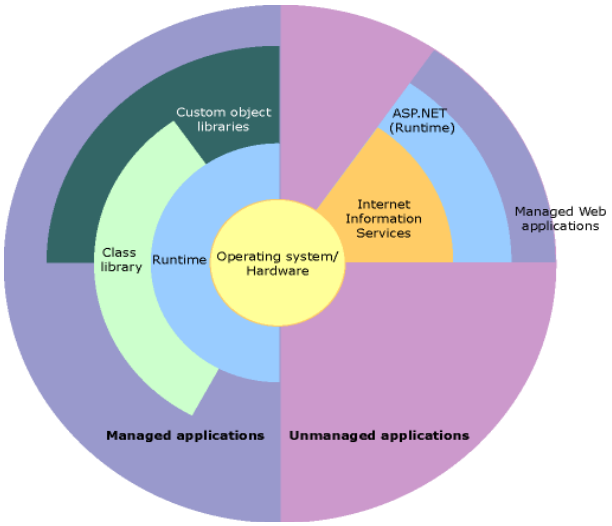

Fig. 2: .NET Framework Architecture [7].

IIS (Internet Information Service) is important for hosting the application under local server. It turns user's computer to web server which consists WWW (World Wide Web) publishing service, FTP (File Transfer Protocol) service, SMTP (Simple Mail Transfer Protocol), NNTP (Network News Transfer Protocol). Developers does not need to install IIS separately as it is already integrated with IDE (Visual Studio).

2.2. Security in cloud service

Cloud computing also get vulnerable like any other technology and they are hacking, cracking, malware attacks, trojan attacks etc. So, with the implementation, we need to ensure the security also. This security will cover different layers of cloud infrastructure [8]. There are three types of security which needed to be considered.

3. Methodology

The latest version of .NET Framework is Version 4.6.2 and it is free to download. Below showing the diagram "Fig.2.1" how to process works: A software development model or system development methodology in software engineering is a framework that is used to structure, plan as well as control the process of developing an information system. Changes in software requirements is a common in every software development process. As a developer, we need to make sure that whatever the changes take place our system should meet the overall requirements of the stakeholders. There are few software development models which we usually follow.

3.1. Methodology chosen & why

From the above software development methodology, the chosen is "Xtreme Programming". It is the most prominent under several agile methodologies. There are some important steps needed to be followed under this methodology. The most important part of this framework is "Plan". It consists of the overall planning of software development process. It helps to describe the details of the software requirements. The whole process consists of planning, managing, designing, coding and testing. From developer perspective suggested this framework from different points of view. The justification for choosing "Xtreme Programming" approaches under agile methodology for this system development. To justify the facts there are some relative issues which needed to be described. The whole system will be developed following the plan. The most important step of this methods is the planning of my proposed project. This planning usually will contain the "User Stories". The small iteration will be allowed under this methodology to give small version of the system also shown in "Fig.3.1".

Fig. 3: Xtreme Programming [9].

4. Development

4.1. Programming language chosen

There are many programming languages those are highly practiced by developers around the world. Some of them are suitable for developing Microsoft Windows Desktop based applications whereas some are available for web development. The most popular programming languages around the world are: Java, Javascript, R, Objective-C, Python, PHP, VB.

4.2. IDE chosen

IDE known as Integration Development Environment. The developers need it to do the software development successfully. This environment includes all necessary tools that are essentials for the development. Developer usually do the coding under this environment. It enhances the programmer's productivity for the application development. There are many IDE which is available for the developers to develop the system under .net framework such as MonoDevelop, Jet Brains, Visual Studio and so on. Besides, some IDE are highly used for selected programming language (JAVA) such as NetBeans.

5. Primary research

Primary research refers to collect first hand data. It is also known as market research where group of people will contribute to give their feedback which can later be used to document as a reviews of target users. This research doesn't depend on past results whereas it is used to figure out the updated facts. There are various data gathering techniques which is highly used by researchers to gather first hand data from targeted users. Here questionnaire and observation is followed as shown in "Table.1".

Table 1: Primary Research Observation

Observation No.	What To Observe	Destination	Observed Peoples
01	Assignment Printing Issue	APIIT (TPM CAMPUS)	Students
02	Assignment Binding Issue	APIIT (TPM CAMPUS)	Students
03	Waiting Time	APIIT (TPM CAMPUS)	Students
04	Waiting Time While Submitting	Admin Office	Students
05	Receiving Assign-ment	Admin Office	Lecturers
06	Giving Feedback Of The Assignments	APIIT (TPM CAMPUS)	Lecturers
07	Receiving Feedback Of The Assignments	APIIT (TPM CAMPUS) & ENT 3	Students

6. Conclusion

At the end of this Investigation Report that come to the point the development of this proposed system depends not only on development skills but also on some crucial facts. One of the crucial facts is following the chosen software development methodology. Although this proposed research going to focus on questionnaire and observation result, also need to conduct more research on user requirements to make the system more user friendly and enhanced one. Comparing with the similar systems may be some extra functionalities will be added which is not available on the current system of APU. On the other hand, the proposed system will be focusing on the security part of the system together with the submission and feedback functionalities, this investigation helped researches gain much knowledge about cryptography that includes TDE, HASHING & SALTING. Overall in this paper have achieved the crucial knowledge which will be very helpful for the development of this proposed project UNISYS.

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