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Master of Information Systems

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ONLINE GRADING SYSTEM FOR MINDANAO STATE UNIVERSITY MAIGO SCHOOL OF ARTS AND TRADES

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ONLINE GRADING SYSTEM FOR MINDANAO STATE UNIVERSITY MAIGO SCHOOL OF ARTS AND TRADES

is hereby accepted by the Faculty of Information and Communication Studies in partial fulfillment of the requirements for the Master of Information Systems.

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Abstract

This paper presents an online grading system for Mindanao State University Maigo School of Arts and Trades that was developed to collect, process, and return the grades produced by faculty members. It discusses the design requirements, features, and implementation of the online grading system, as well as reactions from Faculty members and Students. 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 faculty members members to grade remotely and to revise their grades after submission, the ability to return both provisional and final grades to the course faculty, 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 manual or paper-based, 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.

The application can run locally on an on premise server, or hosted from a web-server on the Internet. It is developed using PHP and can be hosted on either a Linux or Windows server via XAMPP and using a MySQL server. The application itself will feature a front-end and a back-end system and will be secured by a user management module. The users will be grouped into either faculty, student, admin and super admin where all backend configurations are.

The Online Grading System intends to solve the problems met in the manual process of the grading system.

ACKNOWLEDGEMENTS

This paper would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study.

First and foremost, my utmost gratitude to Dr. Macabangkit P. Ati, Campus Head of Mindanao State University – Maigo and Executive Vice-President of MSU System whose sincerity and encouragement I will never forget.

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Last but not the least, my family and the one above all of us, the omnipresent God, for answering my prayers for giving me the strength to continue and strive hard on this study.

TABLE OF CONTENTS

Chapter 1

INTRODUCTION

The researcher aimed to develop a system that was entitled "Online Grading System for Mindanao State University - Maigo School of Arts and Trades". Specifically, the study sought to answer to the following questions.

1. Was there an existing grading system in MSU-MSAT?
2. Does the present system used for grading encounter problems?
3. What is the possible solution to the problems encountered in the present system used for grading?
4. What are the advantages of using the online grading system in MSU - MSAT?

A Grading System is an exercise in professional judgment on the part of the faculty members. It involves the collection and evaluation of evidence on students' achievement or performance over a specified period of time. Through this process various types of descriptive information and measures of students' performance are converted into grades that summarizes student's accomplishments. Most of the faculty members in MSU-MSAT uses the traditional way of computing grades. After the computation of grades, faculty members will have to submit their class records to their respective chairperson or head of the department for checking. If errors are found, class record is returned to the faculty member, who does the correction and returns it again to the chairperson for checking. The chairperson will then return the verified and corrected grades of the faculty member to submit it to the registrar who prepares the student's report card. This type of system is very tedious and takes a long time. Manually calculating, checking and re-computing the grades of students are very difficult and are very prone to human

errors. Added to this is the money being spent by the school for paper files and forms and folders, and other things needed to store student data and records.

The success of this study has great importance to:

To the Faculty. This will save the faculty effort and will lessen the time of collecting grades and recording them in grade sheets.

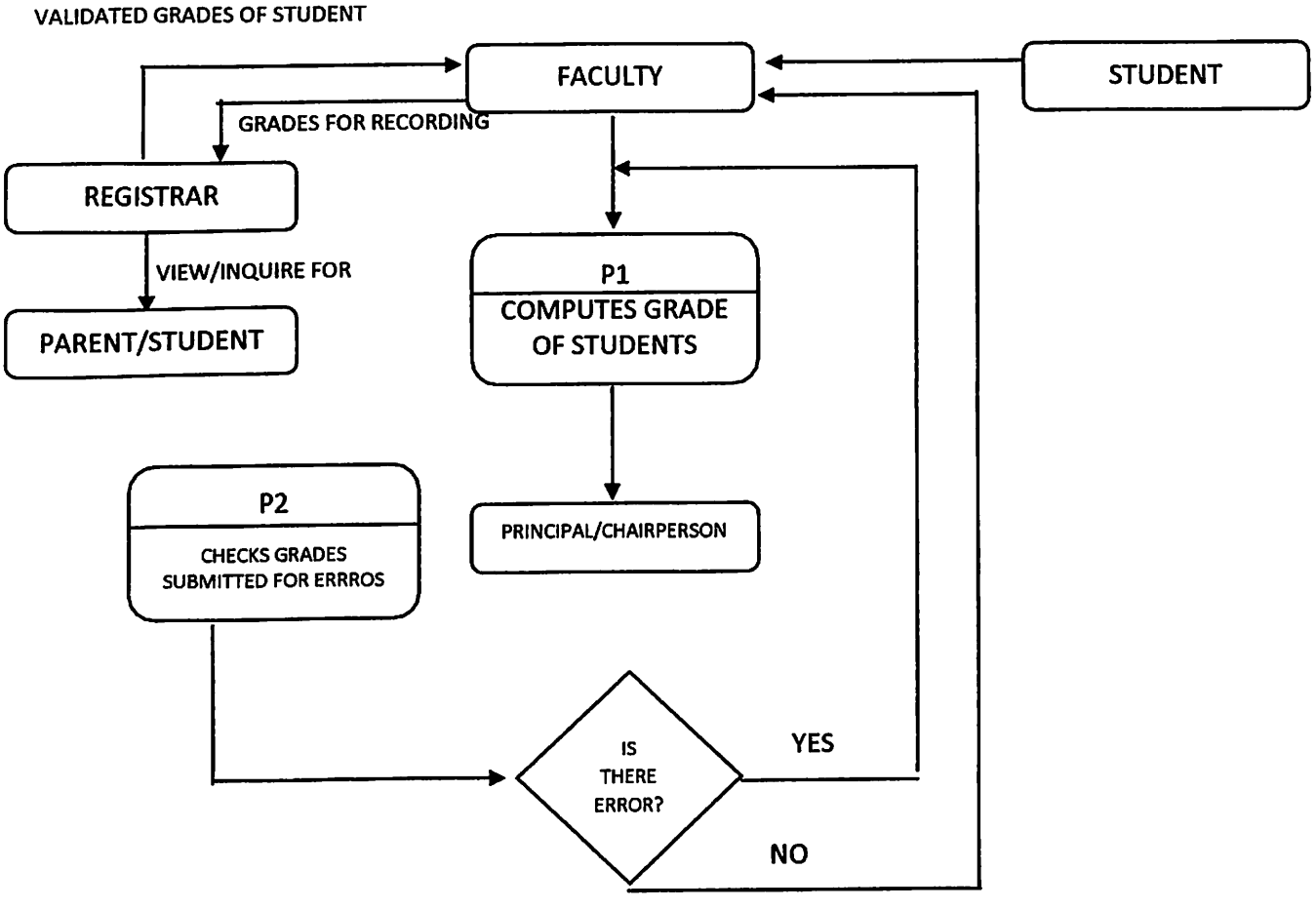
To the Students. The students can now look forward to better lesson since their teachers would have added time to prepare for them their lessons. Students will also be able to view their grades online.

To the School. The study will provide an improved method of processing the hundreds of grade reports they print and distribute to their students each quarter or semester.

Future Researchers. Future researchers who will conduct studies will realize that the traditional grade reporting process can be enhanced from manual processing to an online paperless system.

This system is simple, interactive and has a very user-friendly interface such that even those with little or no knowledge about working with computers can easily operate it. The system will lessen the work especially of those within the registrar's office and chairpersons who will check and correct errors of the grading system of faculty members because the grades will be automatically computed by the system and store it directly into a database for archiving and exporting grading data for future use. Users would be able to access information they will need anytime online. This will be done for the betterment and enhancement of the school.

Figure 1: Context Diagram of the Manual/Existing Grading System



Chapter II

REVIEW OF EXISTING ALTERNATIVES

Most of the faculty members in MSU-MSAT uses the traditional way of computing grades and other uses Microsoft excel. After the computation of grades, faculty members will have to submit their class records to their respective chairperson or head of the department for checking. If errors are found, class record is returned to the faculty member, who does the correction and returns it again to the chairperson for checking. The chairperson will then return the verified and corrected grades of the faculty member to submit it to the registrar who prepares the student's report card.

This type of system is very tedious and takes a long time. Manually calculating, checking and re-computing the grades of students are very difficult and are very prone to human errors. Added to this is the money being spent by the school for paper files and forms and folders, and other things needed to store student data and records.

It is in this matter the project developer intends to develop a system that will address the problems encountered during the manual or existing grading system. A System that would make the task of recording and computing grades easier for the teachers. This will not only benefit the teachers of the school but will also benefit the students because of the improvement in the accuracy of calculations and in the proficiency and productivity of the teachers. The system that allows Administrator to save grade information, allows Student to view grade information and allows Teachers to enter the grades of Students.

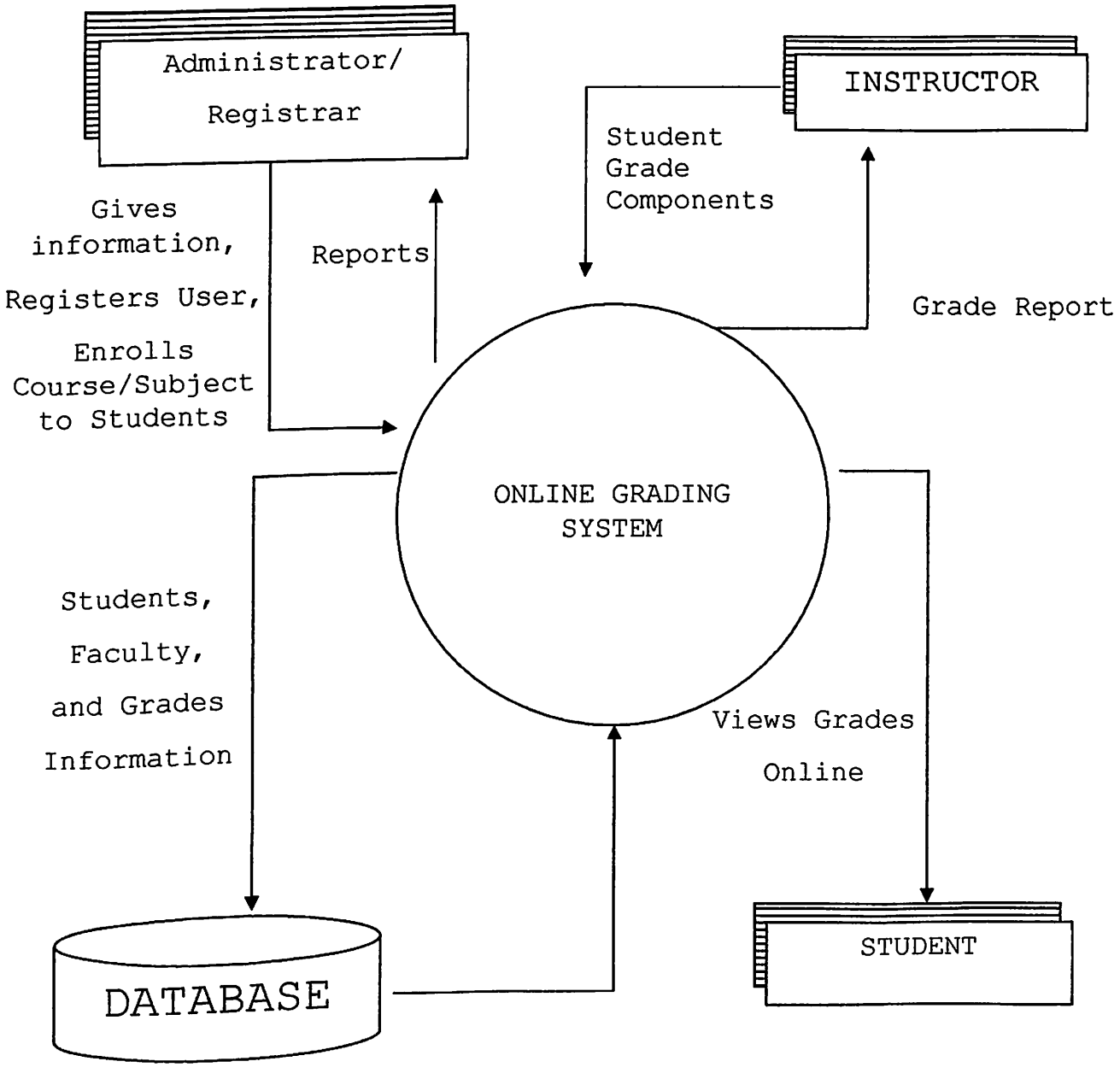
The advantage of having the system is that the school would be able to save paper from printing many pages of class records. It will solve the problems on data redundancy where faculty member would have write same sets of name in every course or subjects he/she handles. Additionally, time spent in checking and computing grades would also be compute as the system is programmed to calculate data for grading that had been feed into.

Chapter III

PROJECT DETAILS

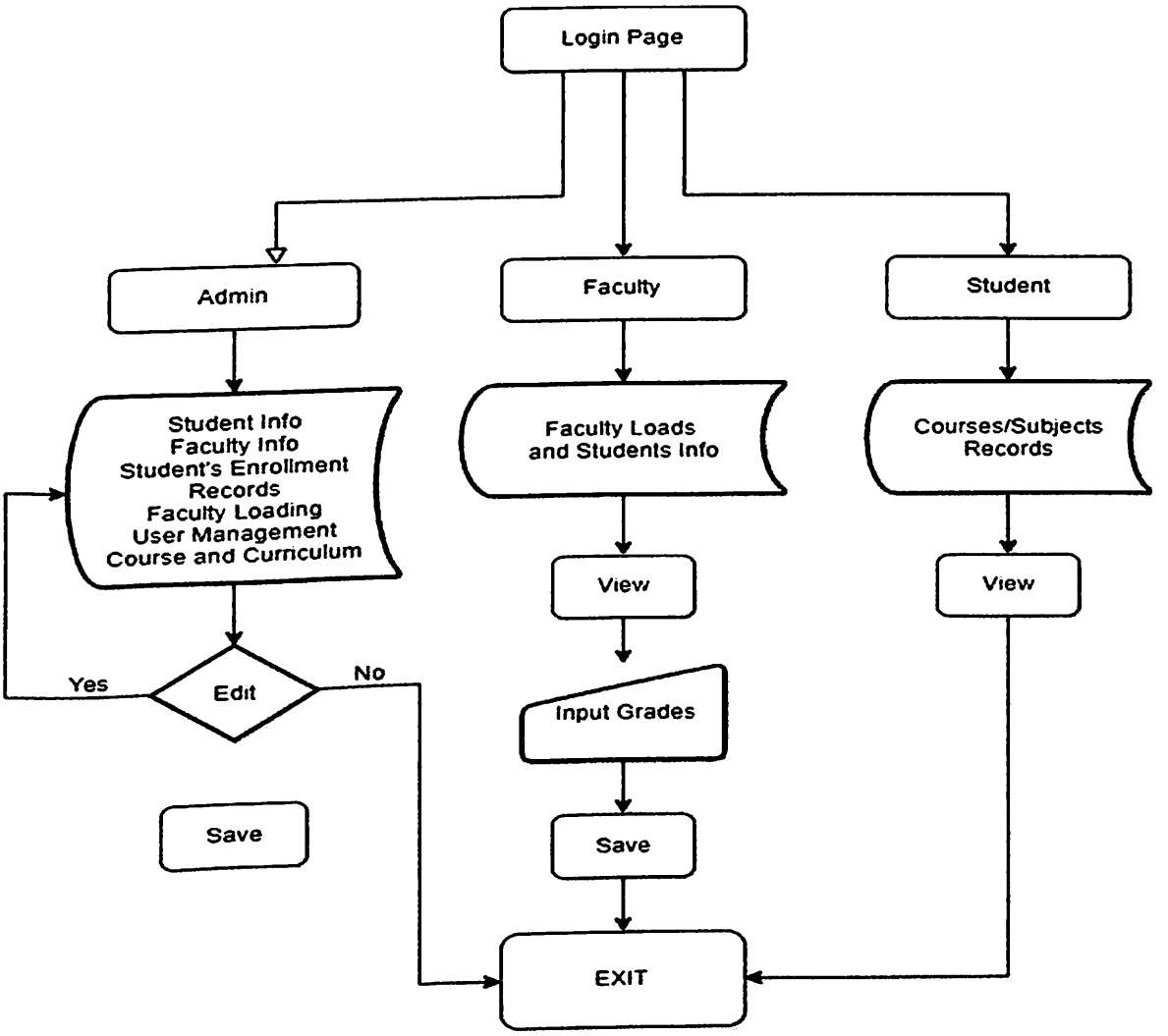
A. Overview

Figure 2. Proposed Context Diagram of the Online Grading System



System Use Case Diagram

Use Case Diagram is a graphical representation that describes how users will interact with the system. Fig. 3 shows the Use Case Diagram of the Online Gradng System for MSU-Maigo.



The web based Online Grading System have three types of user namely; Student that will be allowed to view his/her grades; Admin (Registrar) which controls the system and can add, edit users and save grade information; and Faculty members which be allowed to enter the grades of Students.

The system ensures that only authorized persons can view, retrieve and print the results of the online grading system.

The Online Grading System for MSU-MSAT provides security of the data that has been inputted; ensures accuracy and reliability of the computation of grade results; helps minimize the time and effort spent in computing grades of each student and checking of class record through faculty member, chairperson and in registrar office; automatically calculates and consolidates the grade of the students; and let the students inquire for their grades anytime online as revealed in the Figure, the Context Diagram of the Online Grading System.

The online grading system described above uses the HTTP protocol for communicating between a centralized server and client machines. The system is implemented using the PHP language with Codeigniter framework. It is based on an Apache HTTP 2.0 web server, and uses MySQL to store the data. In this system, the front-end users (students, faculty members, and course administration) access the online grading system via a standard web browser (i.e. Internet Explorer, Firefox, Chrome, etc.). Pages are composed of HTML and contain Javascript to handle the user interaction. The system will be hosted online that operates independently, separate from other computerized application systems existing in the campus. The application can also run locally on an premise server.

The application itself will feature a front-end and a back-end system and will be secured by a user management module. The users will be grouped into either faculty, student, admin and super admin where all backend configurations are.

B. Theoretical Framework

The project development methodology that will be followed in this project is the Agile Unified Process Methodology.

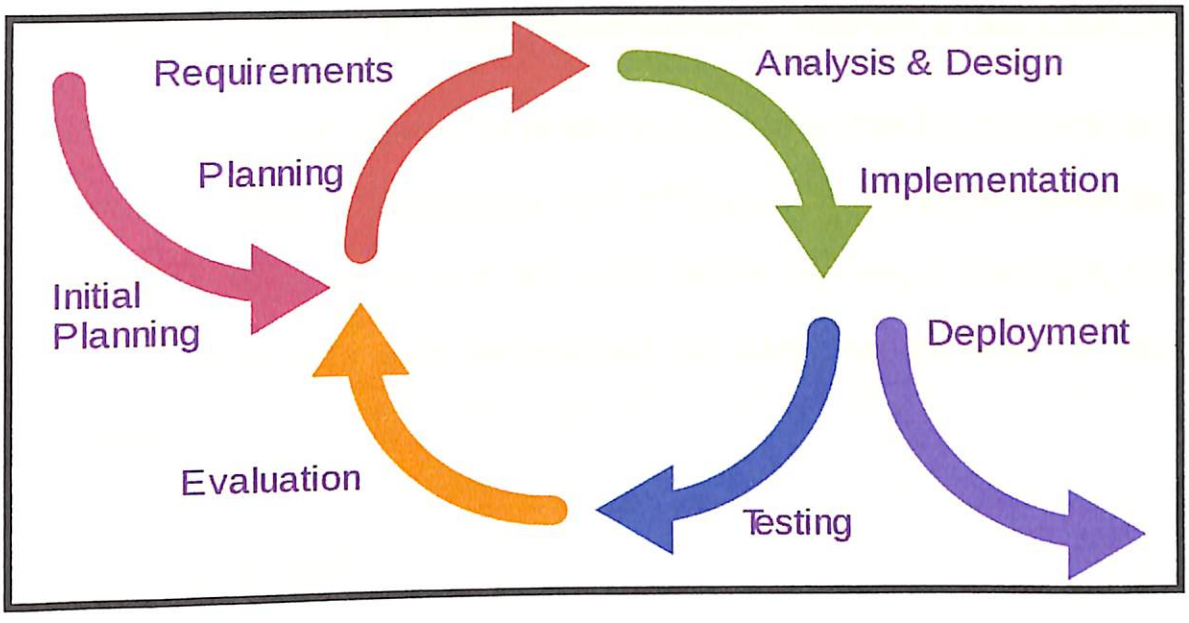
The Web based Online Grading System will use "Agile Methodology" in the Software Development. The Agile Unified Process Methodology places both the intended users and the project developer in front and center of development process. Considering the customer satisfaction by rapid delivery of useful software and adapting to changing circumstances.

The system developer using the agile methodology has the following core attributes:

1. Gather additional knowledge on the project that should be done through interviews and research;
2. Assess the needs of the clients and build a list of project requirements from gathering information;
3. Analysis and design of the project software;
4. Implement the design, testing and deployment.

These attributes are applied to the four phases of Agile Unified Process. Each phase is iterated per workflow as the software life cycle moves through the phases. The adjustments occur by controlling the number of iterations in each phase; iteration is determined by the project developer and complexity of the project.

Figure 4: Agile Unified Process



The four phases of Agile Unified Process:

Inception deals with requirements gathering and project planning. The project developer gathers data through interviews to the campus officials regarding the policies of implementation of the online grading system. Gather all important forms generated and types of questionnaires as a basis for system design and also to determine the scope and limitations of the system.

Elaboration deals with the iterations to be done during the project cycle based on the defined project/software architecture. The system developer in this part already started the major parts of system programming. Most of the requirements are already defined and enough information was already gathered.

Construction is the phase wherein the project software is actually built and extensively tested. The completed system programming is made ready for the evaluation process and testing by the users. Some of the changes will occur after the user testing, which will involve random faculty members of the different

department of MSU-MSAT which can possibly criticize the system as requested. During the system dry run, Faculty members will be provided with a User's Manual.

Transition is the phase wherein the project software is declared as complete and delivered to the client for deployment. During this process, the system developer will request the Registrar together with some faculty members to thoroughly test the system. Significant results are recorded and comments are noted for later enhancement.

C. Technologies Used

The following interfaces will be used in the development of the online grading system.

3.1 User Interface

3.1.1 The system shall have a log-in menu that would only allow the authorized users to gain access onto the system. Access rights include management of both front- and back- ends.

3.1.2 There would be some interfaces such as text fields and list boxes for user inputs and options as well as the outputs from queries. Also, buttons to send, confirm, or cancel a specific action where applicable shall be used.

3.2 Hardware Interfaces

3.2.1 The system shall be accessed at any workstation with at least 2.4 Ghz processor computer running on at least Windows 7 or Linux operating system with a browser (preferably Mozilla Firefox or Chrome).

3.2.2 Internet connection with browser is required in order to access the site.

3.3 Software Interfaces

3.3.1 MySQL Database Engine

3.3.2 The online grading system shall function on any Compatible Internet Browsers.

3.4 Communication Interfaces

3.4.1 The system shall be web-based, adopting the client/server side technology. Servers shall process the requests to be submitted by the client through the browser.

D. System Design

a. System Features

a.1 Performance Features

a.1.1 The system will accommodate users with valid accounts inside the database where they can use the system within a limited period of time and every session will have no time duration.

a.1.2 The system shall be able to perform well enough anticipating the fact that a number of users would be using it simultaneously.

a.1.3 The system shall be able store records of faculty and students per academic year and semester to the database and be able compute and generate accurate results of the grades of students.

a.2 Security Features

a.2.1 The system has its own logging scheme to secure the information of users that is being administered by authorized personnel.

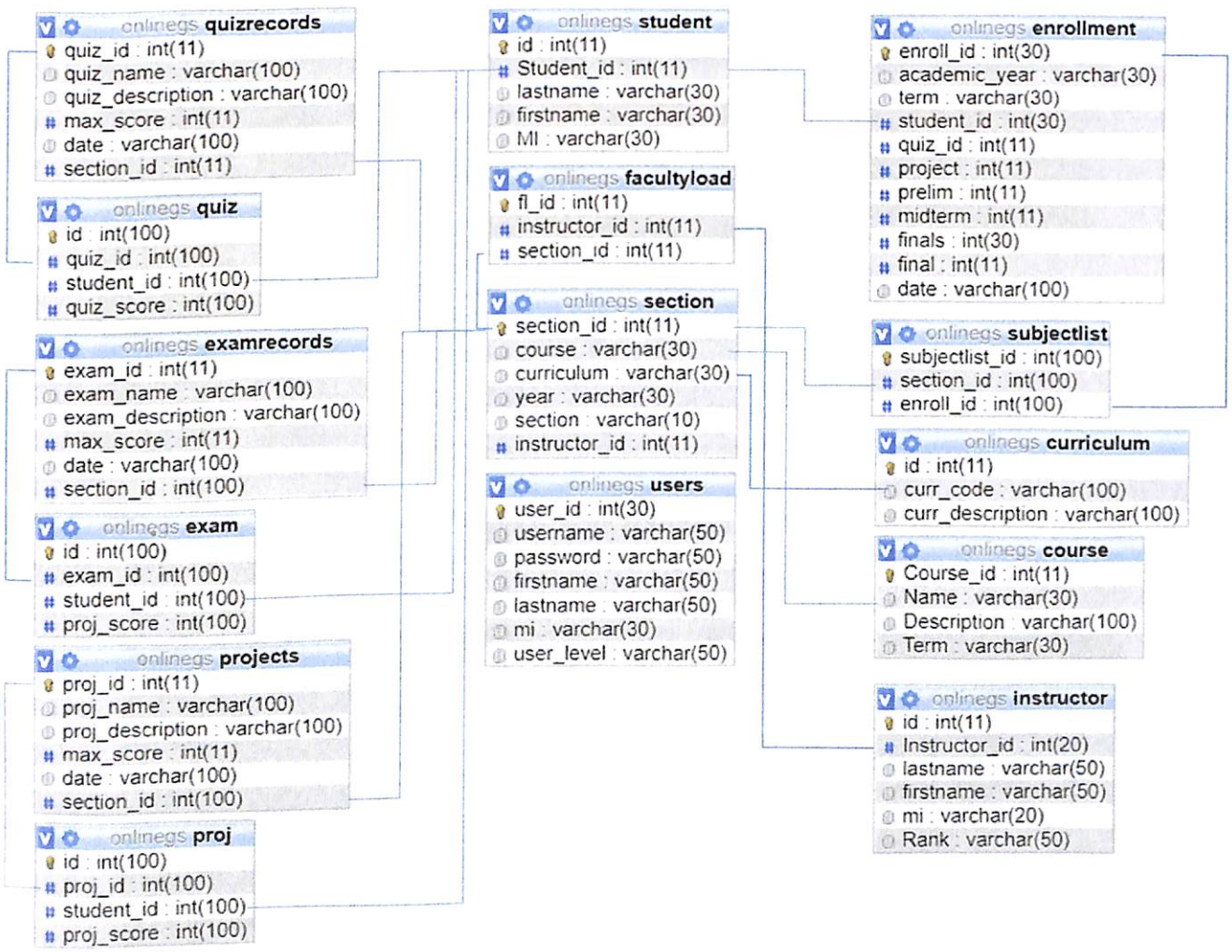
a.2.2 The system shall permit only the authorized personnel who are on the list of authorized Managers to create or edit grades.

a.2.3 The database manager will set an account to each user to be able to log in to the system by providing a default username and password that can be replaced anytime when needed.

b. Database Design

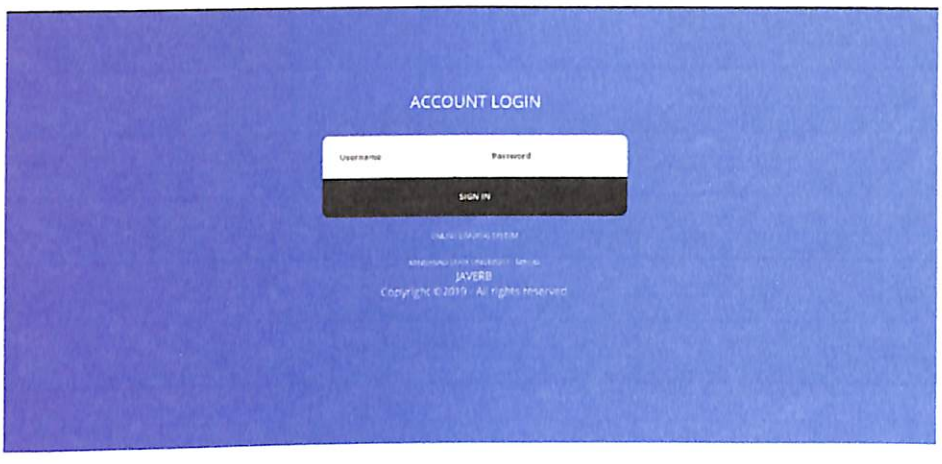
Entity Relationship Diagram (ERD)

The Figure below shows the entity-relationship model of the list of items in the database.



F. Implementation

Figure 5- Login Page. Login page automatically detects three types of users that can securely login namely: Registrar as the Administrator, Faculty and Student .



Administrator

Figure 6-Dashboard.

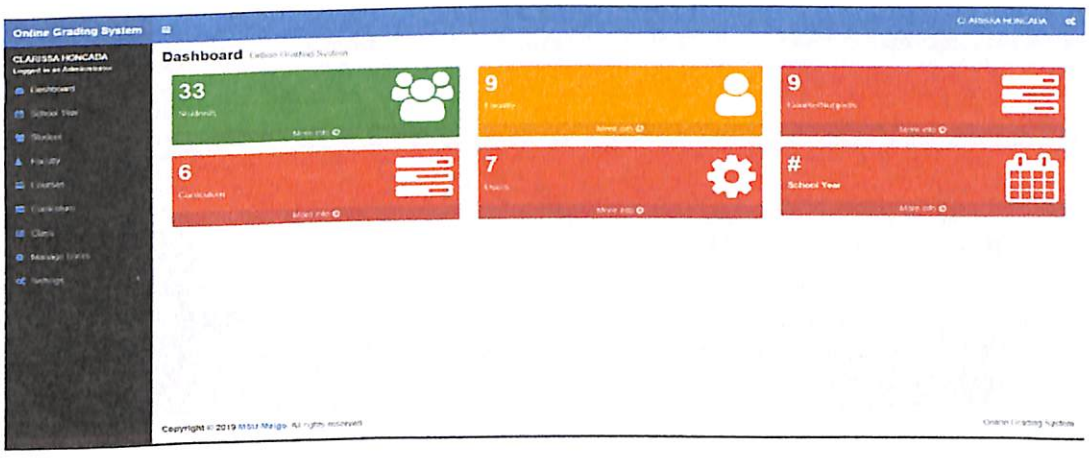


Figure 7- Adding Student Information. This menu is used to register students on the system where you can edit and delete it. The same process goes through with the Faculty, Courses, Curriculum, Class and School year.

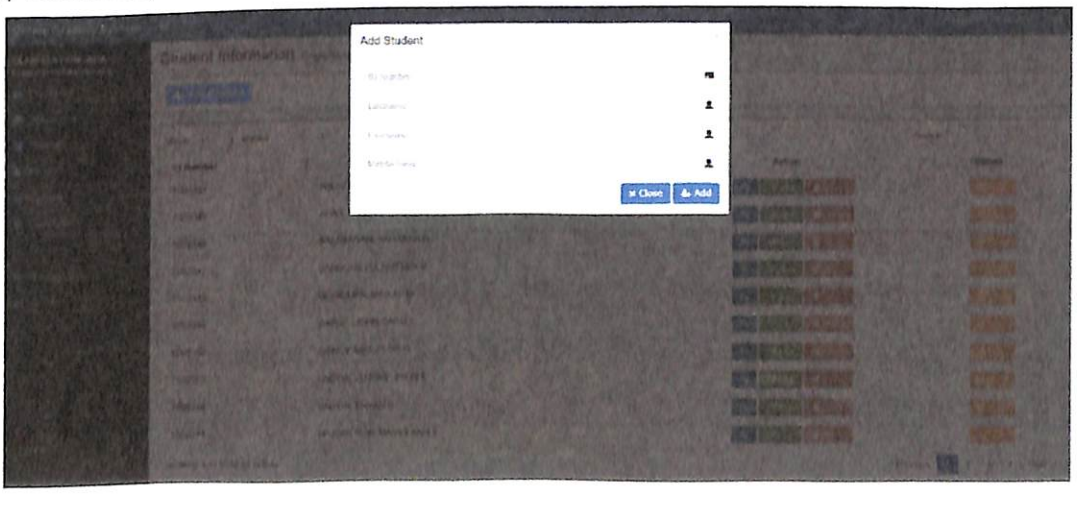


Figure 8-Creating a class or section

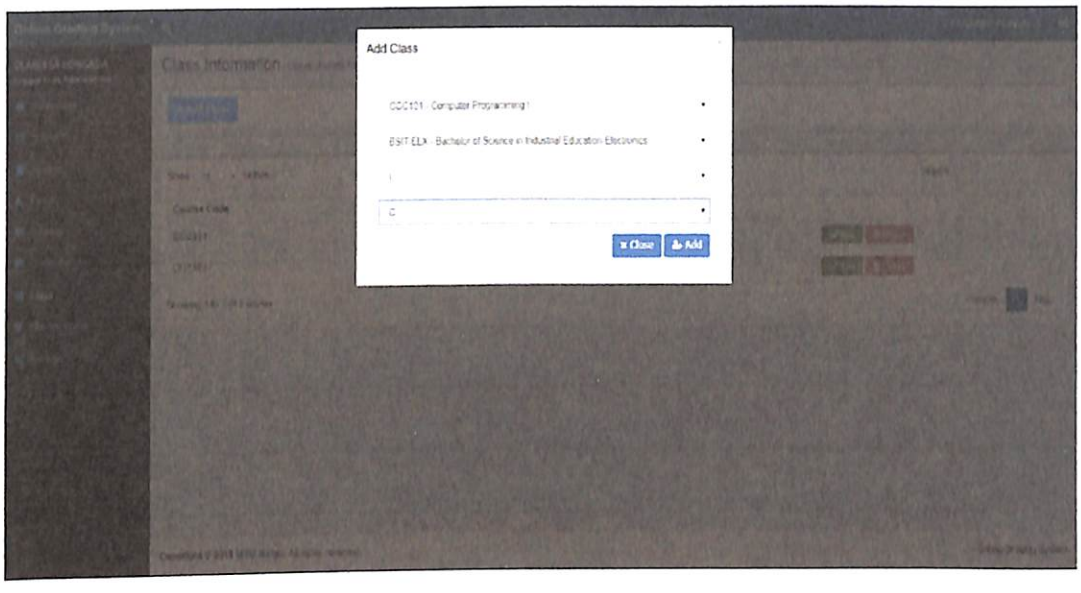
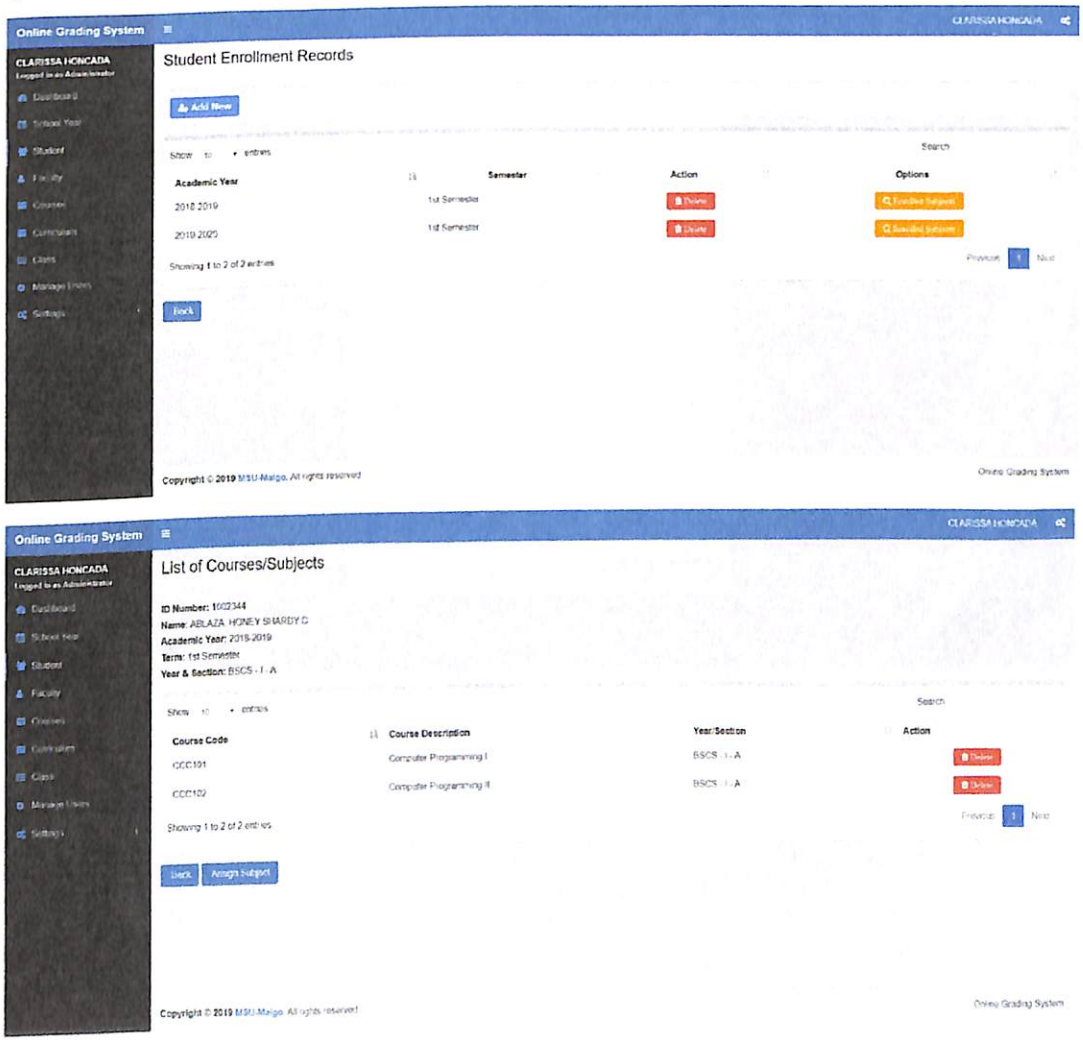


Figure 9- This option shows the enrollment records of the students as well as assigning of courses and subjects per semester enrolled.



Faculty

Figure 10- This page will be shown after a faculty logs in. The user will be able to view records of assigned faculty load per academic year and semester and be able to view students records for inputting grades.

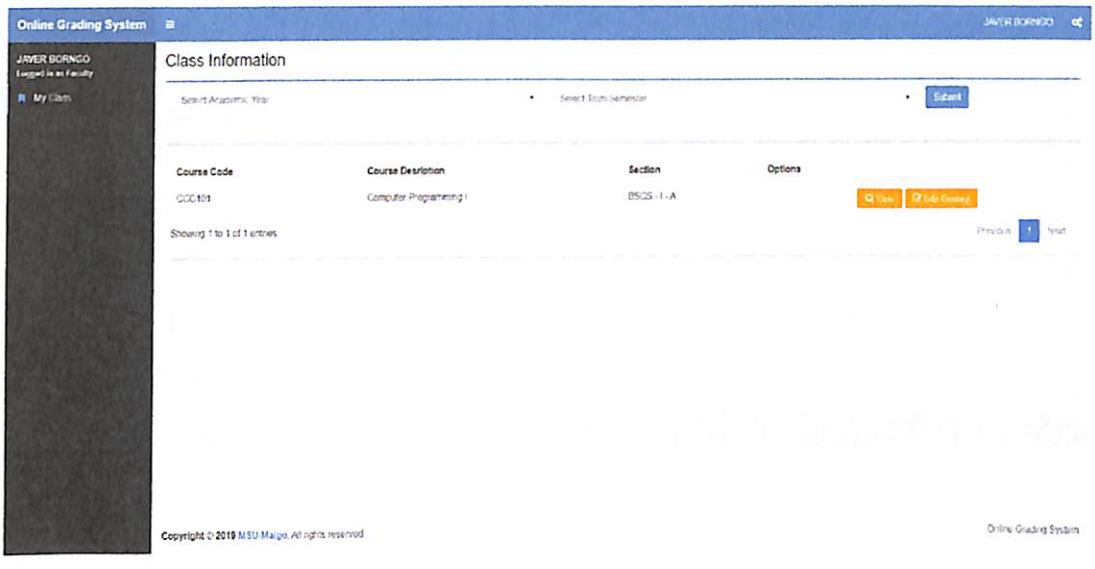


Figure 11-This option allows the faculty to adjust and edit grading scheme of each course or subject assigned.

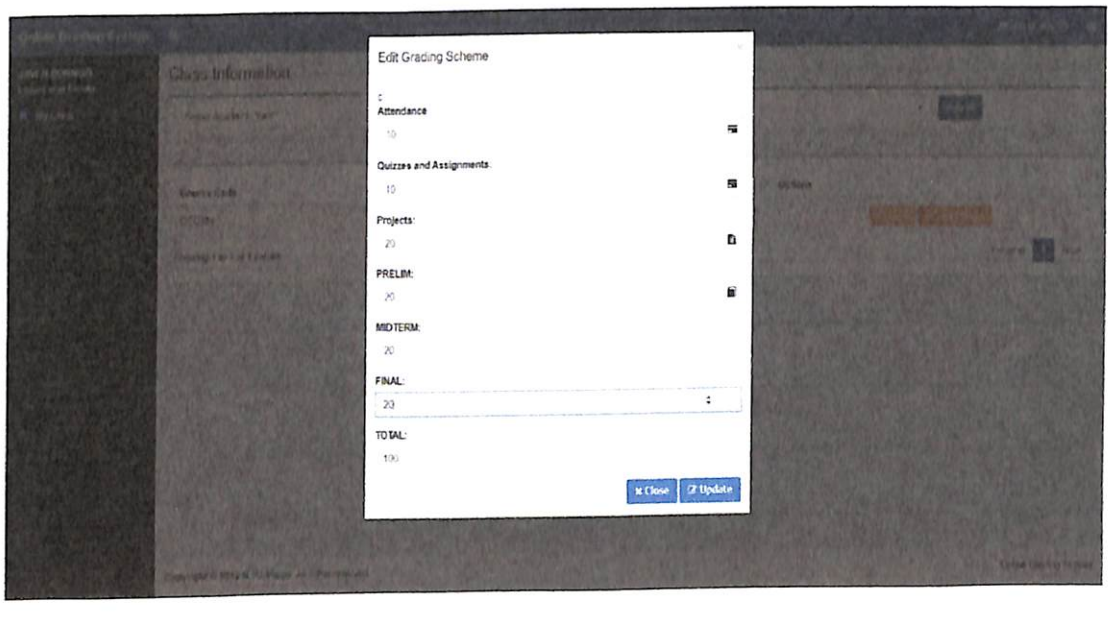


Figure 12- This option shows records of the students on certain course/subject where the user can input grades on the quiz, assignment, exams, projects created by the user.

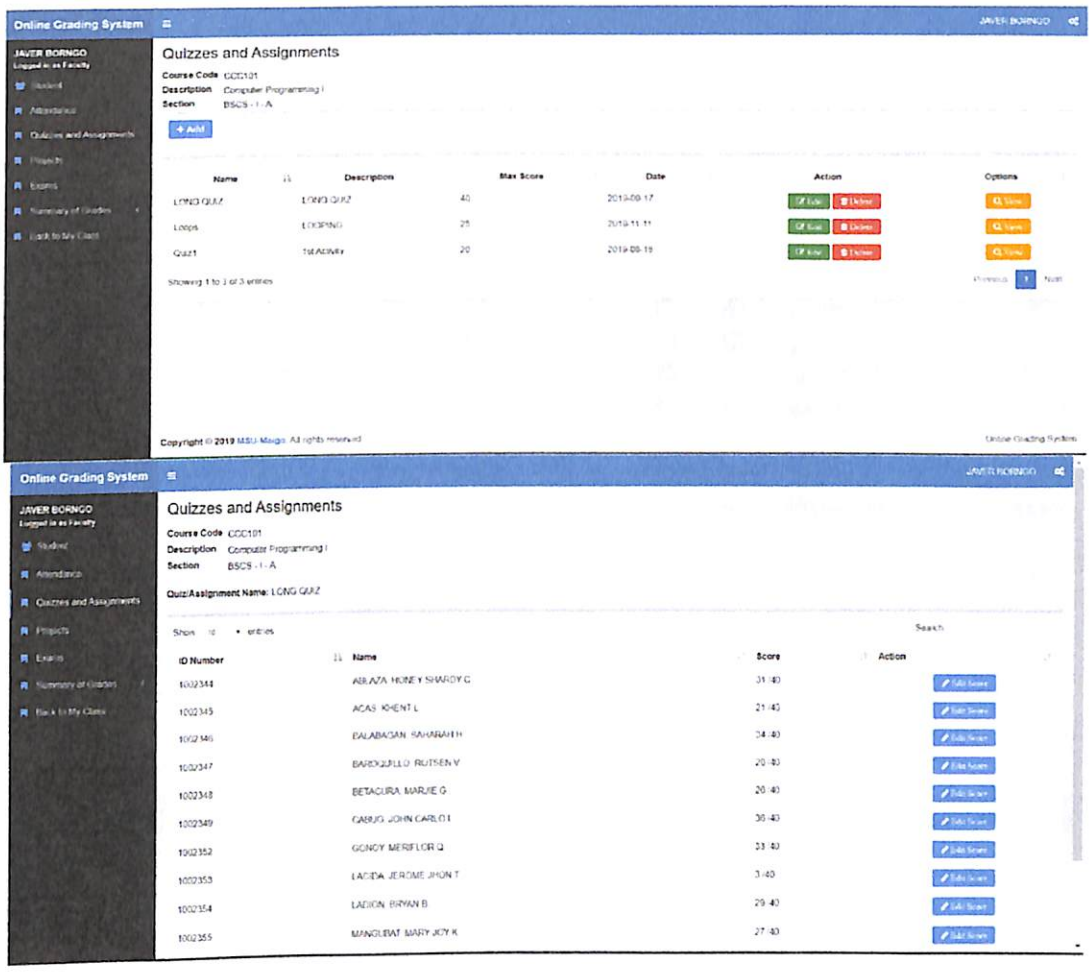


Figure 13- This figure shows summary of grades per category (Quizzes and Assignments, Attendance, Projects and Exams).

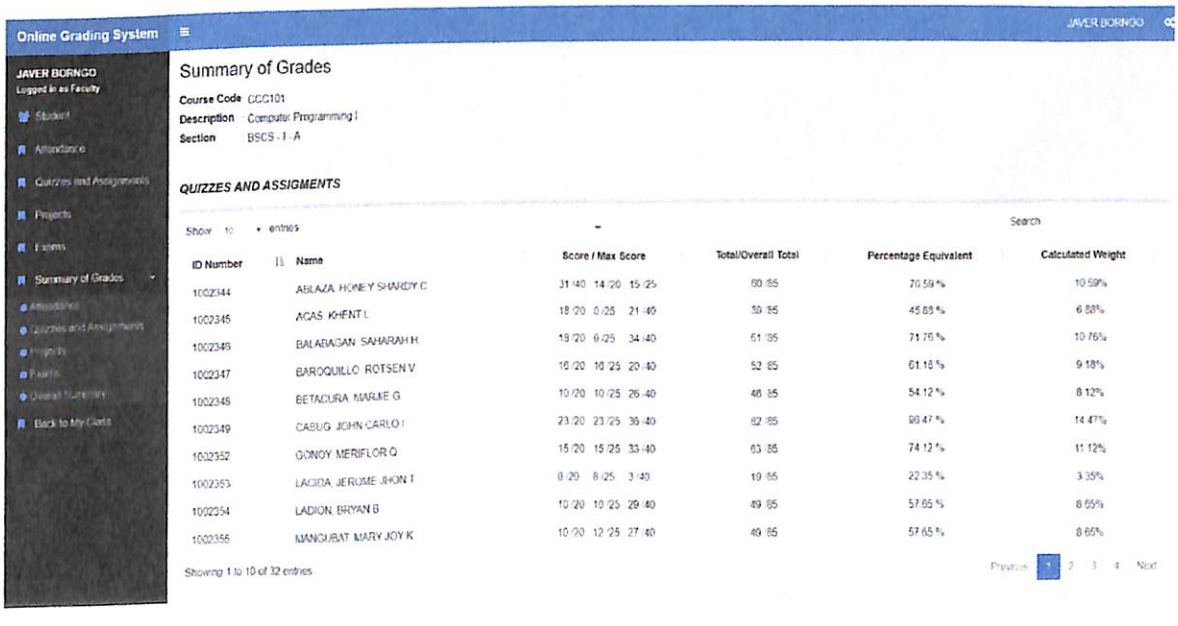
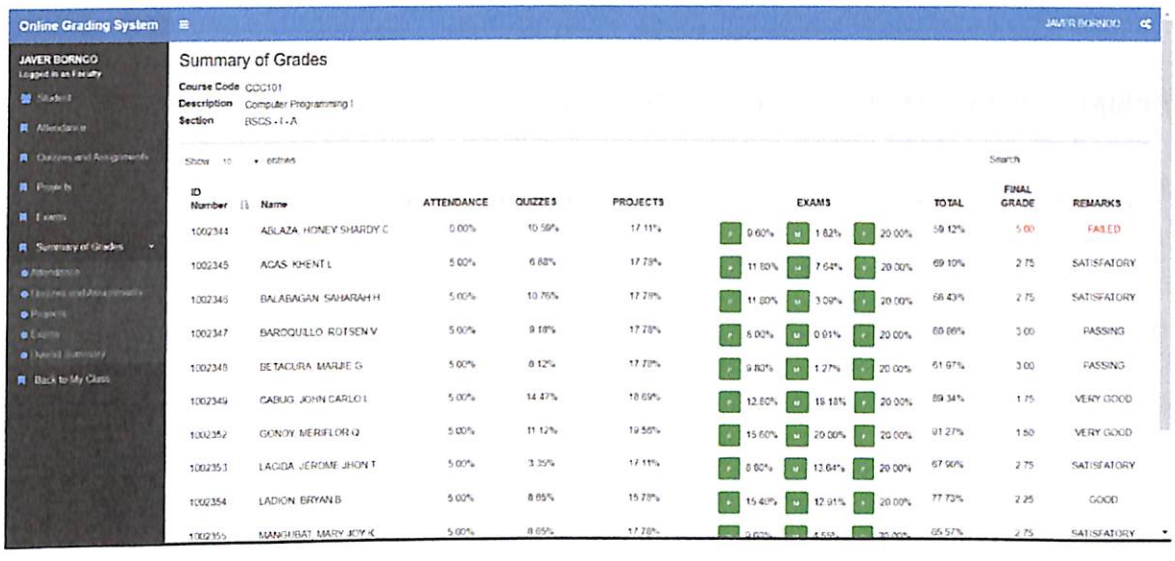
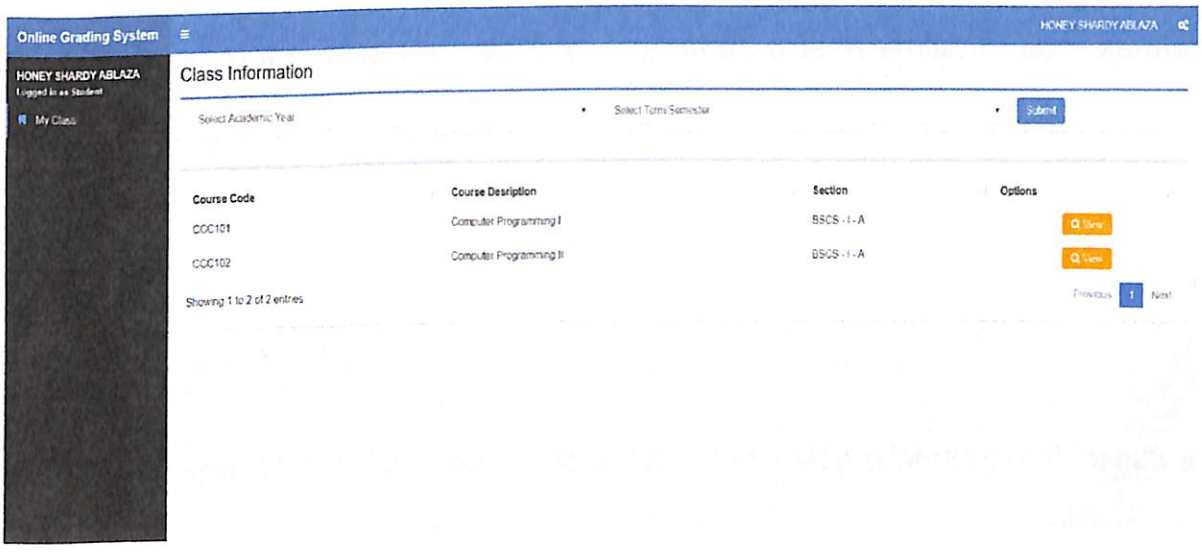


Figure 14- This figure shows the overall summary and final grade of each student.



Student

Figure 15- This page will be shown after a student logs in. The user will be able to view records of enrolled subjects per academic year and semester and be able to view grades.



Chapter IV

PROJECT ASSESSMENT

A. User Testing

The testing of the system was conducted at Mindanao State University – Maigo School of Arts and Trades among its faculty and students. The test was done randomly. It was participated by five (5) faculty members and five (5) students. The respondents who tested the system were given System Usability Scale Form in order for the developer to test the functionality of the system adjust base on the perspective of the uses and make sure that the system is easy to use, learn and operate

Testing Techniques

Testing the act of promoting program correctness by trying out various sequences of input values (Woodcock, p. 386). It is essential to do a series of steps that guarantee the quality of the system. Test specification are needed to ensure that the application meets the user's requirements. Below are the series of user testing undertaken by the project developer during the system implementation.

Link Testing. This test is used to check if program that are interdependent actually work together as planned. The links are tested if it works correctly with its behavior. Another test performed is to check whether input and output data form the database is connected correctly in its fields.

System Testing with Test Data. The system as a complete entity is tested with the system developer. This step will include measures of errors, timeliness, ease

of use, acceptable down time, and understandable procedures. This assures that all system functionality is properly tested.

B. Testing Results

The data gathered through research instrument are analyzed and statistically treated in order to derive interpretations. The data are presented in accordance with the statement of the problem.

Statistical Tools

These tools were used to compute the data gathered in relation to the project developer's study.

a. System Usability Scale

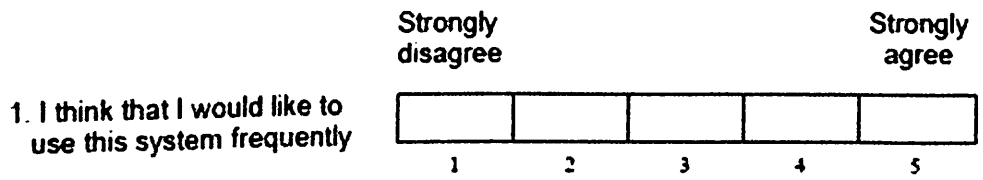
The System Usability Scale (SUS) was used to describe the Online Grading System. It provides a "quick and dirty", reliable tool for measuring the usability. It consists of a 10-item questionnaire with five response options for respondents; from Strongly agree to Strongly disagree. Originally created by John Brooke in 1986, it allows you to evaluate a wide variety of products and services, including hardware, software, mobile devices, websites and applications.

The project developer will conduct a system implementation survey for Students and Faculty of MSU-MSAT. System Usability Scale Questionnaire were given to them to measure how our system interacts with the user. This is also to gather statistically valid data which would give our website a clear and reasonably precise score. The questions that had been raised to the students are as follows:

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.

3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

To answer this questions, you have to choose from a scale of 1-5 as shown in the figure.



Next is to calculate the score of the system from the participants.

- For each of the odd numbered questions, subtract 1 from the score.
- For each of the even numbered questions, subtract their value from 5.
- Take these new values which you have found, and add up the total score. Then multiply this by 2.5.

The result of all these calculations is that you now have your score out of 100. This is NOT a percentage, but it is a clear way of seeing your score.

The System Usability Scale is not diagnostic and will not tell you what specific problems you face, but it will give you a red or green light to know how badly your usability needs work.

The average System Usability Scale score is 68. If your score is under 68, then there are probably serious problems with your website usability which you should address. If your score is above 68, then you can relax a little bit.

Here's an overview of how your scores should measure:

- 80.3 or higher is an A. People love your site and will recommend it to their friends
- 68 or thereabouts gets you a C. You're doing OK but could improve
- 51 or under gets you a big fat F. Make usability your priority now and fix this fast.

In the SUS Questionnaire that we have with an average of 93 that was given particularly to the five students (you can refer to the SUS Questionnaire figure above) were:

SUS Result:

Participant	q1	q2	q3	q4	q5	q6	q7	q8	q9	q10	SUS Score
p1	5	2	5	1	5	1	5	1	5	1	**97.5**
p2	4	1	5	1	5	1	5	2	4	2	**90.0**
p3	5	2	4	2	4	2	4	1	4	1	**82.5**
p4	5	1	4	1	4	1	4	1	5	1	**92.5**
p5	4	1	5	1	4	1	5	2	5	1	**92.5**
p6	5	1	4	1	5	2	5	1	4	1	**92.5**
p7	4	1	4	2	5	1	4	1	4	2	**85.0**
p8	4	2	5	1	4	1	4	2	5	2	**85.0**
p9	5	2	5	1	5	1	5	2	5	2	**92.5**
p10	5	1	5	2	5	2	5	1	4	1	**92.5**

The result and comments given by the students about the system indicates that our system have a user-friendly interface, which functions accordingly to its purpose.

Chapter V

DISCUSSIONS

The main purpose of this system is to offer services to the students by means of a website that will allow registrar and teacher to encode student grades online and allow students view their grades online or in local if need be. The system provides an auto responsive design which means the system can be viewed and navigated easily using a regular internet capable phone or a computer. System GUI (Graphic User Interface) as viewed using a regular computer

There are three user level controls that the system detects upon login, namely the admin or registrar, the faculty and the student. The system automatically detects what type of user is being logged in. User will be redirected to a page that corresponds to the user account.

The mechanism on how the Online Grading System manipulation was cascaded into three common users, the administrator who is in-charge of the whole system and will be the one to add, edit and delete information of users; the students who will be given a limited access on the system just to view their grades in order for them to monitor status in class; and faculty who will input grades components of the students on the different courses assigned to him her by the admin user o registrar. In the administration part, the Registrar will input his username and password. If his username and password are correct, he/she can then access his/her own panel in the website. It is where the adding of subjects, class, course, curriculum, faculty loading, registration of students, instructors and of users takes place. In loading subjects to the students, the registrar first has to enroll a student on a school year and semester, then selects a subjects/course for

a particular academic year and semester. If the Registrar clicks the faculty menu, he/she can view the entire teacher's lists that are registered to the system. The Registrar can also edit all the information. The same goes through with the rest of menus in administrator's panel. A faculty have its own panel in which he/she will be redirected upon login. The faculty first have to select academic year and semester in order to view the classes assigned by the administrator/registrar. If the faculty clicks a certain class, another panel will be prompted with complete list of the students on that particular class along with their quizzes, attendance, projects and exams where the faculty can input the grade components of each student.

Chapter VI

CONCLUSION

The project developer concludes that the Online Grading System is indeed feasible to be implemented in MSU-MSAT as a solution to the problems met in the manual process.

With the use of the said system preparing and computing the grades of the students are more accurate, data manipulating, processing and report generation are fast and reliable, and security is better.

Therefore, the utilization of the Online Grading System developed for MSU-MSAT is increasingly effective and beneficial to the campus, faculty and students.

Chapter VII

Future Work

The developer has gone through system testing evaluation of the users, from this, the system had been considered as effective tool. However, the system can still be enhanced and improved in the near future.

Future developer may maintain the system functionalities and to design other modules to support transactions which are beyond scope of the study.

System Maintenance Plan

Inevitably, the system will need maintenance. Maintenance operation takes place after the system has been installed.

Periodic maintenance of the system will be performed to address problems that might arise during post implementation period. The maintenance of the system will be performed by the system Administrator by updating the data in the database when necessary after the deployment.

Personnel Training

A training program on the operation of the system will be conducted for all users. This training program will be held at MSU-MSAT and will be scheduled after the end of the of current school year, when the teachers are no longer busy with their school work.

The training program will include an introduction to the developed system, emphasizing on how the usual activities done in the manual system recording of student information and the computation of grades are automated. Program modules that perform each step of the manual system will be explained,

highlighting the results of the processes and their connection to the entire system. Each menu option will be tackled so that the users would know which option to choose for their intended activity.

The main part of the training program will be on running the entire system with sample data so that the users will be confident in using the system. The sample data that will be used are the previous records of the students so that the accuracy of computations can be stressed and the users would have a clear understanding of the entire system.

REFERENCES

Books

Brookshear, J. Glenn. (2003).Computer Science An Overview. (7th ed.). Pearson Education, Inc.

Pressman, Roger S., PH.D. (2010).Software Engineering a Practitioner Approach. (7th ed.). New York: McGraw-Hill.

Rob, Peter & Coronel, Carlos. (2000).Database Systems. (4th ed.). Alex Complex Singapore: Course Technology.

Thesis

Majorenos, John Doe S. & Roxann C. Orbeta(2011) Computerized Student's Academic Reports for Mindanao State University -Maigo School of Arts and Trades. Undergraduate Thesis. Maigo, Lanao del Norte.

Web Page:

Online Grading System

https://prezi.com/avsxwsmz0vh_/online-grading-system/

Mindanao State University - Marawi Official website.

https://www.msumain.edu.ph

Student Portal System

https://www.scribd.com/presentation/142331829/Student-Portal-System

APPENDICES

A. Deliverables and Milestones

Deliverable and milestone will and shall contain the: Proposal, Prototype, User testing and assessment plans, Report of results from user testing and project assessment and Suggestions for revisions of the prototype for the next version

B. Budget

The biggest challenges the developer of this project must overcome would be to successfully submit the system and complete the documentation based on the possible target date performing all the roles in the system development processes.

Roles	Rates (Dollar/Hour)	Rate in at 55 php/dollar
Technical Writer	$2.50/hour	Php 137.50/hour
Programmer	$5.50/hour	Php 302.50/hour
Database Manager	$9.00/hour	Php 495.00/hour
Project Manager	$10.00/hour	Php 550.00/hour
Data Entry	$3.50/hour	Php 192.50/hour
Project Tester	$1.50/hour	Php 82.50/hour

PHASES	ELEMENTS	TIME ALLOTED (HOURS)	COST (Pesos)
INITIATION	Project Management	3	1,161.00
	Technical Writing	5	752.50
PLANNING AND ANALYSIS DESIGN	Project Management	5	2,150.00
	Technical Writing	10	1,505.00
	Project Management	4	1,720.00
	Technical Writing	8	1,204.00
	Programming	10	2,365.00
EXECUTION/ IMPLEMENTATION	Database Administration	10	3,870.00
	Programming	35	8,277.50
	Data Entry	15	2,257.50
	Project Design	10	2,365.00

	Project Testing	2	129.00
TESTING	Project Management	4	1,720.00
	Technical Writing	3	451.50
	Project Testing	10	685.00
ADDITIONAL COST	Internet Cost for Research & Documentation	15	225.00
TOTAL			30,838.00

C. Qualifications

The system developer is a Computer Science Instructor at Mindanao State University – Maigo School of Arts and Trades.

The developer has successfully passed the exam and training on MikroTik Certified Network Associate (MTCNA), MikroTik Certified Network Routing Engineer(MTCRE) and MikroTik Certified User Management Engineer.

Successfully passed the examination on National Police Commsion (Napolcom) and Career Service Examination (CSE).

The developer is a graduate of Computer Technology at Mindanao State University – Maigo School of Arts and Trades on April 2010 and a graduate of Bachelor of Science in Computer Science at Mindanao State University at same school on May 2014.

The developer has the following computer related skills:

- Programming Languages: C++, Turbo C, JAVA, SQL, VISUAL BASIC, PHP, CSS, HTML
- Applications: AutoCAD, Adobe Photoshop, Adobe After Effects, Power Director
- Database Systems: Linux Based, SQL Based, MySQL, MS Access.