Web-Based Thesis/ Capstone Project Defense Evaluation System of the CCS Biñan

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ABSTRACT

The main goal of this study is to develop a web-based Evaluation System which can allow panelists and advisers to evaluate the graduating students and their Thesis/Capstone Projects through an innovative way of grading. Accessible through any forms of technology that has an internet connection.

Rapid Application Development was used to simplify the software development scheme of the system. Use Case Diagrams, Activity Diagrams and Class Diagrams were utilized to illustrate the system functions and routines. Personal Home Page: Hypertext Processor or simply PHP was utilized as the software platform in this study. The tools that have been used were XAMPP Server, MySQL, Photoshop and Dreamweaver CS6. Various fact finding techniques in the analysis, design, development and evaluation of the intended software were used. Fact finding instruments such as interviewing and observation were applied to determine the requirements ofthe desired application. Questionnaires were used for measuring the efficiency of the system as evaluated by the end-users.

Results of the evaluation on the system were based on ISO 9126 standard which showed that the criteria on efficiency ranked as the highest, followed by the functionality and maintainability, criteria for portability and lastly criteria for the reliability and usability of the system ranks as the lowest.

The result of the evaluation of Online Thesis/ Capstone Project Defense Evaluation Systemshowed that the developed system achieved its functional requirements in applying the modern way of evaluating through on-line. Therefore, the proponent highly recommends that the system be implemented on the College of Computer Studies for effective and efficient evaluating tool. The developer also suggests the following schemes be used respectively: a secured internet connection before using the system; a maximum of two (2) days required for user training; an automatic data conversion strategy; and a phased operation method as system changeover scheme. Using the Thesis / Capstone Project Evaluation System is a great solution to the stacks of paper cluttering desks and file cabinets that can be ruined or might be lost, and provides immediate feedback about the defense of a certain group, eventually benefits the faculty to have an easier platform, and the students to monitor their own grades, in particular. This research and development project also contributes to the ever growing field of Information Technology by providing portable way of evaluating the graduating students' defense for their Thesis/Capstone Projects for the fourth year BSCS and BSIT students.

Keyword: evaluation, capstone project, thesis, defense, web-based

Background of the Study

Evaluation Systems are systems mostly used these days to ease the usual process of giving projects or assignments then evaluating or rating them after. These systems are usually used and needed within a faculty or group of teachers in an institution or a university. They are considered as the evaluators. These evaluators are tasked to evaluate and rate or give remarks to these projects or assignments given to the students.

In our school, specifically the College of Computer Studies, the evaluators are used to do the evaluation using the manual or the usual way. They encode each detail of the students and their project manually on a spreadsheet and giving out the ratings and remarks on a piece of paper. With the usual way of the end-users, the developer have been given the idea of making the process into an automated and more practical type of system, thus, the CCS Thesis / Capstone Project Evaluation System.

The evaluation system is a system designed to do the usual evaluation tasks they do, but in an automated manner. The evaluators will be able to handle their usual job with more ease and in a more common manner. And with the help of the system (with an internet connection), they can do their jobs anytime, anywhere.

Literature Review

According toThompson, Mary Kathryn, andAhn, Beunguk(2012) an online grading system that was developed to collect, process, and return the grades produced by juries using a series of rubrics in a first year project-based design course. It discusses the design requirements, features, and implementation of the online grading system, as well as reactions from course faculty and staff members. It is shown that this system has a number of advantages over analog grading methods, including scalability, real-time feedback on the status of grading, the reduced potential for human error in compiling grades, the ability for jury members to grade remotely and to revise their grades after submission, the ability for course administrators to easily review grading results and remove statistical outliers from the score set, the ability to return both provisional and final grades to the course faculty, staff, and students in a timely manner, and the ability to archive and export grading data for future use. Although the online system is a clear improvement over paper-based rubrics, it is also shown that small details can interfere with usability and thus user satisfaction and that compatibility with mobile devices is a necessary, but still unaddressed, requirement.

According to Olivia Little (2009) on her research "Teacher Evaluation Systems:The Window for Opportunity and Reform", there is widespread agreement among researchers and policymakers that teachers matter significantly in improving student learning. Because high-quality teaching may be the most important school-based factor in increasing student achievement (Darling-Hammond 2000, Rivkin, Hanushek, and Kain 2005, Wright, Horn, and Sanders 1997), measuring teaching quality has become a hot topic in the literature. Studies using value-added methodology—a statistical procedure for calculating teacher contributions to student gains on standardized achievement tests—have revealed that teachers vary widely in their effectiveness (Gordon, Kane, and Staiger 2006, Wright et al. 1997).This paper discusses five current teacher evaluation systems that have been recognized in the research literature as innovative and comprehensive approaches to evaluation reform: the Teacher Advancement Program (TAP), the Framework for Teaching (FFT), the Professional Compensation System (ProComp), Peer Assistance and Review (PAR), and the Beginning Educator Support and Training Program (BEST). This paper will describe their elements and examine what the research literature has to say about their effectiveness, considering how the systems relate to student outcomes and how they are received by teachers and administrators.

According to Benjamin Chan, Yin Fah, and Syuhaily Osman (February 2011) in their research "A Case Study of Student Evaluation of Teaching in University", there are determining factors (course characteristics, lecturer characteristics, and tutorial ratings) that affect student evaluation of teaching in university. A total of 88 undergraduates were selected and self-administered questionnaire was used as a tool for data collection. The study found that most of the respondents have high agreement level towards the evaluation of course characteristics, lecturer's characteristics, and tutorial ratings. Lecturer overall teaching performance ratings were correlated with course characteristics, lecturer characteristics and tutorial rating. Multiple hierarchical analyses found that course's overall performance ratings was mostly explained by course, followed by lecturer's characteristics but not from tutorial ratings. From the point of a student, the improved of the teaching effectiveness based on the evaluation process may ultimately enhance knowledge acquisition and, for the educators, the evaluation did provide information for an individual improvement. Faculties may benefit where the evaluation might lead to fairer promoting, tenure and pay increase decisions for academic staffs.

METHODOLOGY

The developer used the Rapid Application Development (RAD) as the methodology model in developing the system. Planning, data gathering and coding are done simultaneously in accordance to the testing and evaluation of the software for relative enhancements and better use of the project. The developer conducted survey questionnaires to the students of the University that would evaluate the usability of the system. There were 20 persons who answered the survey questionnaires provided by the developer and the data gathered were tabulated. The tabulation revealed that some of them never tried to see and use the system's full functions while others are satisfied on what the system really provides.

The developer used the Use-Case Diagram to represent the user's interaction with the system that shows the relationship between the admin and other users.

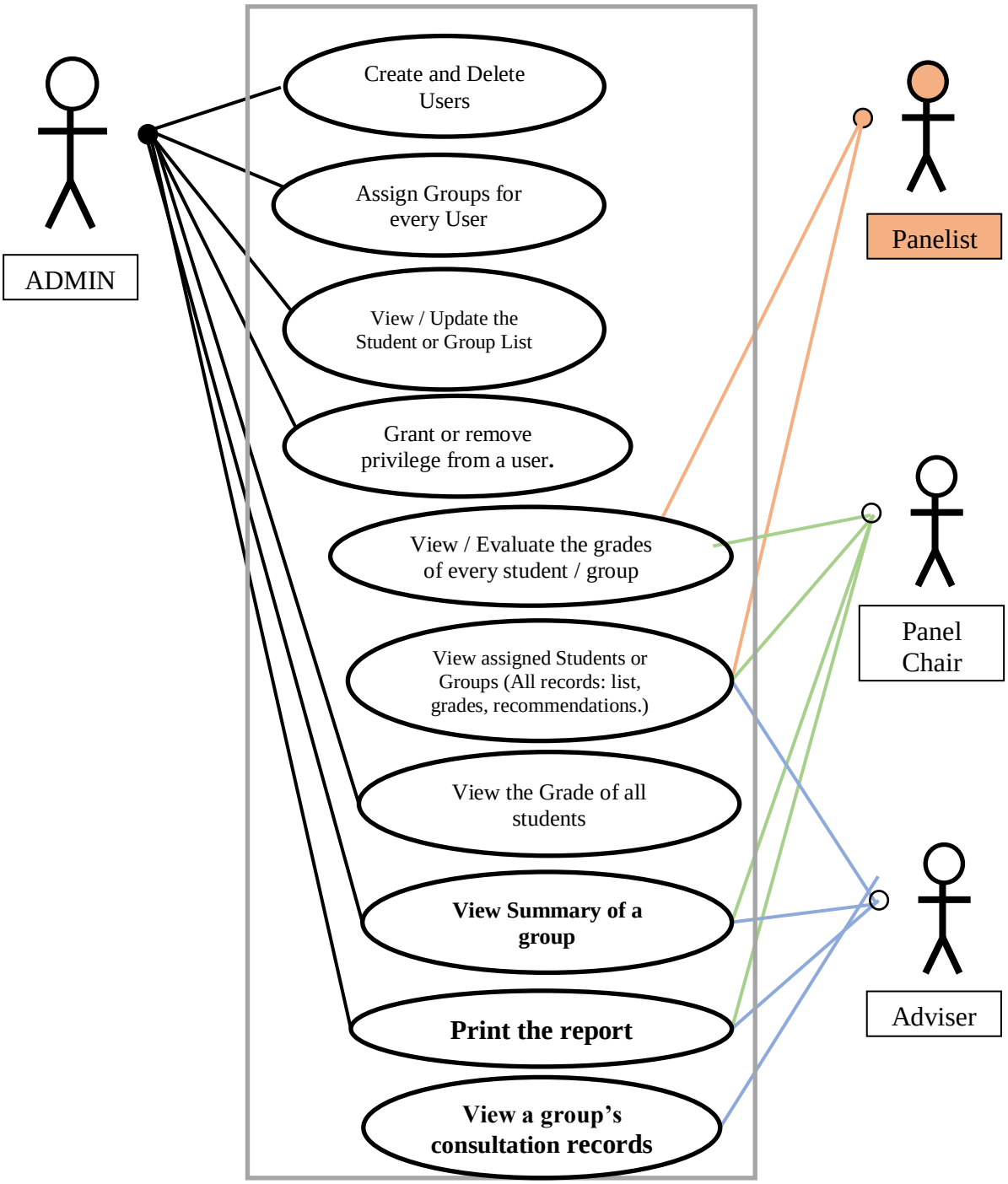


Figure 1.0: Overview of Web-Based Thesis/ Capstone Project Defense Evaluation System

Use – Case Diagram

Figure 1.0 represents the use-case diagram of the Web-Based Thesis/ Capstone Project Defense Evaluation System wherein the role of the administrator covers all the task. The Panel Chair can view all the grades of the students evaluated based on their presentation during defense. The other panels can grade students as well. The adviser can note consultation, remarks, view comments coming from the panelists.

Activity Diagram

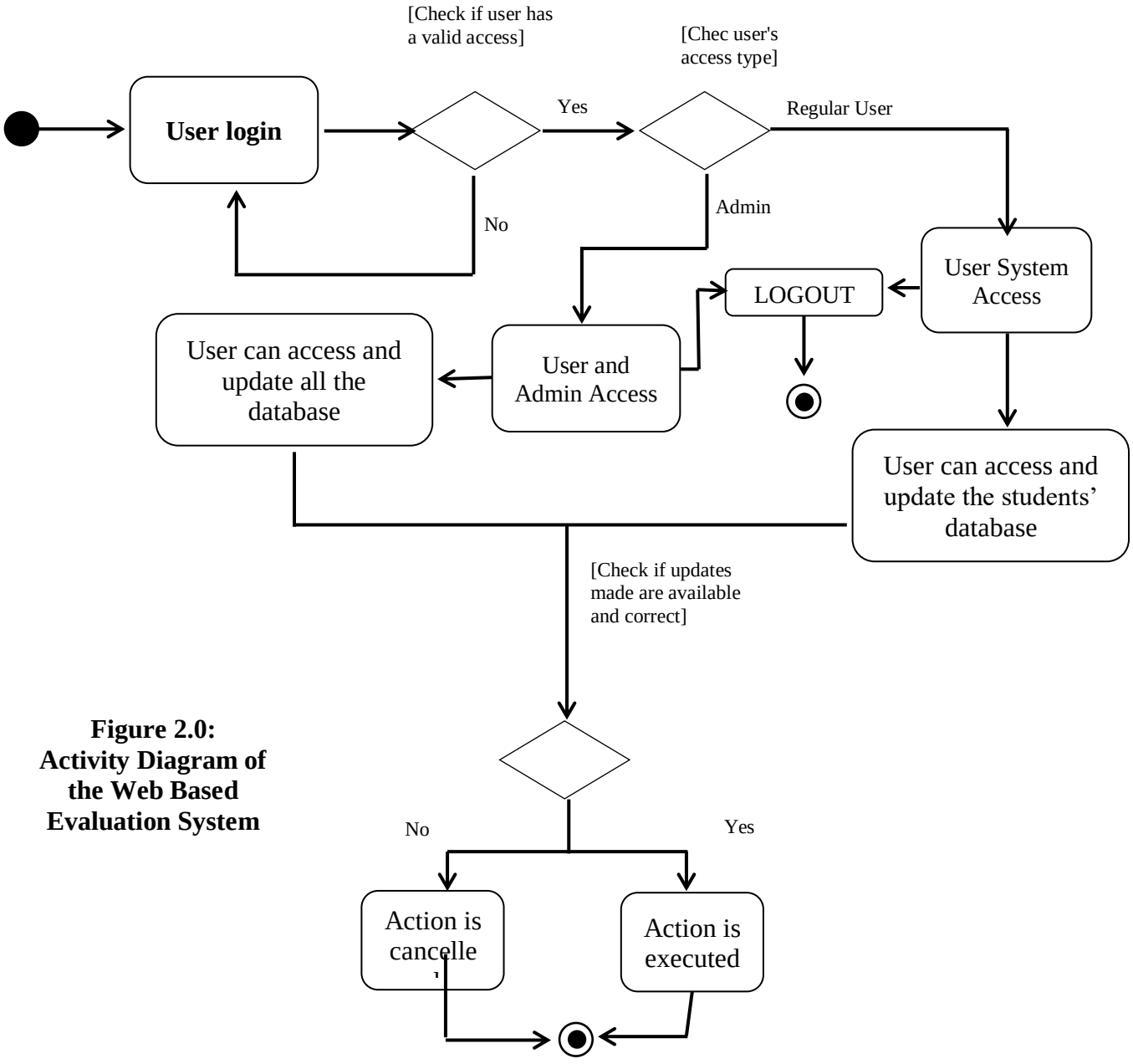


Figure 2.0: Activity Diagram of the Web Based Evaluation System

System Evaluation Criteria

The Web-based Thesis/ Capstone Project Defense Evaluation System uses the ISO 9126 Software Quality Characteristics. The ISO 9126-1 software quality model identifies 6 main quality characteristics, namely:

•Functionality •Reliability •Usability

•Efficiency •Maintainability •Portability

Each Characteristics have sub characteristics that define the main category as the evaluation of the system software or webpage. For the Functionality, it includes sub characteristics such as Suitability, Accurateness and Security. For the Reliability, it includes sub characteristics such as Maturity, Fault Tolerance and Recoverability. For the Usability, it includes sub characteristics such as Understandability, Learnability, Operability, and Attractiveness. For the Efficiency, it includes sub characteristics such as Time Behavior and Resource Utilization. For the Maintainability, it includes sub characteristics such as Analyzability, Changeability, Stability, and Testability. For the Portability, it includes sub characteristics such as Adaptability, Installability, Conformance, and Replaceability.

Using the Likert Scale, 5 as strongly Agree, 4 as 4 Agree, 3 as Fair, 2 as Disagree, and 1 as Strongly Disagree, each sub characteristics are answered by the respondents after system/ software testing process.

System Development Strategies

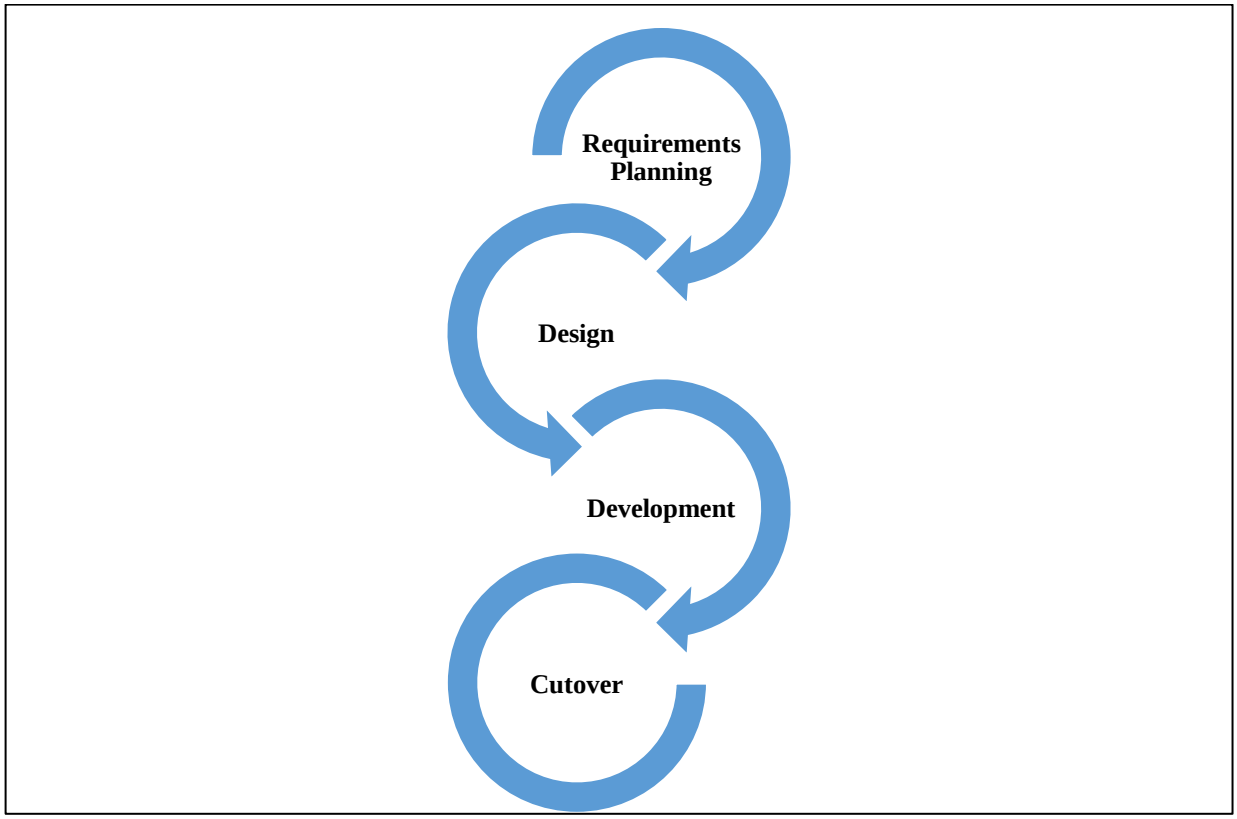


Figure 3.0: System Development Strategies

Figure 3.0 shows The development of the system that has been done and the task of the developer for the development went through processfor the system. At the Requirements Planning stage, the researchers gather data and information regarding on how the system will adapt to the environment by conducting interviews and surveys. On the Design phase, the creation of the user interface takes place. The developer made what is the best suitable design for the system. In the third phase, or the Development phase, System Prototyping is done to be able to see what other changes had to be done in order to improve the system. The last and final phase is the cutover phase, is the starting ground or the stepping stone before the system can be implemented to the desired pilot area. This is also the phase where the final touches for the system should be done.

RESULT AND DISCUSSION

Results

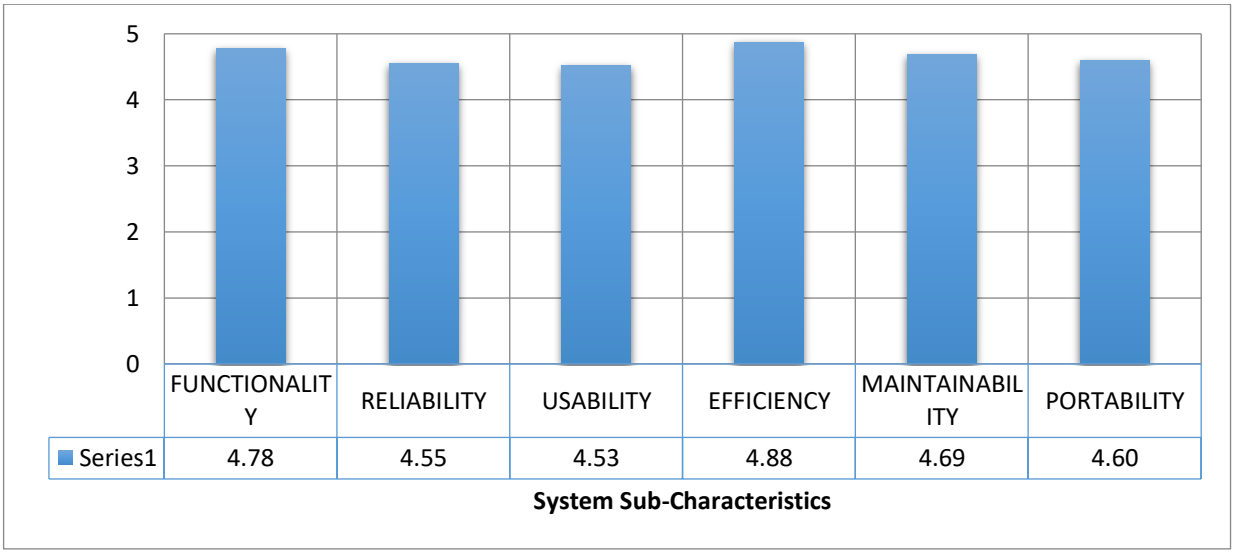


Figure 4.0

Overall Evaluation Result of theThesis / Capstone Project Defense Evaluation System

Figure 5.0 presents the overall evaluation results of the system were strongly agreed by the respondents with the highest weighted mean 4.88. However, the usability of the system was only agreed by the respondents with the lowest weighted mean 4.53.

The final evaluation survey reflects of the system on how it is to be conducted. The results show that the alumni members and the other staffs of school is in favor for the said system based on the result that the developerhad for survey.

Evaluation Tool/ Questionnaire

FUNCTIONALITY	**Statement/s**	**SA 5**	**A 4**	**F 3**	**D 2**	**SD 1**
Suitability	The system helps the user in summarizing the records for each student or group.					
Accurateness	The system is able to show the correct records as requested and is able to compute the grades for each student accurately.					
Security	The system can only be accessed by authorized users.					
RELIABILITY	**Statement/s**	**SA 5**	**A 4**	**F 3**	**D 2**	**SD 1**
Maturity	The system reaches its full functionality upon first implementation and test by the user.					
Fault Tolerance	The system is able to determine incorrect inputs. The system shows error messages instead of crashing due to incorrect inputs or events done by the user.					
Recoverability	The system is able to recover your files and records if you saved the database properly.					
USABILITY	**Statement/s**	**SA 5**	**A 4**	**F 3**	**D 2**	**SD 1**
Understandability	The system uses words that can be understood easily and has buttons that you can easily know what it does.					
Learnability	The system can be easily learned by all of the users due to its user-friendly interface.					

Operability	The system is capable to run all of its capabilities into full use.					
Attractiveness	The system has a very minimalist and user-friendly design that is pleasing to the eyes.					
EFFICIENCY	**Statement/s**	**SA 5**	**A 4**	**F 3**	**D 2**	**SD 1**
Time Behavior	The system responds easily right after every transaction you make.					
Resource Utilization	The system uses database to collect data and information and grades from the professors.					
MAINTAINABILITY	**Statement/s**	**SA 5**	**A 4**	**F 3**	**D 2**	**SD 1**
Analyzability	The system can be easily maintained by the administrator or anyone the admin gave permission to.					
Changeability	The system can by iterated by the future developer by accessing the source code.					
Stability	The system remains stable for a long period of time.					
Testability	The system has undergone various examinations and test runs before implementing to insure the quality and efficient functionality.					
PORTABILITY	**Statement/s**	**SA 5**	**A 4**	**F 3**	**D 2**	**SD 1**
Adaptability	The system can adapt its GUI at any screen resolution					
Install ability	The system's installer is independent and given by the developer.					
Conformance	The system can perform its capabilities on what the user wants to do without hassle.					
Replace ability	The system is capable of having updates.					

System Evaluation Result

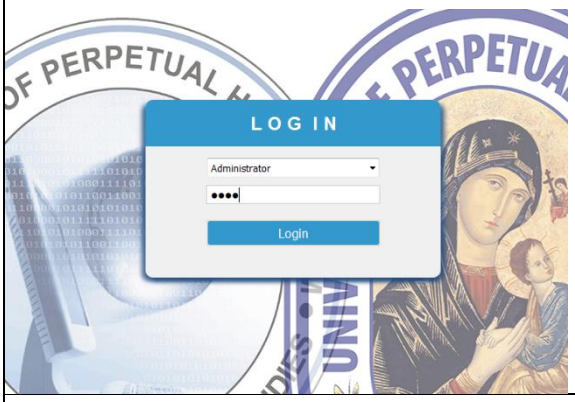
5 – Strongly Agree
4 – Agree
3 – Fair
2 – Disagree
1 – Strongly Disagree

FUNCTIONALITY	SA	A	U	D	SD	Sub-Characteristics	Weighted Mean
	5	4	3	2	1		
The system helps the user in summarizing the records for each student or group.	18	1	1	0	0	Suitablity	**4.85**
The system is able to show the correct records as requested and is able to compute the grades for each student accurately.	15	5	0	0	0	Acurateness	**4.75**
The system can only be accessed by authorized users.	16	3	1	0	0	Security	**4.75**
RELIABILITY	**SA**	**A**	**U**	**D**	**SD**	**Sub-Characteristics**	**Weighted Mean**
	5	4	3	2	1		
The system reaches its full functionality upon first implementation and test by the user.	11	8	1	0	0	Maturity	**4.50**
The system is able to determine incorrect inputs. The system shows error messages instead of crashing due to incorrect inputs or events done by the user.	17	2	1	0	0	Fault Tolerance	**4.80**
The system is able to recover your files and records if you saved the database properly.	11	5	4	0	0	Recoverability	**4.35**
USABILITY	**SA**	**A**	**U**	**D**	**SD**	**Sub-Characteristics**	**Weighted Mean**
	5	4	3	2	1		
The system uses words that can be understood easily and has buttons that you can easily know what it does.	14	5	1	0	0	Understandability	**4.65**
The system can be easily learned by all of the users due to its user-friendly interface.	12	8	0	0	0	Learnability	**4.60**
The system is capable to run all of its capabilities into full use.	12	7	1	0	0	Operability	**4.55**
The system has a very minimalist and user-friendly design that is pleasing to the eyes.	7	12	1	0	0	Attractiveness	**4.30**
EFFICIENCY	**SA**	**A**	**U**	**D**	**SD**	**Sub-Characteristics**	**Weighted Mean**
	5	4	3	2	1		
The system responds easily right after every transaction you make.	16	4	0	0	0	Time Behavior	**4.80**
The system uses database to collect data and information and grades from the professors.	19	1	0	0	0	Resource Utilization	**4.95**
MAINTAINABILITY	**SA**	**A**	**U**	**D**	**SD**	**Sub-Characteristics**	**Weighted Mean**
	5	4	3	2	1		
The system can be easily maintained by the administrator or	17	3	0	0	0	Analyzability	**4.85**

anyone the admin gave permission to.							
The system can by iterated by the future developer by accessing the source code.	12	6	2	0	0	Changeability	**4.50**
The system remains stable for a long period of time.	11	9	0	0	0	Stability	**4.55**
The system has undergone various examinations and test runs before implementing to insure the quality and efficient functionality.	17	3	0	0	0	Testability	**4.85**
PORTABILITY	**SA**	**A**	**U**	**D**	**SD**	**Sub-Characteristics**	**Weighted Mean**
	5	4	3	2	1		
The system can adapt its GUI at any screen resolution	16	3	0	1	0	Adaptability	**4.70**
The system's installer is independent and given by the developer.	15	4	1	0	0	Installability	**4.70**
The system can perform its capabilities on what the user wants to do without hassle.	12	5	3	0	0	Conformance	**4.45**
The system is capable of having updates.	13	5	2	0	0	Replaceability	**4.55**

SCREENSHOTS

Login



Student List per section

A.Y.: 2015 - 2016
Printed by: Administrator

Student Name	Section	Group ID	Grades			
			Panelist(1)	Panelist(2)	Panel Chair	Average
Advento, Jose Arman F.	J4S	IT04	0	0	0	N/A
Almeda, Marie X.	J4S	IT11	0	0	0	N/A
Altares, Paolo Rey X.	J4S	IT10	0	0	0	N/A
Alzona, Jano Isaiah C.	J4S	IT01	0	0	0	N/A
Balida, Joaquin A.	J4S	IT03	0	0	0	N/A
Balondo, Kerlie X.	J4S	IT11	0	0	0	N/A
Baubas, Cris Mel A.	J4S	IT04	0	0	0	N/A
Cabunay, Joel A.	J4S	IT05	0	0	0	N/A
Cadag, Nardz III D.	J4S	IT05	0	0	0	N/A
Calumno, Patrick John A.	J4S	IT06	0	0	0	N/A
Calumno, John Paul A.	J4S	IT06	0	0	0	N/A
Cara, Francis Nikko Benz M.	J4S	IT07	0	0	0	N/A
Cartalio, Ace M.	J4S	IT10	0	0	0	N/A
Corona, Josell X.	J4S	IT01	0	0	0	N/A
Cuya, Charmagne A.	J4S	IT10	0	0	0	N/A
Dale, David Joe C.	J4S	IT06	0	0	0	N/A
Dator, Fran Emmary C.	J4S	IT08	0	0	0	N/A
De Guzman, Allan X.	J4S	IT02	0	0	0	N/A
De Jesus, Michelle D.	J4S	IT08	0	0	0	N/A
Dole, Aron C.	J4S	IT03	0	0	0	N/A
Donalson, Johnell X.	J4S	IT09	0	0	0	N/A
Eugenio, Aira Mhae G.	J4S	IT05	0	0	0	N/A
Garcia, Gyro Y.	J4S	IT08	0	0	0	N/A
Guiyab, Kenneth Francis O.	J4S	IT10	0	0	0	N/A

University of Perpetual Help System - Laguna
College of Computer Studies

Evaluation Summary

A.Y.: 2015 - 2016
Printed by: **Administrator**

Group ID: **IT06** Project Title: **CCS Evaluation System for Defense Presentation**

Section: **J4S** Remarks: **Not Evaluated**

Adviser: **Michael M. Orozco**
Panel Chair: **Ma. Eliza D. Mapanoo**
Panelists: **Jasmine H. Almarinez** , **Arnold D. Ferolino**

Pre-Final Defense Evaluation

Members	Panelist 1	Panelist Chair	Panelist 2	Average
Calumno, Patrick John A.	50	50	50	50
Dale, David Joe C.	50	50	50	50
Isidro, Krizza Lou R.	50	50	50	50
Pampolina, John Aldrick D.	50	50	50	50

Final Defense Evaluation

Members	Panelist 1	Panelist Chair	Panelist 2	Average
Calumno, Patrick John A.	50	50	50	50
Dale, David Joe C.	50	50	50	50
Isidro, Krizza Lou R.	50	50	50	50
Pampolina, John Aldrick D.	50	50	50	50

Recommendations

Adviser:

Panel Chair:

Panelist(1):

Panelist(2):

Screenshot Login represents the security features of the website that user as admin, panels, and panel chair need to login before viewing the records. *Student List per section* can only view if the panelists are already assigned to a group of students. Panelists can rate the students/ presenters based on their pre-final /final defense presentation and can add recommendations using the *Evaluation Summary*.

DISCUSSION

Conclusion

The Web-based Thesis/ Capstone Project Defense Evaluation System was fully developed and well designed with its functions. The developer/ researcher conclude that the evaluation system will be a great tool for easy evaluation of defense presentation with accurate results of the groups of students who presented. The students will be able to easily find out the comments and suggestions from the panelists/ advisers through the use of the system.

Recommendation

The developer would like to recommend that the College of Computer Studies assign a system administrator who has the ability to maintain the database and update it every academic year, the administrator must be able to manually add all the graduating students of the College of Computer Studies on a certain semester.

The system is wed-based so the main thing that is needed is a stable internet connection and use of the correct browsers for it to run. With the use of the panel, the administrators and developer can have the access through all the files inside the system. The database of the system is also uploaded on the web.

The developer made a user training manual for the future users of the system. The manual will serve as the guide on how to use the Evaluation System for Thesis and Capstone Project. The content will include all step by step procedure on how to manage and how to use the system properly.

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