Development of online management system for effectively organizing student's project

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ABSTRACT–Student project management consume a lot of resource including faculty members time and paper supply. This paper presents a development process of online management system for student project evaluation such as final year project. After applying and test run of this system to final year project of degree student on the test subject, it shows that this system manages to reduce a processing time and base on the survey taken among the faculty members, most of them agree that the developed system improve the effectiveness of the whole student project management.

1. INTRODUCTION

Student project such as final year project is taken by student as part of compulsory requirement for graduation for all level of degree from diploma to postgraduate level. In most common practice of student project, student can suggest a faculty to appoint one supervisor and/or co-supervisor among a faculty member to guide them to complete the project development and report writing and at the same time to evaluate their performance skills and talent toward completing their project. Other than being evaluated by the supervisor, student normally will be needed to present their work to the panel examiner that might also be assigned among the faculty members as well or expert from the industry. Due to numerous documentations needed for each student project evaluation, causing this process consuming a lot of faculty member's time especially when filling up and submitted the form need to be done manually as in [1].

The development of online management system for students project is actually to solve this problem of time consuming issues and at the same aiming to optimize the utilization of limited source of paper as well as to reduce the unintentional mistakes of missing the form or typo error while transferring the data from the form to spreadsheet if it is done manually. This is also agreed by works done in [2] and [3].

2. SYSTEM DEVELOPMENT

Development process of the system followed Agile method as can be seen in Figure 1. The development process is considering the system requirement based on the level of priority that is initially determined on the beginning of the development process by interviewing all the possible user of the system and based on the standard operation of the project management operated manually.

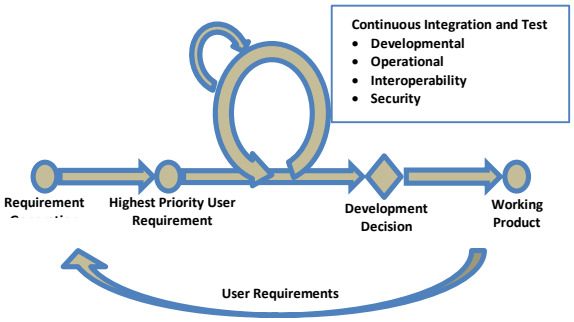

Figure 1 Illustration of system development process using Agile method.

Three types of users are identified for this student project management systems which are supervisor, panel examiner and coordinator. As shown in Figure 2, Microsoft Azure databased is used where the graphical user interface (GUI) is designed using Web Apps and MySQL databased are used. Example of the supervisor and panels requirement are shown in Table 1 where each requirement is categorised based on its priority.

Table 1 System requirement of supervisor and panel.

Supervisor and Panels Requirements	Critical
1 Add new project	High
1.1 Co-supervisor consensus	Low
2 Update existing project	High
3 Assign students to project	High
4 Supervisor Evaluation	High
4.1 Email evaluation to supervisor	Low
5 Seminar Panel Evaluation	High
5.1 Email evaluation to panel	Low

Based on the system requirement, the UML class diagram is designed with six different classes together with their attribute, method and relationship that is assigned accordingly as shown in Figure 3.

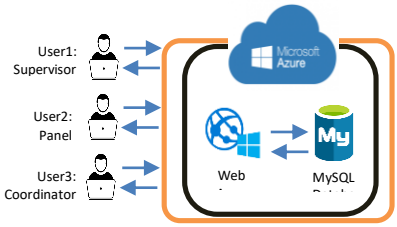

Figure 2 Component of developed online management systems

For every each of the possible scenario is illustrated in the form of use case diagram in order to demonstrate the expected behaviour of each component including user toward each classes attribute and methods that had been created. The example of use case diagram of supervisor adding new project title is shown in Figure 4.

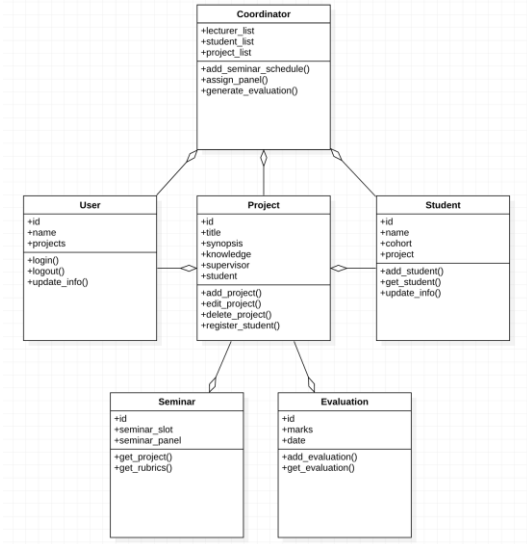

Figure 3 UML class diagram of the databased created

The GUI is created and well arranged to ensure the best user experience while using the systems. After each of the component of the GUI is created then only the PHP scripting code is written to behave based on the user interaction such as a click of the button or cursor and filling up the empty edit box. The example of the GUI the for new project registration is shown in Figure 5.

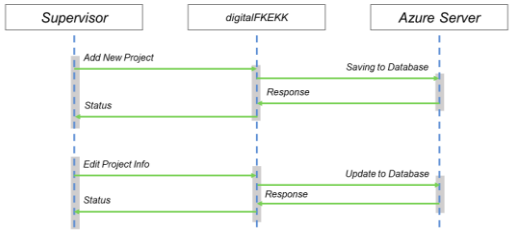

Figure 4 Use case diagram of the scenario add new project done by the supervisor.

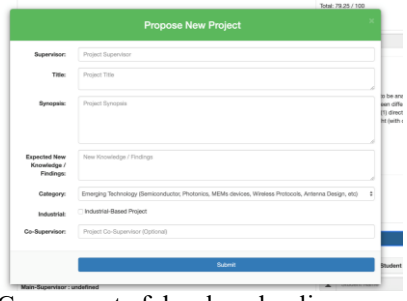

Figure 5 Component of developed online management systems

3. IMPLEMENTATION PEFORMANCE AND USER FEEDBACK

The develop management system was applied to manage the final year project (6 credits in two semester course done in Sem 1 and 2, 2018/2019 session) of Electrical Engineering Bachelor program in Faculty of Electronics and Computer Engineering (FKEKK), Universiti Teknikal Malaysia Melaka (UTeM) located in Durian Tunggal, Melaka, Malaysia.

Two type of evaluation is done on the developed system which are average time test on fill up the form, submitted the form and transfer the data from the form into spreadsheet by using the system in comparison to the previous manual method. As shown in Table 2, the results show a drastic time saving on all process since submission takes only a second with a click of the button and the spreadsheet can be generated automatically. Based on the survey among twenty-two faculty members, 95% of them agree that the developed system improved the effectiveness of the whole student project management while the other 5% stay neutral and none dislike the implementation of the new systems.

Table 2 Time test in minutes done on each evaluation process before and after using digitalFKEKK.

Types of evaluations	Before	After
1. Title selection	20	3
2. Proposal presentation	20	2.75
3. Project Seminar (Sem 1)	15	2.75
4. Project 1 Report	20	3
5. Project Seminar (Sem 2)	15	2.75
6. Final Thesis	20	6

4. SUMMARY

This study demonstrates an implementation of the online system for managing the final year project for degree students. This system is successfully implemented and saving a lot of lecturer times on managing the project evaluation as a supervisor and panel examiner. This system can also be implemented in so many other types of student project assessment whether group project or individual.

5. ACKNOWLEDGEMENT

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