CHAPTER I

THE PROBLEM AND ITS BACKGROUND

Introduction

Cabuyao Youth Development Affairs (CYDA) faces many unsatisfactory conditions including the processing of scholarship applications, conducting examinations, scheduling of scholarship grants distribution, monitoring of events attendance and generating reports. Students have a hard time applying for the scholarship by falling in line to be accommodated by the staff and to take the exams which takes a lot of their time. That is why the whole process is time-consuming. The file of papers or documents in the office is getting higher and higher every semester resulting in an inefficient generation of reports. As one of the beneficiaries of CYDA, the researchers decided to improve the current system by automating most of the business processes to make it less time-consuming.

The use of this system might be a big help to the problems, society is facing in any aspect. In particular, the Cabuyao Youth Development Affairs are facing problems, but making use of the management information system, they probably made their processes better. These problems include sorting of scholars,

monitoring scholarship status, and categorization of scholarship payroll.

The CYDA Office is located at P. Burgos Street Poblacion Uno Cabuyao City, Laguna. It started accommodating students who need financial support in the year 2016. The Cabuyao Youth Development Affairs office (CYDA) consists of five staff workers, the Administrative Officer, the Secretary, the Public Relationship Manager/Social Media Officer, the Layout Artist, and the Utility Worker. With the help of these people, there are almost 10,000 students who have been given scholarship grants until the present time. While at the present semester, they have 3,700 students who applied for a scholarship from different schools.

The purpose of the study is to come up with a solution for all the problems that the CYDA scholarship program encountered. The researchers assure that the study will help people. Because today's technology is evolving, they think that the office should also adapt the modern way instead of sticking on the traditional way. The researchers also believe that changing the old version does not mean to change everything. They just want every work to be more effective and efficient by implementing the study.

Statement of the Problem

The study is conducted to develop a youth scholarship management system for the CYDA that helped them improve the process of managing the records of their scholars. Specifically, the study sought to answer the following questions:

1. What are the problems encountered by the CYDA in terms of:
   a) processing scholarship applications and admissions;
   b) conducting examination;
   c) monitoring student performance;
   d) scheduling of scholarship grants distribution;
   e) monitoring of event attendance; and
   f) report generation?

2. How did the proposed system develop to provide:
   a) fast processing of scholarship applications and admissions;
   b) fast generation of exam results;
   c) effective monitoring of student's performance;
   d) effective scheduling of scholarship grants;
   e) accurate monitoring of event attendance; and
   f) efficient report generation?

3. What are the levels of assessments by the users for the proposed system in terms of:
   a) functional suitability;
   b) performance efficiency;
   c) security; and
   d) usability?

4. What are the levels of assessments of the web development experts for the proposed system in terms of:
   a) maintainability;
   b) reliability;
   c) security; and
   d) usability?

Significance of Study

The essence of the study is to help the students to easily apply for a scholarship and to lessen conflicts with the process. The study would also be deemed beneficial to the head of the CYDA as this would help in terms of recording and analyzing the information of the scholars.

Currently, CYDA is using the manual system in recording the data or information of the applicants/grantees through the use of Microsoft Excel Spreadsheet. The process of registration is the traditional way where applicants fall in line and wait long

just to fill-up the forms and answer the examination. With this study, the proposed system helped CYDA to have an improved process through online application for scholars. It also helped them to lessen the papers, and for them to easily monitor the number of scholars in every barangay where they conducted events. This proposed system will benefit the following people.

Cabuyao Youth Development Affairs Office. The CYDA office is the one who will benefit the most from the system. It will make their work easier and faster processing the scholarships. It will also lessen the paperwork because instead of dealing with lots of paper, they can use the proposed system.

Scholars. The scholars are one of the concerns in this study. This system is proposed not just to help the CYDA but also to help students in applying and taking the examination.

Researchers. The researchers will benefit from the proposed system. The researchers will gain knowledge, skills, and values that they can use in their future careers.

Future Researchers. This study will help future researchers searching relevant information to relate to another study.

Scope and Limitation

This study focused on implementing a website for scholarship application and admission, conducting an examination, scheduling of scholarship grants distribution, monitoring of events attendance and report generation in an automated way. This study will integrate the management of essential legal documents and some basic information about the CYDA, the scholars and the system. This study can be used by scholars and manipulated by the administrator and the staff authorized by the administrator. This study may also help in monitoring scholar's performances in terms of their grades, the activities they have attended including the community service, the violations committed, and the documents or requirements needed. Moreover, this also includes estimating the budget for the scholarship financial grants in every category which is for the Certified Scholars (CS) and Educational Assistance 1 and 2, for the deliberation for those who are not qualified on the given General Weighted Average, and for the graduate studies.

This system will also allow applicants to easily apply for the scholarship online. The first step would be filling-up the form online and submitting it afterward. After submitting online, the applicants would be given the pdf copy of the filled-up form and they need to provide a hardcopy of this, to be submitted together with the other requirements. These requirements are

registration forms, computerized cards, IDs, good moral certificates, and voter's certificates/IDs. During the submission of the requirements, there are several steps that the scholars will go through. The initial step is the validation to check if they have undergone the process of filling-up forms to make sure the applicant's grade is qualified and to categorize to identify who needs to take the examination.

This system will also make the application for admission way better from the current admission process. Instead of inputting names one by one on MS Excel, staff will just directly input names of scholars on the system during the application period and automatically added as a scholar.

The categorization would be Educational Assistance 1 (EA1), Educational Assistance 2 (EA2), and the Certified Scholars (CS). The qualified General Weighted Average (GWA) for the Certified Scholar is 86 to 100 and must pass the examination. Those who did not pass the examination would be categorized as EA1. And for those who have the GWA of 82 to 85 would be categorized to EA2. The examination for CS is an intelligence test consists of 25 items testing the numerical ability, questions about logic, synonyms, word analogy, and knowledge about Cabuyao City. The examination will be done through the use of tablets by logging-in with the password given by the administrator. The examination will last for only eight minutes. Even if the examinee is not yet done and the given time

has already been consumed, it will automatically save the data and log out afterward.

This system also includes Content Management System. With the use of CMS, users can change and manage the front-end, which only users can see. The researchers can edit the format without going unto codes.

This system also supports the Medium-Term Information and Communications Technology Harmonization Initiative. Because MITHI is a process that is related to budgeting, the researchers will make sure the system is free from corruption and in conformity with electronic government requirements. The system has no super administrator, which refers to the one who can do all things in the system. To prevent malicious acts, every action made is recorded, including the actions of the one who is responsible for the said action, the date and time.

On the other hand, there are limitations that the researchers cannot do or would not do and that is impossible and might encounter problems in the future. The researchers did not consider the online examination because of some reason. The students or applicants might get the answers through browsing online while answering, they might also ask someone to answer for them. They can spread the exam questions. And one of the main reasons is security. Some threats can be caused by the insiders or the applicants themselves if they are going to use

their accounts in doing malicious and dishonest acts. Generating automated ID and transaction receipt printing is also part of the limitations of this study.

Conceptual Framework

The conceptual framework of the study shows how the researchers understand and develop the system. It shows how they come up with their desired output.

The researchers used Input-Process-Output (IPO) Model as the conceptual framework of the study which was shown in Figure 1.

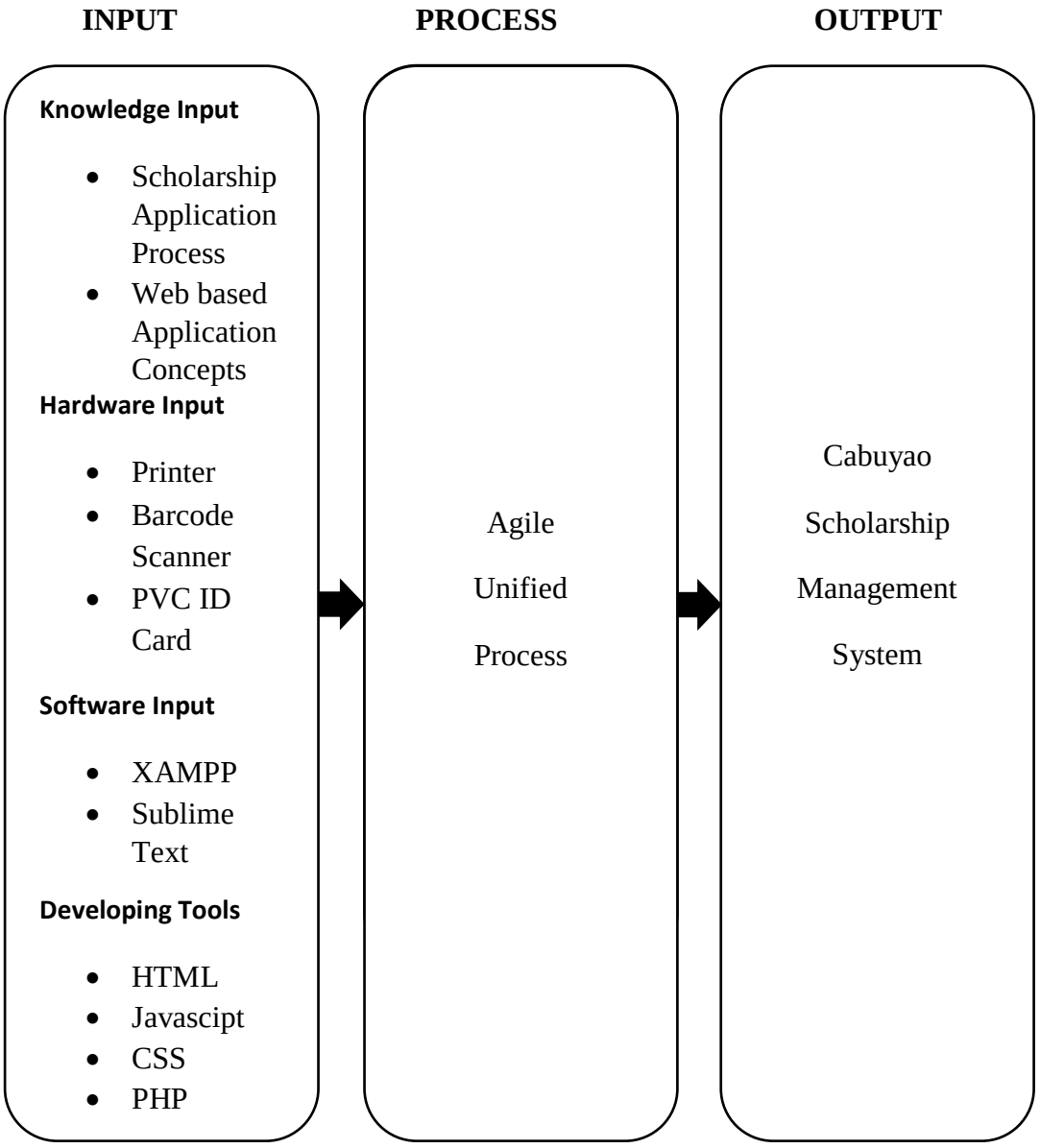

Figure 1. Conceptual Framework of the Study

Figure 1 shows the Input-Process-Output Model to formulate the conceptual framework of the study. The researchers used this because they want to explain the structure of the Management Information System.

The first step is the Input which includes Knowledge Input, Software Input, and Developing Tools. Knowledge Inputs are the information gathered by the researchers. Software Input and Developing Tools are the software, applications, and programming language that the researchers used to develop the system.

The second step is the Process. The researchers used Agile. Agile refers to a group of software development methodologies. Agile Unified Process helped the researchers to process and built up their desired outcomes.

The final step of the IPO Model is Output. Cabuyao Scholarship Management System which contains all the inputs and processes. The researcher's output was expected to help them, the future researchers, students and the YDA's staff to make their works much better, easier, effective and efficient.

Definition of Terms

The following terms used in this study were defined operationally and technically.

Cabuyao Youth Development Affairs Office. This refers to the researcher's client. It is the one that is responsible for giving scholarship grants to students who need financial assistance.

Database. Refers to where the data are stored. The researchers use a database to store large amounts of data.

Functional Suitability. Refers to which a system provides functions that meet stated requirements when used under specific conditions.

Maintainability. This refers to the effectiveness and efficiency with which a system can be modified by the intended maintainers.

Performance Efficiency. Refers to the performance relative to the number of resources used under stated conditions.

Reliability. Refers to which a system performs specified functions under specified conditions for a specified time.

Scholarship Management System. Refers to a computer-based system that manages and organizes scholarships.

Security. This refers to how secure the software is. It should have the ability to prevent unauthorized access, whether accidental or deliberate, to programs or data.

Usability. This refers to how usable the system is. It should be used by specified users to achieve goals.

CHAPTER II

REVIEW OF RELATED LITERATURE AND STUDIES

In this chapter, the researchers consulted literature and studies that are related to the proposed system. This is necessary for the researchers to have a deeper understanding of the system to be developed. Primary sources of information are books and online journals.

Youth Development Affairs Organizations

According to the Department of Children and Youth Affairs (2015), the National Youth Strategy 2015-2020 aims to enable all young people to realize their capabilities by listening to their voices and respecting their rights while supporting them as they turn from a child into an adult.

A Blue Print for Youth Development Sierra Leone's National Youth Programme 2014-2018, The National Youth Programme 2014-2018 aims to develop the agreement, organization and influence to effectively enhance participation and voice of young people in both political and economic influence. It also targets a relationship between young people, it

also includes that they should know their responsibilities for their effective participation in nation-building.

There is also a youth organization in Cagayan De Oro. But unlike the CYDA, Cagayan De Oro's youth organization is focused on advocating youth to be more involved in local governance. They have a council that is composed of 7 sectors: the in-school, out of school, youth with special needs, community-based, faith-based, indigenous and Moro youth (Neri, 2014).

In Section 2 of the Reform Act says that the State understands the essential role of the youth in building the nation, therefore they promote and protect their social well-being and encourage them to be involved in public and civic affairs (RA No. 10742, 2015).

India is one of the countries that have the highest number of the adolescent in the world, 253 million in particular. United Nations consider a person as part of the youth if he or she is 15-24 years old but it also varies in different countries. According to their percentage of youth employment by wealth index in six states, there is 13% employed from the poorest and 22.3% are employed from the richest. That is why they concluded that poverty has a great impact on youth development (Malik, 2015).

Scholarship Management System

To predict college performance, Universities have relied on measuring academic ability such as standardized test scores and grade point average (GPA). Although GPA and standardized test scores do influence persistence, progression and graduation, higher education research have identified a broad range of predictors for student success. Other relevant factors include internal characteristics of the student, such as gender, race, academic goals and academic skills, as well as external characteristics, such as institutional selectivity and various forms of financial support (Ganem & Manasse, 2011).

Scholarship Management System is proprietary web-based software designed to support the unique and diverse operating needs. Within the Scholarship Management System, associates are managed as organizational entities, while areas are tracked as service territories. Each scholarship record in the System is tied to a county. As ownership over specific service territories changes, the System can flexibly track the transition. Simply put, if affiliates merge or split, if service areas change, if students move from one county to another, the data will be managed properly (Womack, 2011).

Scholarship Management System is a web-based information system designed to assist with the scholarship

process. He chose to develop the Scholarship Management System primarily to improve the scholarship awarding process at the UNI CBA. Before developing the system, he was employed as a Scholarship Committee for four years which gave him first-hand exposure to the current process and recognized an opportunity for a system to be of assistance. The secondary reason why he chose this project was that many of the entry-level positions for graduates in my field of study, Management Information Systems (MIS), are either systems analysts or developers and this project exposed him to the tasks that both of these roles would take on a typical project. Lastly, he chose to develop a system, as contradictory to a research-based project, because he thoroughly enjoys system development (Sauser, 2011).

Automated Record Management System

Public sector organizations are implementing records management systems with a view of improving their services. However, adoption and use of these systems found to be wanting, but effective implementation of information systems in the public sector depends on technology adoption at both institutional and individual levels. They adopted a survey research design depend on a positivist approach (Mosweu et al, 2016).

Records Management is a tool used in recording and written communication processes. Public institutions need information systems that will enable them to manage records done according to the system and conduct processes using electronic media (Demirtel & Bayram, 2014).

Information either internally or externally generated helps the schools in their decision-making process and fairly improves the functional records and information management system. Also, effective and efficient execution of record management can make the school administrator save money (Akinloye et al, 2017).

Automated Examination

An electronic or online mock examination is a variant that differs significantly from those taken on paper. Electronic mock examinations can be performed unsupervised. Students can take the exam at home at a time of their choice. It is a way easier to allow students to take electronic mock exams more than once than the paper-based system (Harshitha, 2017).

Applied traditional supercomputing, or high-computing power that is used in research facilities. The proposed system is deemed useful for students and faculty for any institute. The study concluded that it greatly helped in reducing manpower errors like the typical error committed in every manual way of

examination. Also, it lessens the time consumption especially to those facilitators, it lessens the workloads and made their works easier than ever. And most important is that information is stored and secured and can be accessed easily whenever needed (Savakar & Hosur, 2013).

The current system is based on an old examination system and given outputs are not appropriate. They focused on the new examination pattern and trying to create an automated examination. Their main focus is to provide a secured and efficient access to users. (Avinash et al, 2015).

The manual examination system requires a lot of stress and unmanageable practices. Proctors are under serious work to distribute papers, manage records of every examiner using a manual list or manuscript and all these provide rooms for difficult exercise. The automated system has all examinations of each type well loaded into the computer which is provided to all students. It takes care of identity fraud and also makes supervision very easy (Somani, 2018).

Automated Attendance Monitoring System

The paper-based approach is the way of marking attendance. The way of monitoring attendance became inefficient because it is not yet fully automated and data are entered manually which found to be time-consuming (Kumbhar et al, 2014).

By implementing active RFID technology, employees are no longer needed to sign manual attendance. Human errors, unnecessary conflicts, boring paper recording can all be avoided, providing efficiency in overall operation in the company (Awad, 2016).

Automated attendance monitoring reduces the faculty and administrative burdens and removes the need to use class time for bookkeeping tasks. Attendance reports are available in real-time to faculty, students and administration through the campus management system which allows for immediate action by a grant to parties to get involved and provide the required support to facilitate student success (Ballroom ABCD, 2014).

Online Application System

Registration is done by students mostly at a registration center. Students need to be physically present to complete the registration process. Insufficient online utilities in handling student registration, the inability of students to remotely register and access documents like a transcript, students take too much time in processing their registration because they need to be physically present at the campus, these are the problems encountered in the current system (Bemile, 2015).

In the journal entitled “Development of Online Student Course Registration System”, they tried to achieve a system that will hold complex manual processes. They have developed a system for automating the manual registration system because they find it time-consuming. Their research aims to lessen workloads for students during the registration period (Singh et al, 2016).

Online registration can reduce expenses for students. Also, schools can save hundreds of hours spent by staff to enter and update records, as well as saving parent’s time in completing forms. Parents and students do not have to wait in line to fill out redundant forms (Kearney, 2016).

Synthesis

Youth Development Affairs is a government institution that is responsible for helping the Youth. They are giving help to those who have financial problems that cannot even support their education finances. The studies and articles about Youth Development Affairs helped the researchers understand more about how Youth Development works and understand why YDA is very important. They also understand what is the purpose of their organizations helping the youth is.

Concerning the topic of this study, the articles, journals, and studies may be applied to the objective of the study. Wherein the researchers seek to help the scholars, applicants, and also the officers and facilitators of the program to have an organized, standardized, and efficient process. The researchers improved the CYDA's way of Management System. They used an automated way. Because records, data or the information the researchers gathered are a very important matter, they need to secure that every data is safe and secured from unauthorized personnel or threats. Through this efficient and effective way of the recording process, problems and mistakes can be avoided. There will be fewer complaints from the applicants and will be very convenient for everyone.

The Automated examination's purpose is to finally change the traditional way of taking exams. So instead of using paper, they are going to use computers. The researchers were one of the students, know how difficult it is when applying for a scholarship so in this case, it can at least lessen the inconvenience. Automated Examination has been a great help not just for the examinees but also for the persons giving exams. It improved the paper-based examination process. It was also a relief to students taking exams for scholarship applications because instead of using test papers they are now going to use computers or mobile phones.

In today's time, there are different ways of monitoring attendance. One of the examples is using biometrics. Biometrics is one way of identifying one's identity and characteristics. It is used to identify an individual's identity either with their eyes, fingerprints or palm prints. Biometrics is more reliable than just scanning IDs. Because using biometrics needs the person to be present to verify if it is him or her. While using IDs can be tricky because you can't tell if that person is responsible for identity theft. By using the Automated Attendance Monitoring, the researchers can improve the traditional way of the CYDA's attendance monitoring which uses a paper-based approach. In that way, users and faculties will never find monitoring attendance difficult to maintain.

The application system is a system for applicants whether it is for applying for a job or scholarship. Applicants need to go to the office to apply and bring the requirements needed. But this process encountered difficulties because of the number of applicants who are applying. They are going through a hard time falling in line and waiting for their turns. Sometimes a one-day process takes a week and more. While the online application is a new way of applying for a job or scholarship. It uses an internet connection to be able to do the process. But unlike the traditional way of applying, applicants will never go through hardships.

They just need to go online and apply. The online application makes the process more convenient and efficient not just for the applicants but also for the persons taking care of the application. The journal about the Registration System is much related to one of our subtitles, the Online Application System. Because in that journal, they have stated things they want to achieve in doing their study which is most likely the ones the researchers want to achieve. Like promoting a paperless process, automated registration process and making it easy to access anywhere not just for the students but also for the faculties. Because the researchers found difficulties while observing the scholarship process, they did take action to make the whole process less time-consuming.

The researchers have made a system way better than their management system, where they are using MS Office. The

researchers enhanced the YDA's examination and have made it Local Area Network-Based. They also enhanced their attendance monitoring that instead of using IDs and making it manual, they also used barcodes to monitor staff's and student's attendance. And for the scholarship application, the researchers made it online to be easily accessed by the applicants and so that they will never fall in line again under very hot weather bringing lots of requirements. The researchers made these things happen to make the works of students and staff easier.

CHAPTER III

METHODS AND PROCEDURES

This chapter presents the research design, respondents of the study, data gathering tools, data gathering procedures, data analysis plan, technical study, logical design, system design, use case diagram and system development used in the study.

Research Design

Researchers have done several procedures to come up to its main goal or objective with the right use of the accurate method. This part of the study presents the procedure to be done by the researchers to be able to obtain the needed data and information for the study. Thus, it led the researchers to come up with a very good and useful system.

This study involves numerical data; thus, it is quantitative. Specifically, this study used a descriptive method to collect quantifiable information that is used for the analysis of the population sample that helped the construction of the system.

Respondents of the Study

The researchers seek to attain the most exceptional and most consistent information to fulfill the purpose of the study and to get to know the main problems and give recommendations.

The researchers use the non-probability sampling technique to be able to collect the needed information to the right person. Specifically, the purposive sampling method is used. According to Foley (2018), through this method researchers rely on their judgment in choosing the sample to participate in their study. This requires researchers to have enough knowledge about the study to properly choose the right participant.

Thus, through a purposive sampling technique, the researchers want to access a particular subset of people that fit a specific profile needed by the study. The researchers selected 30 scholars of CYDA coming from different schools, five YDA staff, and five development experts.

The system development experts that the researchers chose are working and well-experienced web developers for more than five years and still active today. The selected system development experts handled a lot of software. They have certifications for being a developer in a specific company or corporation.

Table 1. Respondents of the Study

Respondent Category	No. of Respondents
Scholars	30
YDA staff	5
System Development Experts	5
Total	40

This study used questionnaires in gathering and providing the data needed in the study. It is composed of questions that are based on the statement of the problem, answered through scales that represent different degrees according to respondents' responses.

Data Gathering Tools

The researchers used different procedures in gathering data for the development of the study and the system. The following tools that helped the researchers to gather data are the following:

Internet Research. The researchers used the internet because it gives other information about the proposed system.

Library Research. The researchers gathered data in the library from different studies that are related to the topic. The past researches and studies also served as a reference.

Interview. The researchers interviewed some of the staff workers of CYDA and the head of CYDA. The researchers gather data about the problems of the current manual registration of scholarship.

Observation. Observation is an activity in which the observant considers something to get information about the study.

Questionnaire. A questionnaire contains a set of written questions that are given to the respondents to give them facts and opinions about the study that the researchers have given. Questionnaires helped the researchers accomplish the survey.

Data Gathering Procedure

The researchers organized an interview with the head and staff workers of CYDA. To find a suggestion for the research on how the system works.

The researchers gone to the library to research more about previous related studies to the topic about automated record system, it helped the researchers to compare their study to the previous study.

The researchers used the internet in gathering data and information about the study because the library has limited information about their study.

The researchers organized an observation because through observation, the researchers are able to see actual processing for registration of scholarship without using any system. The researchers have known the problems of CYDA because of what the scholars went through when the scholars are doing the process of the scholarship application.

In developing the questionnaire, the researchers used the Likert scale. Likert scale questionnaire consists of five-point of scale which are Strongly Agree, Agree, Undecided, Disagree and

Strongly Disagree. It measures the degree of agreement of the respondents to the given statements in the questionnaire.

Data Analysis Plan

The gathered data are arranged in tabular form. Using the scores collected to the survey they will make the analysis understandable.

The scale used is the Likert Scale, Likert Scale is a type of rating scale that is used to measure attitudes or opinions. With this scale, respondents are asked to rate items on the level of agreement (Stephanie, 2015). The median used to get the average of the responses for each five (5) levels in each questionnaire item.

Below are the scales on how the respondents responded to the survey conducted by the researchers.

Options	Code
Strongly Agree (SA)	5
Agree (A)	4
Undecided (U)	3
Disagree (D)	2
Strongly Disagree (SD)	1

Technical Study

The system is developed through the Agile Unified Process using UML or Unified Modeling Language presented different diagrams, representing the flow of the system. The researchers used the Entity-Relationship Diagram or ER Diagram, an Entity-Relationship diagram show the relationship between the tables in the database.

Local Design Phase

The researchers used Object-Oriented Analysis and Design to design their diagram of the whole system. Unified Modeling Language is a tool is used in the diagram because it is easy to understand. It shows the different specific data needed in the system. The Entity-Relationship diagram was used to represent the relationship of all the tables in the database for the system.

System Design

Unified Modeling Language, is the diagram that the researchers used. Using this diagram, the researchers identified how the system flows and show the client it serves a representation of the system design.

The general purpose of the Unified Modeling Language diagram, is to help the researchers and the client to specify or identify the system works.

The proposed Cabuyao Scholarship Management System for CYDA is a study that improves the manual recording of the application. This study illustrates how the automated system enhances the usual recording of the application.

The main purpose of the study is the development of the system. The analytical tools for conducting the proposed system would be:

Use Case Diagram. This is the representation of user interaction with the system that shows the relationship between the user and the different cases. Use Case diagram is used in the system to identify, clarify and organize the system.

Activity Diagram. Represented by shapes that are connected by arrows. Arrows that run from activity start too finished and represent the consecutive order of performed activities.

Class Diagram. It is used for visualizing, describing and documentation of different aspects of a system.

Entity-Relationship Diagram is a graphical data model of an information system that shows the relationship between people, objects, places, concepts or events within the corresponding system.

Class diagram models the static structure of a system. It shows the relationships between classes, objects, attributes, and operation. Class diagrams play an important role in software development (Osman, 2012).

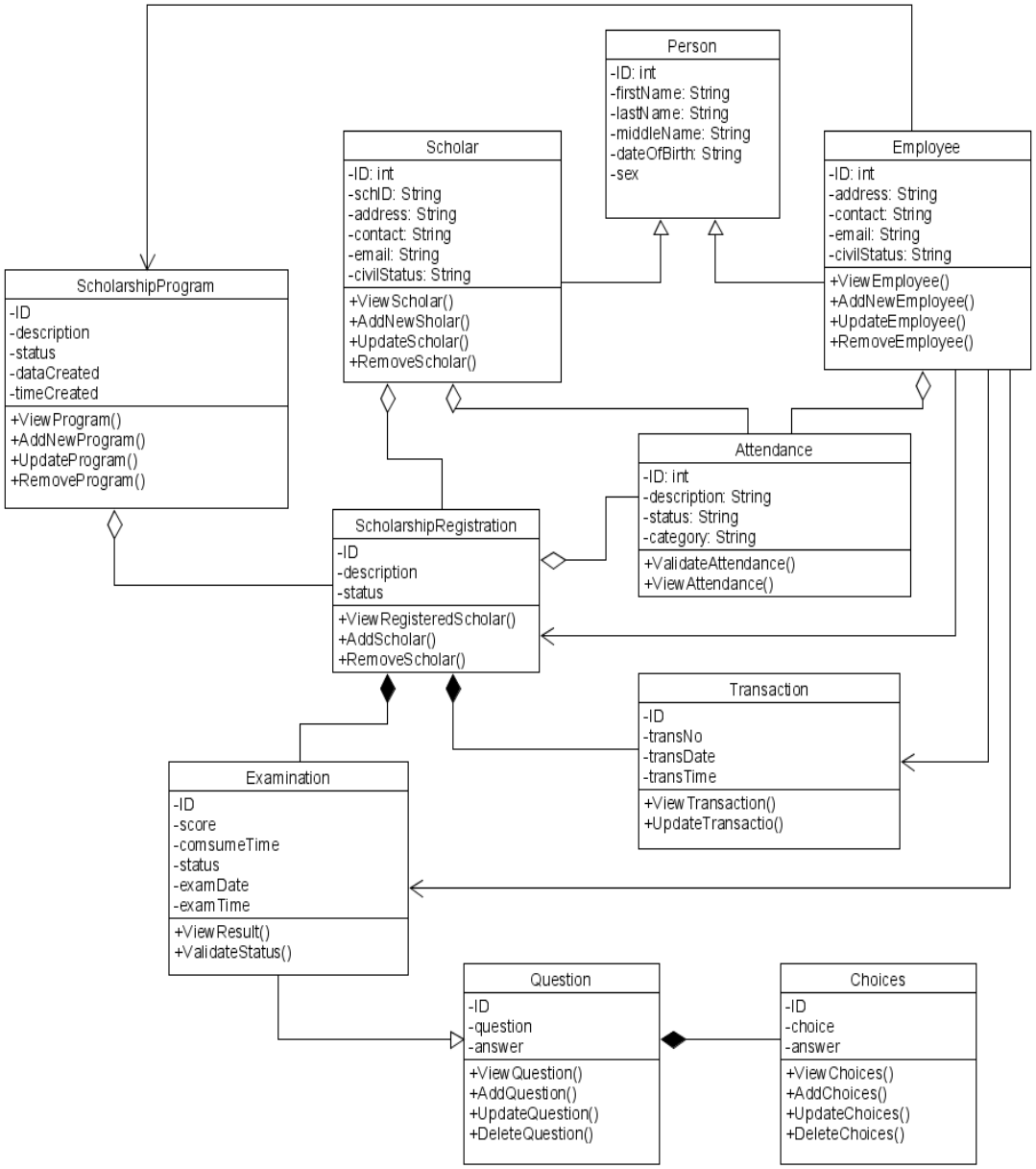

Figure 2. Class Diagram

Figure 2 shows the relationships and the attributes of each class in the diagram. The class diagrams consist of tables for the person, scholar, employee, scholarship program, scholarship registration, attendance, examination, transaction, question, and choices.

The employee and scholar inherit the Person table's instances or properties which provide the needs for both persons, such as first name, last name, middle name, date of birth and sex. The employee has properties of address, contact, email, and civil status. While the scholar contains the information that has been entered by the scholar which includes the school id, address, contact, email, and civil status. Scholarship program contains the scholarship id of the specific scholars, description, status and the data created and time created of the scholar.

While the scholarship registration contains the properties of scholarship id, description, and status, the attendance contains the list of id, description, status, and category. The transaction contains the transaction id, transaction number, transaction time and transaction date, are also needed to transact all the reports.

The examination contains the properties of examination id, score, consume time, status, exam date and exam time. The questions contain the lists of questions and the correct answer in the specific question, while the choices table contains the lists of choices for each question and the correct answer.

The researchers used the Use Case Diagram to present a graphical representation of the functionality of the system with the actors which are the person interacting with the system. The researchers used this because the Use Case Diagram provides an easy way to identify how the actors interact with the system.

The Use Case is a methodology used in system analysis to identify, clarify, and organize system requirements. The use case is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal. It consists of a group of elements (for example, classes and interfaces) that can be used together in a way that will affect larger than the sum of the separate elements combined. The use case should contain all system activities that have significance to the users. A use case can be thought of as a collection of possible scenarios related to a particular goal, indeed, the use case and goal are sometimes considered to be synonymous (Rouse, 2007).

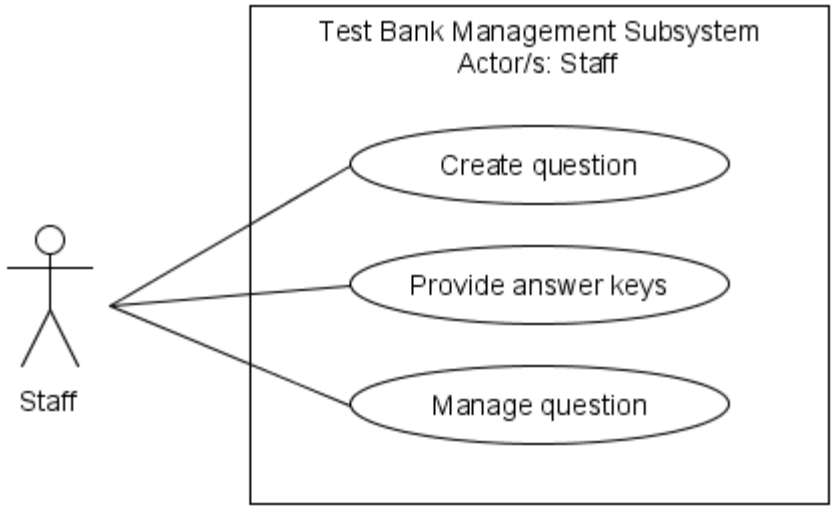

Figure 3. Use Case Diagram for Test Bank Management Subsystem

Figure 3 shows the Use Case Diagram for Test Bank Management. It illustrates the capabilities of the exam official. The exam official can create questions, provide answer keys, and manage the questions.

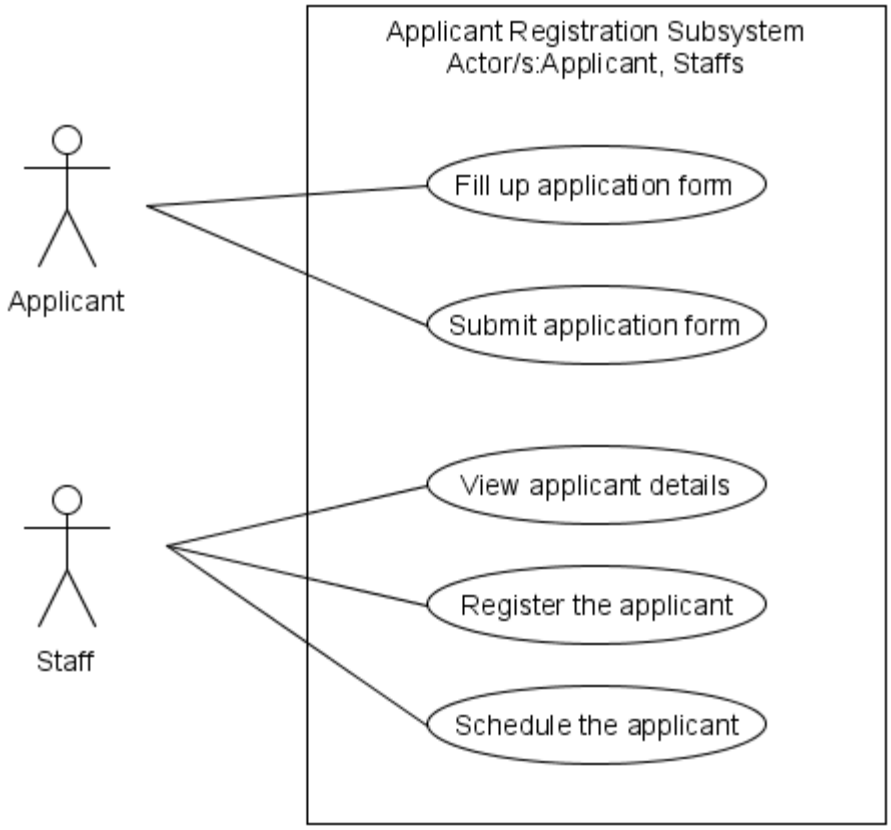

Figure 4. Use Case Diagram for Registration of Applicant

Figure 4 shows the Use Case Diagram for Registration of Applicants. An applicant will fill up the application form and after that, they need to submit it. The only thing staff can do is to view the applicant's details, register and schedule the applicant to go to the office for examination or for verification of information.

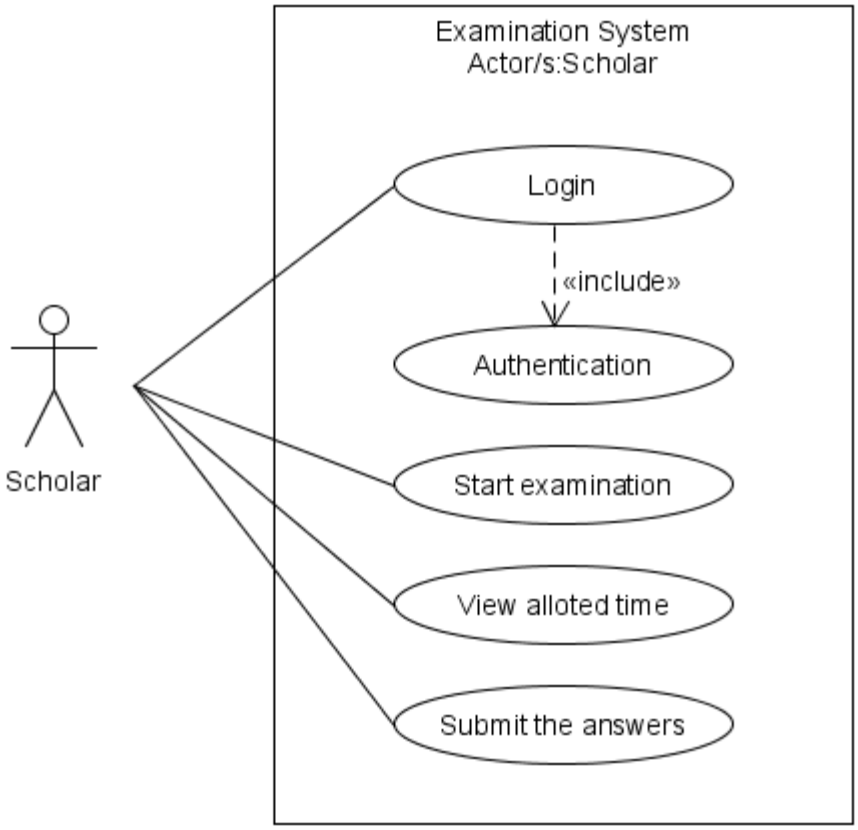

Figure 5. Use Case Diagram for Examination System

Figure 5 shows the Use Case Diagram for Examination System. The applicant will log in first, after that the applicant will start to take the examination. After the applicant finishes the examination, the applicant will submit the answers.

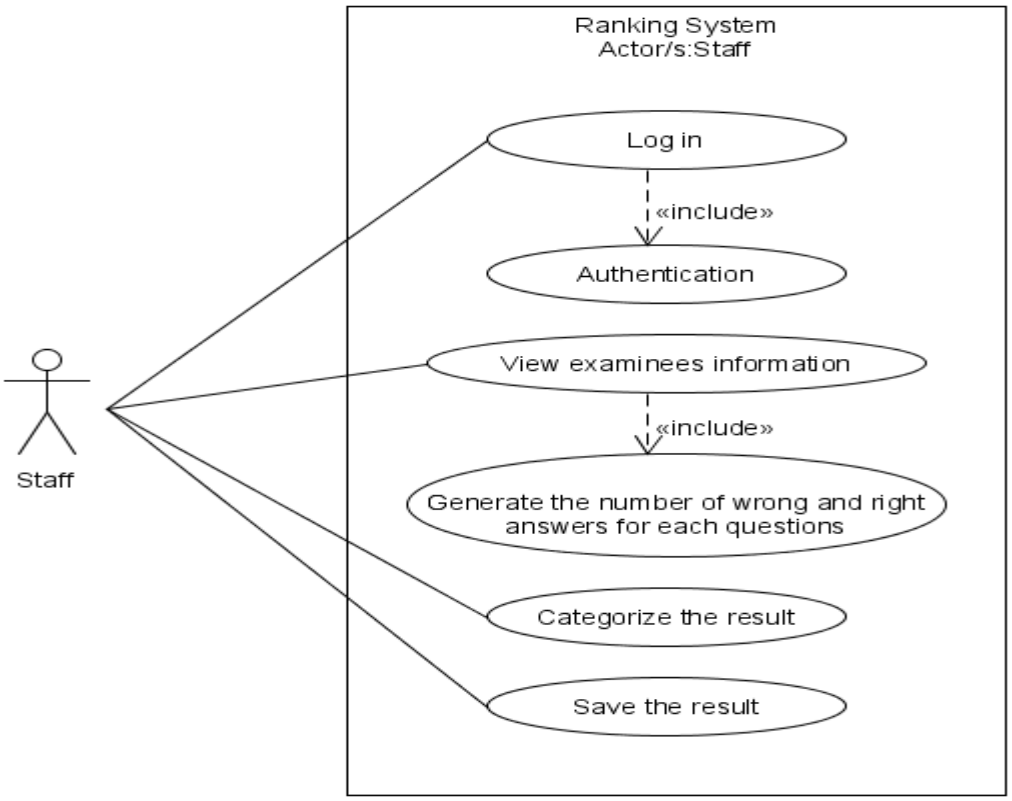

Figure 6. Use Case Diagram for Ranking System

Figure 6 shows the Use Case Diagram for Ranking System. The staff will log in first. The staff worker can view the examinee's information and categorize the results.

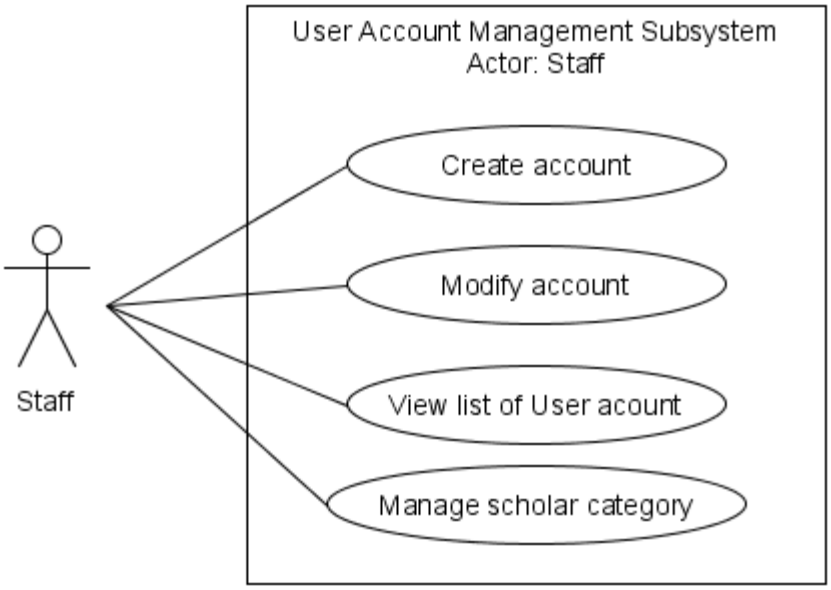

Figure 7. Use Case Diagram for User Account Management Subsystem

Figure 7 shows the Use Case Diagram for User Account Management Subsystem. The administrator can create a new account, modify the account, view the list of the user account and manage the scholar category.

Table 2. Use Case Analysis for Test bank Management

Actor	Event	Trigger	System Response
Staff	Log in the system	Staff logs in	Display log-in form for the admin
Staff	Modify question	Staff modifies the question	Update the questions
Staff	Add Questions	Staff inserts new questions	Add the questions
Staff	Modify answer keys	Staff modifies the answer keys	Modify the answer keys

Table 3. Use Case Analysis for Applicant Registration Subsystem

Actor	Event	Trigger	System Response
Applicant	Fill up application form	Fill up the required application form	Store the information
Staff	Evaluate the applicant	Save evaluated information	Saved an information of the applicant
Staff	Schedule the applicant	Schedule the applicant's examination	Save the schedule of applicant's
Staff	View Schedules	Review the schedules	Display the lists of schedules

Table 4. Use Case Analysis for Examination System

Actor	Event	Trigger	System Response
Applicant	Fill up application	Applicant fill up the application	Display application form for the applicant
System	Validate application	Validates application of the applicant's	Proceed to display the examination form
Applicant	Answer Questions	Applicant's answer the question	Provide questions for the applicants to answer
Applicant	Submit examination	Applicant's submits the form	Exit the application form
Staff	View examination questions	Guidance views the examination questions	Display list of examination questions

Table 5. Use Case Analysis for Ranking System

Actor	Event	Trigger	System Response
Staff	Search examinees' information	Search examinees' information	Display examinees' information
System	Generate the number of correct or wrong answers	Generate the number of correct or wrong answers each question	Generate the number of correct or wrong answers
System	Rank examinee score	Generate Ranks the score of the examinees	Generate Ranks the score of the examinees
Staff	Rank the category	Generate ranks of category	Generate the ranks of the categories

Table 6. Use Case Analysis for User account Management Subsystem

Actor	Event	Trigger	System Response
Staff	Add new account	Staff adds new account	Saves new account
Staff	Modify Account	Staff modifies Existing Account	Saves the modified Existing account
Staff	View User account List	Staff views user account List	Display List of User Account

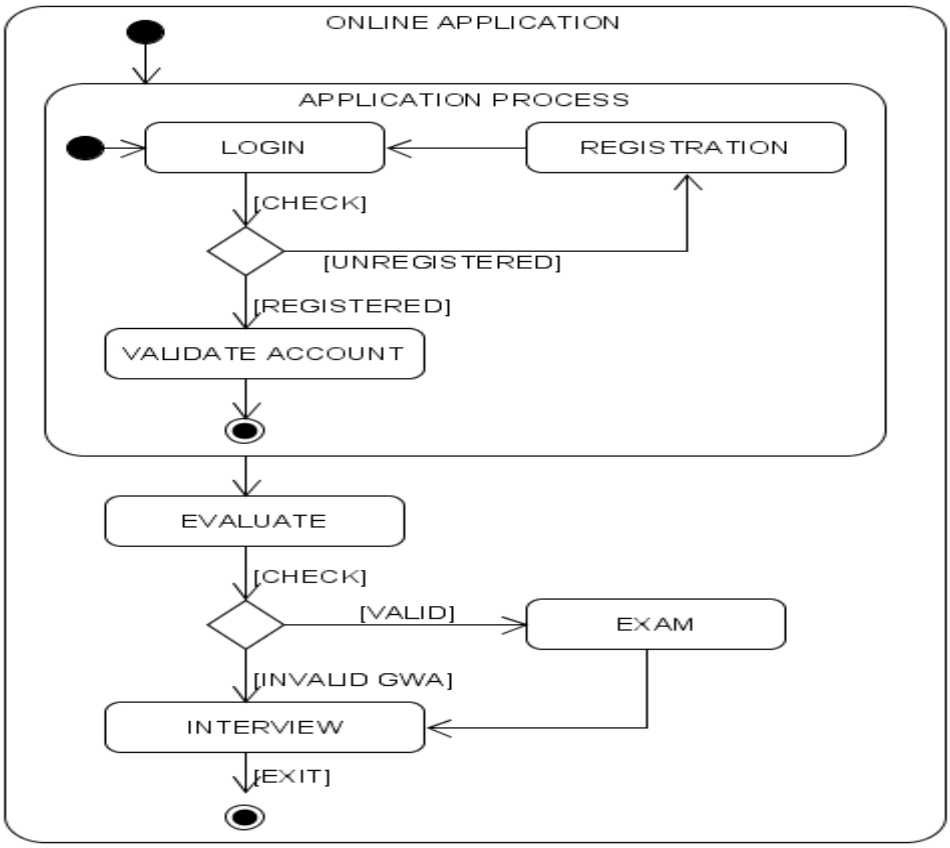

Figure 8. Activity Diagram for Online Application

Figure 8 shows the Activity Diagram for Online Application. The scholars will log in, the system will check if the scholars are registered and if unregistered the system will go back to the registration. If the scholars already registered it will validate the account, and the scholars will evaluate and check if the scholars are valid to take an exam and after the exam, they go for an interview, the last step in the processing of registration.

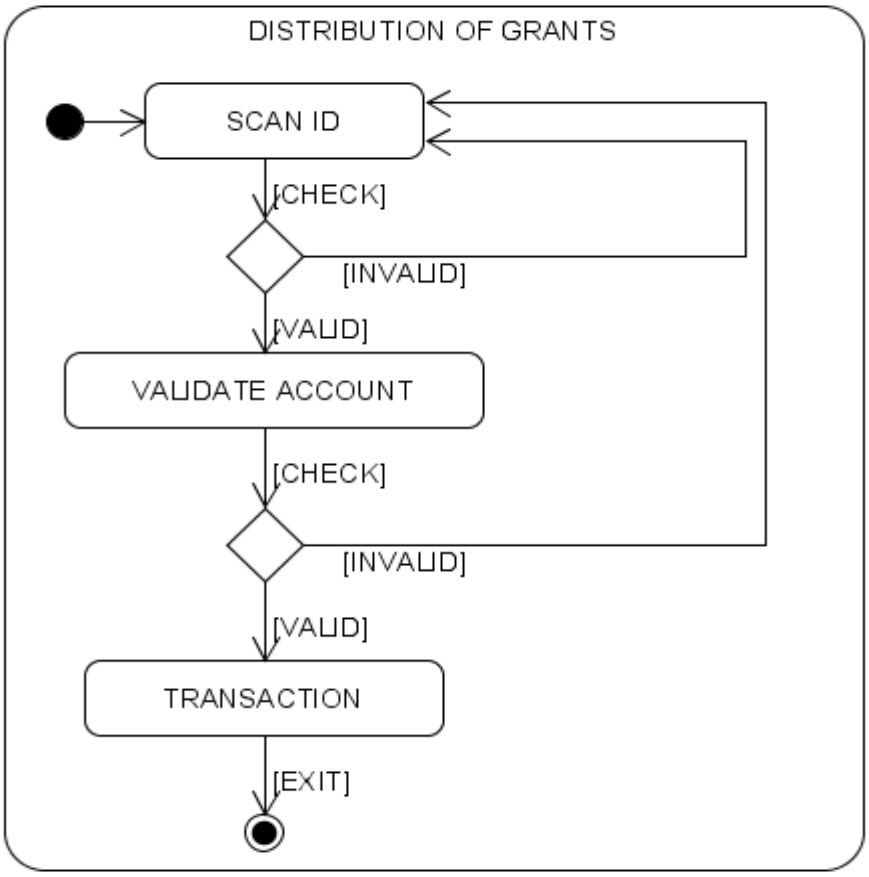

Figure 9. Activity Diagram for Distribution of Grants

Figure 9 shows the Activity the Diagram for Distribution of Grants. The scholars will scan the ID and the system will check if valid or invalid.

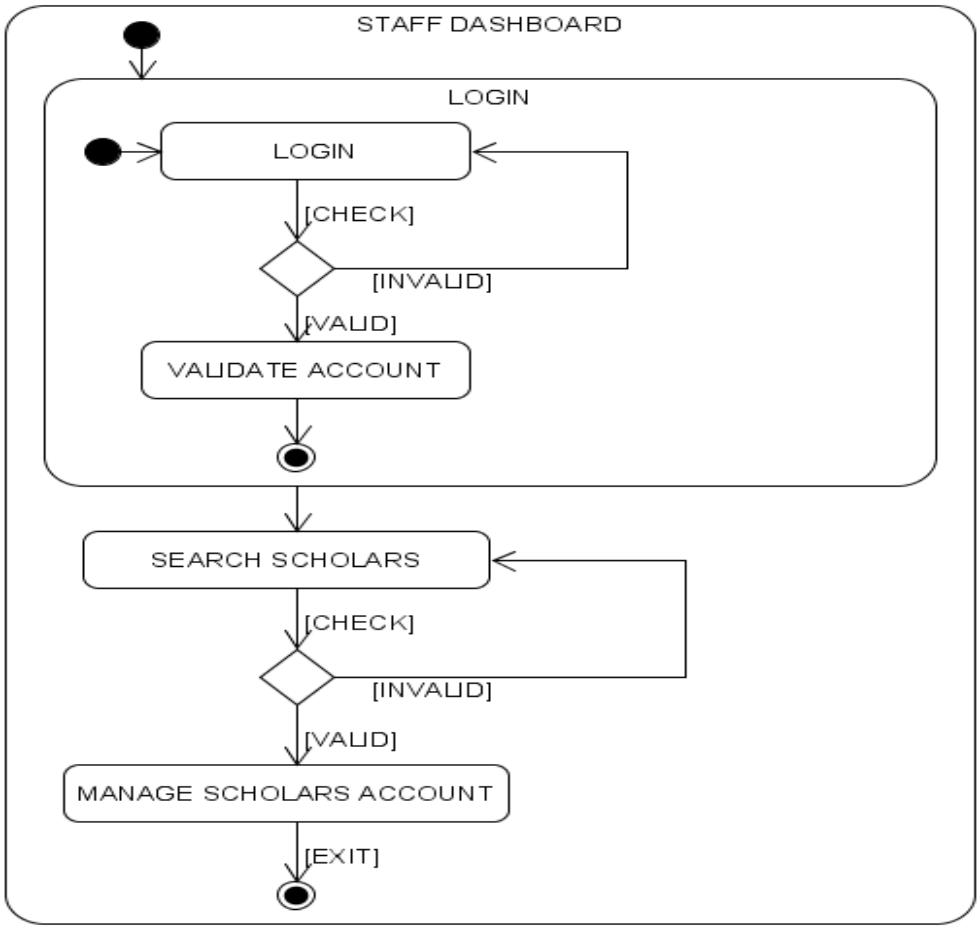

Figure 10. Activity Diagram for Staff Dashboard

Figure 10 shows the Activity Diagram for Staff Dashboard. The staff will log in and the system will check if it is valid or invalid and if valid, the system shows the staff dashboard. The staff worker can update the scholar's profile and validate for attendance and print the general reports.

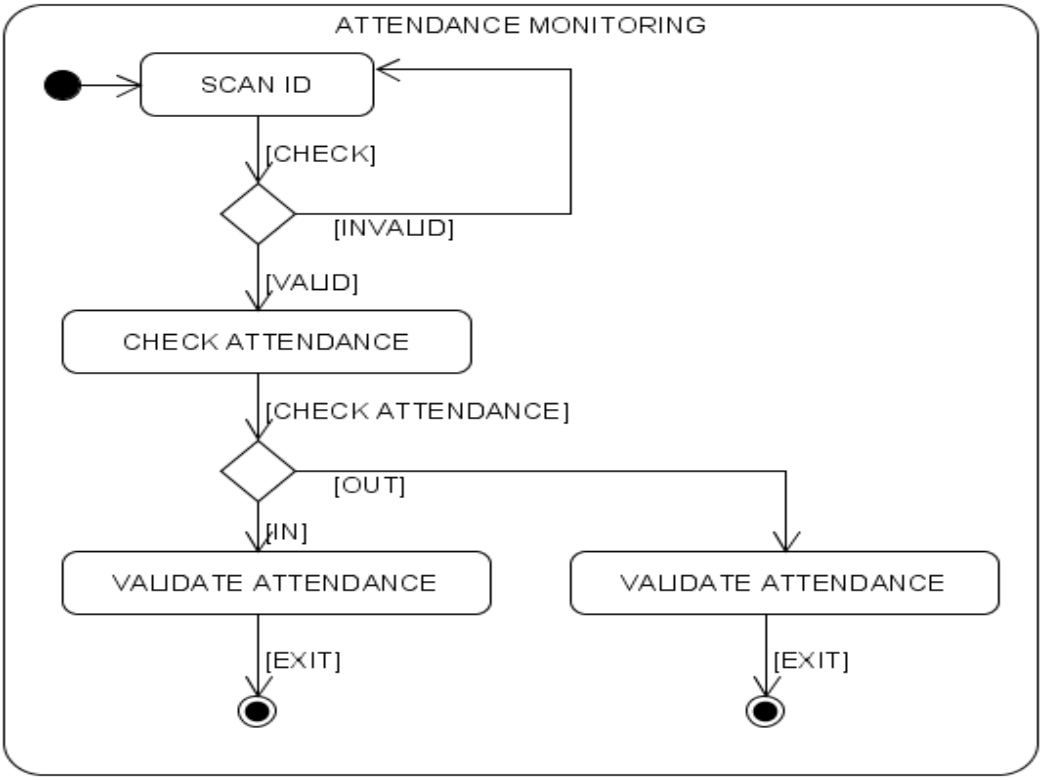

Figure 11. Activity Diagram for Attendance Monitoring

Figure 11 shows the Activity Diagram for Attendance Monitoring. The scholars will scan the ID, then the system will check if it is valid or invalid. If the scholars need to attend a seminar, the system will validate their attendance in and out.

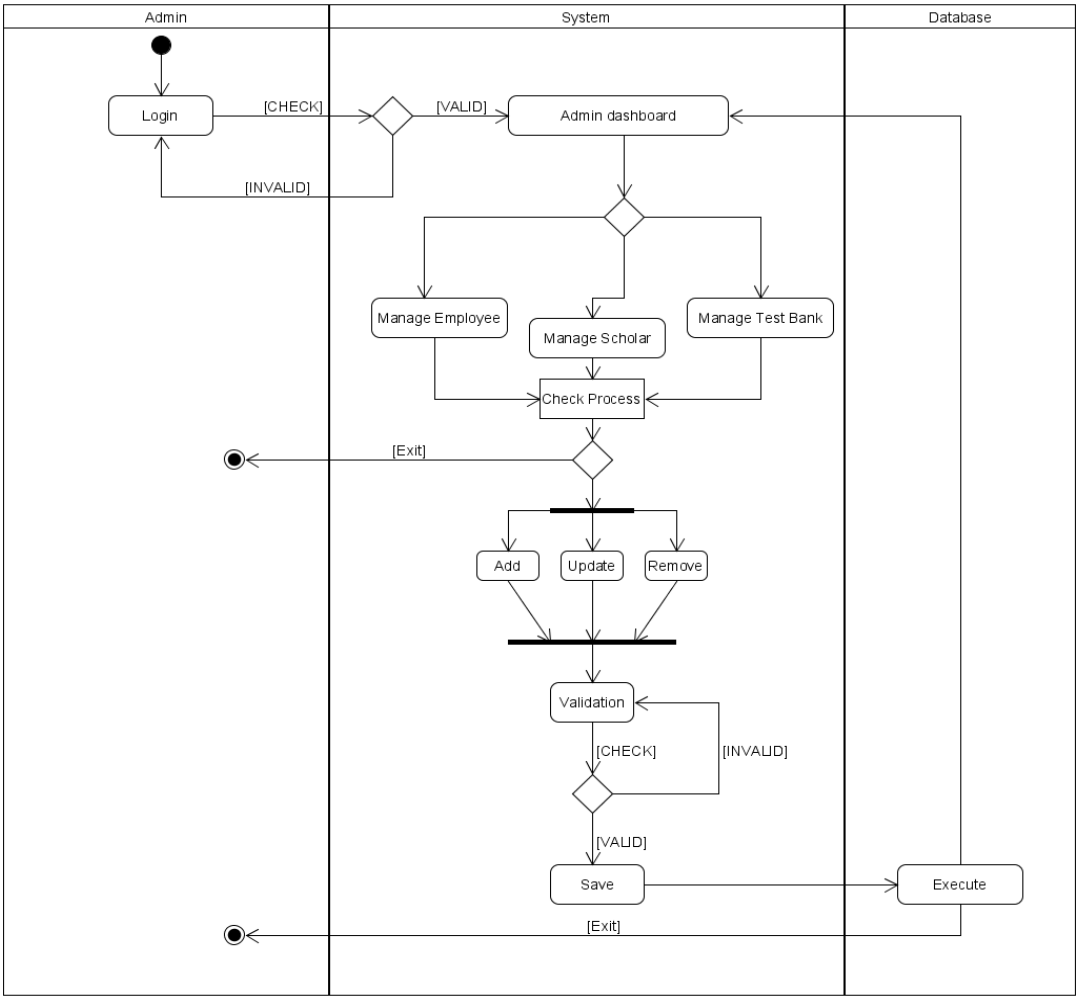

Figure 12. Activity Diagram for Admin

Figure 12 shows the Activity Diagram for Attendance Monitoring. The administrator will log in, the system will check if it is valid or invalid. If valid, the system shows the administrator's dashboard, manage employee, manage scholar, and manage test bank. The administrator can add, update and

remove the scholar's data information and validate all the data and save. The database will execute all the data information.

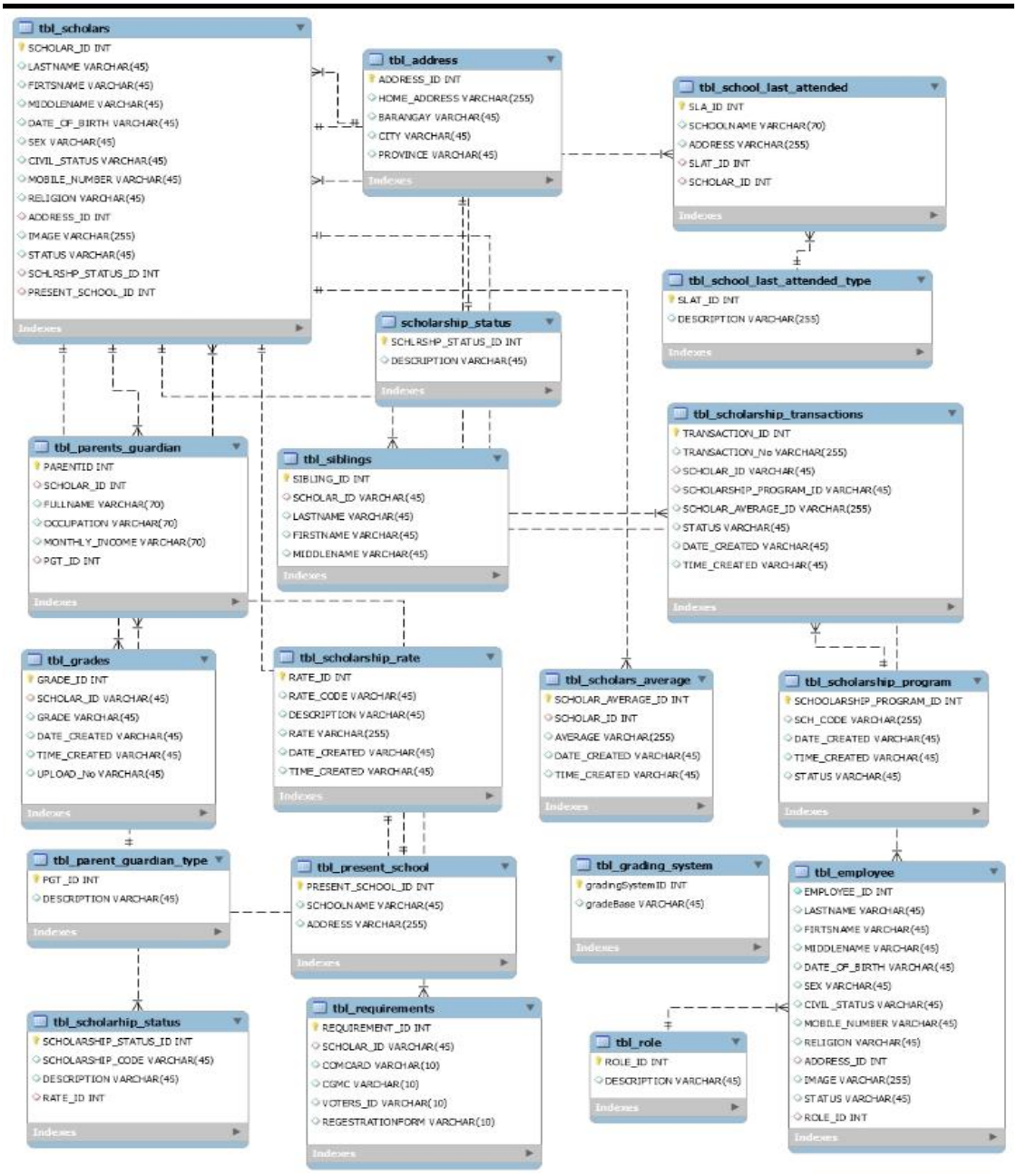

Figure 13. Entity-Relationship Diagram for Cabuyao Scholarship Management System

Table 7. Data Dictionary of Person

Field	Data Type	Size	Description
ID	INTEGER	45	Id of persons
firstName	STRING	45	Last name of the person
lastName	STRING	45	First name of the person
middleName	STRING	45	Middle name of the person
dateOfBirth	STRING	45	Date of birth of the person
Sex	STRING	45	Sex of the person

Table 8. Data Dictionary of Employee

Field	Data Type	Size	Description
ID	INTEGER	45	Id of employee
address	STRING	45	Address of the employee
contact	STRING	45	Contact of the employee
email	STRING	45	Email of the employee
civilstatus	STRING	45	Civil status of the employee

Table 9. Data Dictionary of Scholar

Field	Data Type	Size	Description
ID	INTEGER	45	Id of scholar
scholarID	STRING	45	School ID of the scholar
address	STRING	45	Address of the scholar
contact	STRING	45	Contact of the scholar
email	STRING	45	Email of the scholar
civilstatus	STRING	45	Civil Status of the scholar

Table 10. Data Dictionary of Scholarship Program

Field	Data Type	Size	Description
ID	INTEGER	45	Id of scholarship program
description	STRING	45	Description of scholarship program
status	STRING	45	Status of scholarship program
dataCreated	STRING	45	Date Created of scholarship program
timeCreated	STRING	45	Time Created of scholarship program

Table 11. Data Dictionary of Scholarship Registration

Field	Data Type	Size	Description
ID	INTEGER	45	Id of registration
description	STRING	45	Description of registration
status	STRING	45	Status of registration

Table 12. Data Dictionary of Attendance

Field	Data Type	Size	Description
ID	INTEGER	45	Id for attendance
description	STRING	45	Description for attendance
status	STRING	45	Status for attendance

Table 13. Data Dictionary of Transaction

Field	Data Type	Size	Description
ID	INTEGER	45	Id of transaction
transNo	STRING	45	Number of transactions
transDate	STRING	45	Date of transaction
transTime	STRING	45	Time of transaction

Table 14. Data Dictionary of Examination

Field	Data Type	Size	Description
ID	INTEGER	45	ID of the examinee
score	STRING	45	Score of the examinee
consumeTime	STRING	45	Consume Time of the examinee
status	STRING	45	Status of the examinee
examDate	STRING	45	Exam Date of the examinee
examTime	STRING	45	Exam time of the examinee

Table 15. Data Dictionary of Question

Field	Data Type	Size	Description
ID	INTEGER	45	Id of question
question	STRING	45	Question of the examination
answer	STRING	45	Examinee's answer

Table 16. Data Dictionary of Choices

Field	Data Type	Size	Description
ID	INTEGER	45	Id of choices
question	STRING	45	Question of the choices
answer	STRING	45	Question of the answer

System Development

The researchers applied a method for designing and polishing the proposed system. The researchers used a UML diagram. The Use Case Diagram, activity diagram, class diagram, and ER diagram are used by the researchers to make the system easier to comprehend before they make the actual system.

The system can be developed using Sublime text, PHP, javascript, jquery, and MYSQL Workbench. These tools are selected because they can provide quality output and the stated tools are easier to use.

The researchers then proceed in designing the flow of the proposed system which helped them to determine the problems and errors before moving on to the next phase. System designing and program building are done by the researchers through researching.

CHAPTER IV

RESULTS AND DISCUSSIONS

This chapter presents the overall structure of the newly developed system together with its features, capabilities, and limitations. The researchers defined the system, how it was created, how it works and its significance. System installation, testing, and evaluation were also included in the discussion.

Problems Encountered by Cabuyao Youth Development Affairs

One of the problems encountered by CYDA is with regard to the processing of scholarship applications and admission. The current process was operated manually, from filling up the application forms up to the admission. Processing manually consumes a lot of time, resources, and energy. In other words, the manual system may not be an efficient way of processing the scholarship application and admission.

Another problem is with regards to the way of conducting the examination. The examination is conducted manually through the use of test questionnaires, which consumes lots of resources, effort and time in checking the answers.

Monitoring students' performance is also done manually. The current process does not include the proper encoding of students' grades for monitoring. Instead, the basis for monitoring would be the photocopy of the computerized grades submitted by the student that is stored in the cabinet, which is obviously time-consuming. Paper files may be unorganized and it is hard to search for a particular student manually.

There are several problems when it comes to the scheduling of scholarship grants distribution. The distribution of grants was done by category, whereby some grantees cannot claim their grants on the scheduled day. Some made excuses and asked for another date to claim their grants. In this case, there should be an extended date to claim their grants.

When it comes to monitoring the event's attendance, it is done manually through the use of a pen and paper. Scholars have to find their names in the provided list and attached their signature beside their names before and after the event.

And in terms of report generation, CYDA is using Microsoft Excel Spreadsheet. And with the use of excel, it is difficult to look for the record of a specific person to retrieve and update the information, especially if there are lots of data.

Features of the Proposed System

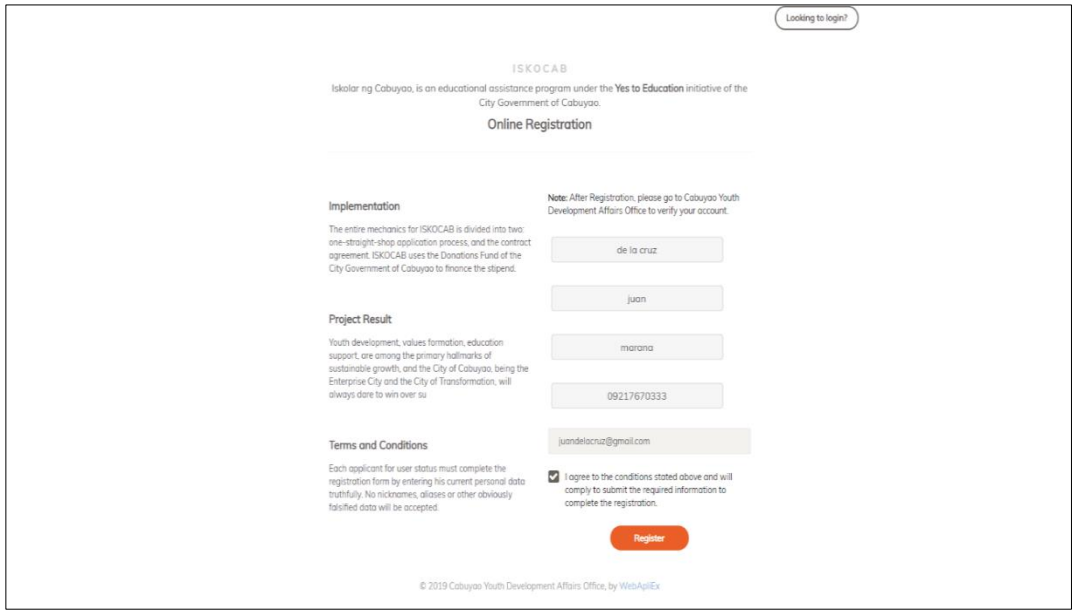

Figure 14. Registration Form for Scholars

Figure 14 shows the registration form. This is where the scholars should input their information like name, number and email to be able to register. The scholars should first have an account to be able to be verified by the administrator.

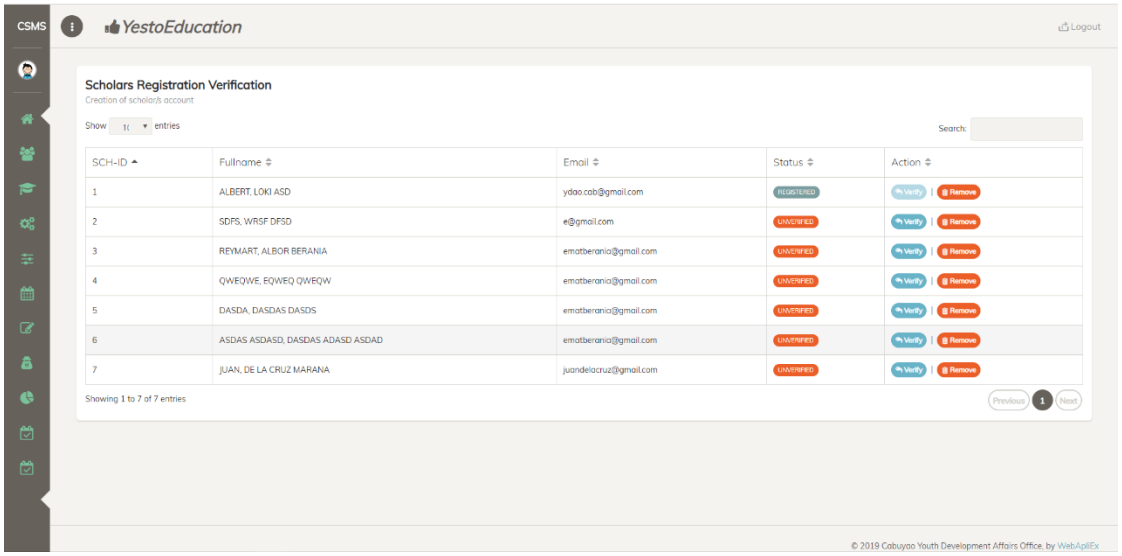

Figure 15. Scholars Registration Verification

Figure 15 shows the verification form. After the scholar finishes with the registration, this is where the administrator verifies the scholar's registration before proceeding to the application.

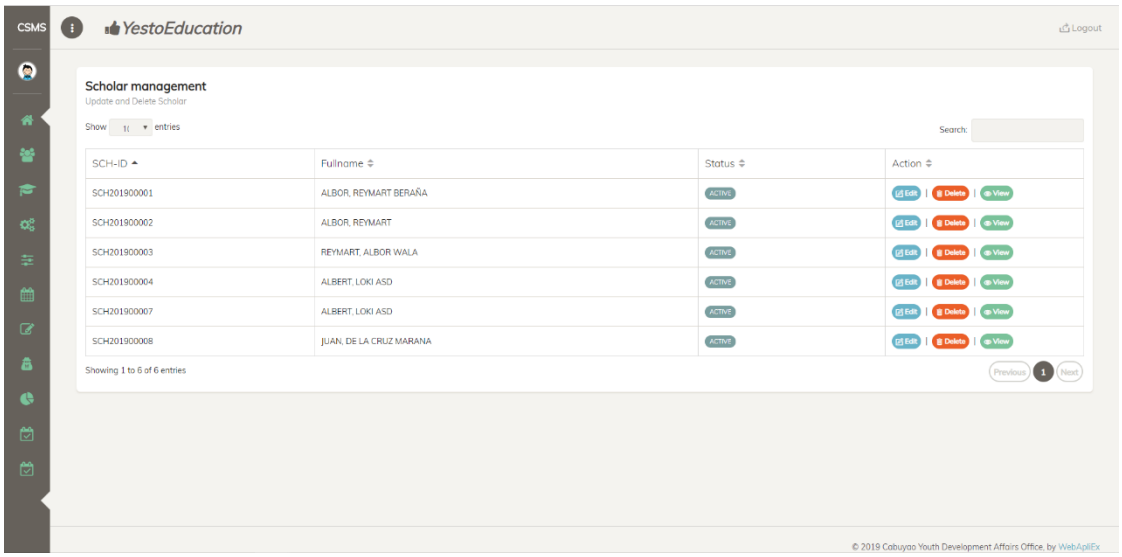

Figure 16. Scholar Management

Figure 16 shows the scholars' management form. This is where the administrator edit, delete or view scholar's information.

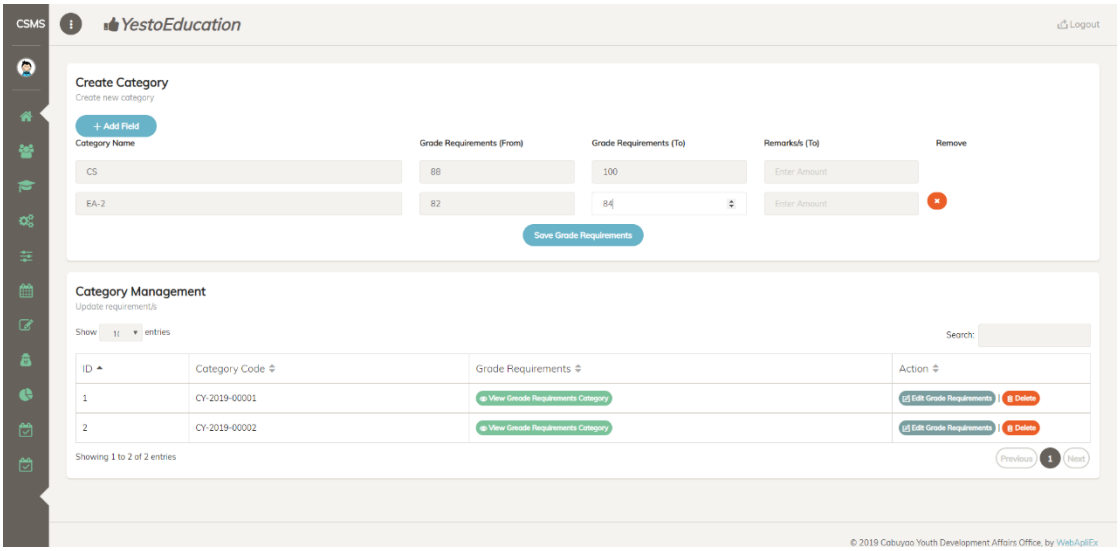

Figure 17. Category Management

Figure 17 shows the category management. This is where the administrator creates, deletes or edits categories.

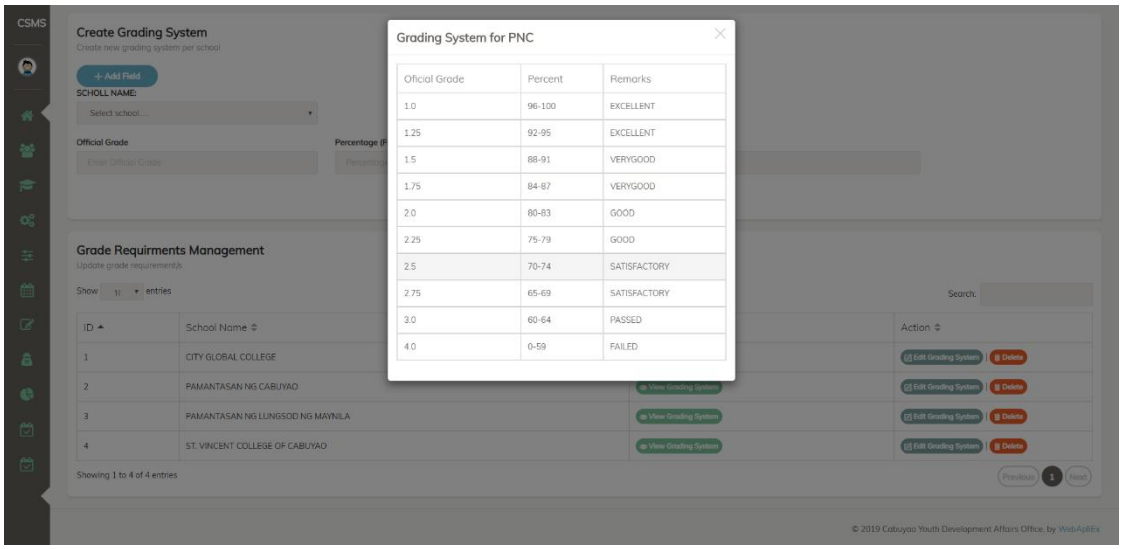

Figure 18. Grading System of Schools

Figure 18 shows the grading system of schools. This is where the administrator can view, edit or delete each school's grading system.

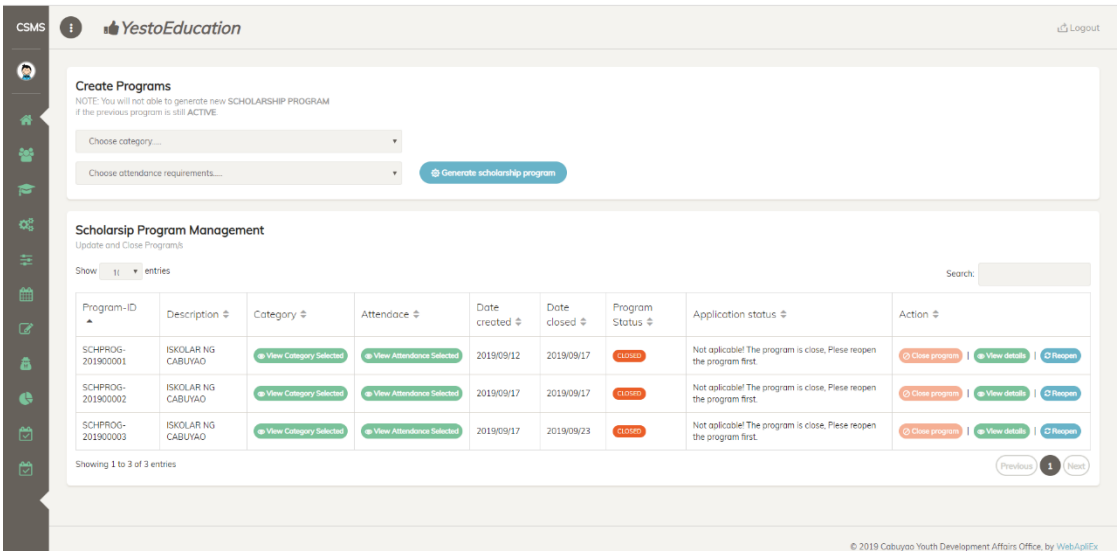

Figure 19. Scholarship Program Management

Figure 19 shows the scholarship program management. This is where each scholarship program can be created, view, closed or opened.

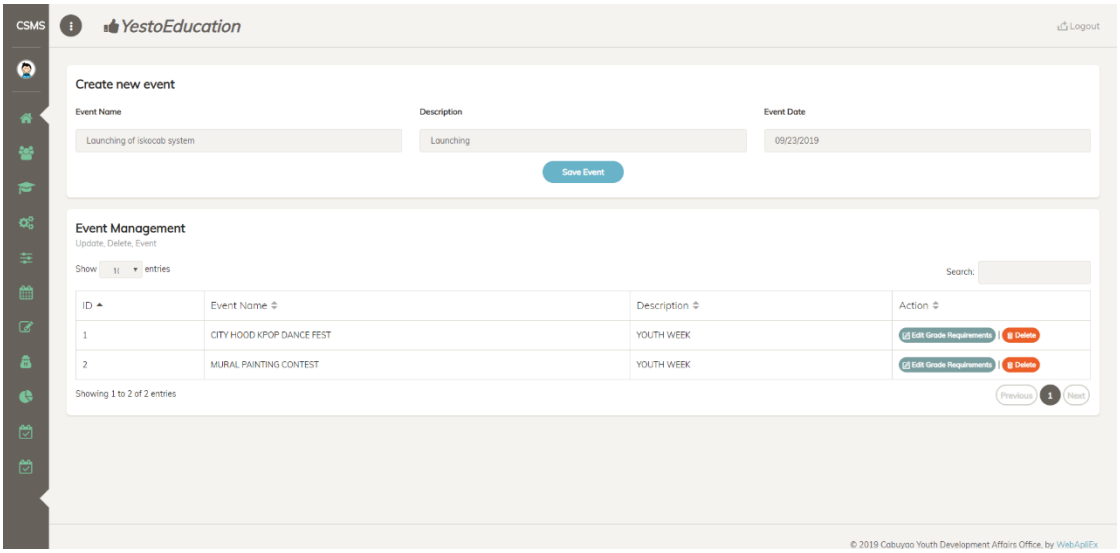

Figure 20. Event Management

Figure 20 shows the event management. This is where the administrator can create new events, delete and edit.

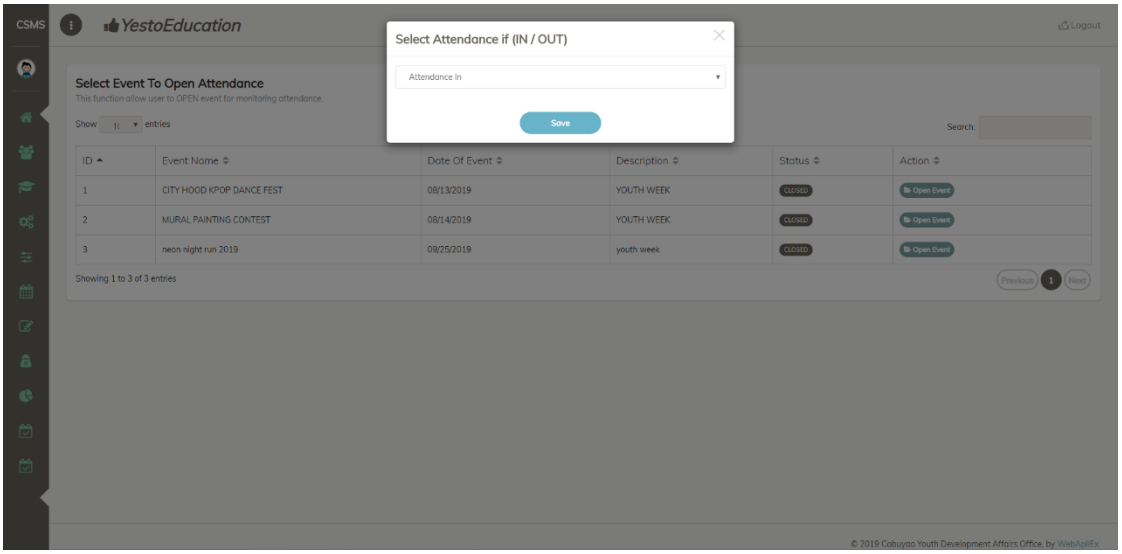

Figure 21. Attendance Monitoring

Figure 21 shows the attendance monitoring. This is where the administrator can open or close the event's attendance that will be required in the scholarship program.

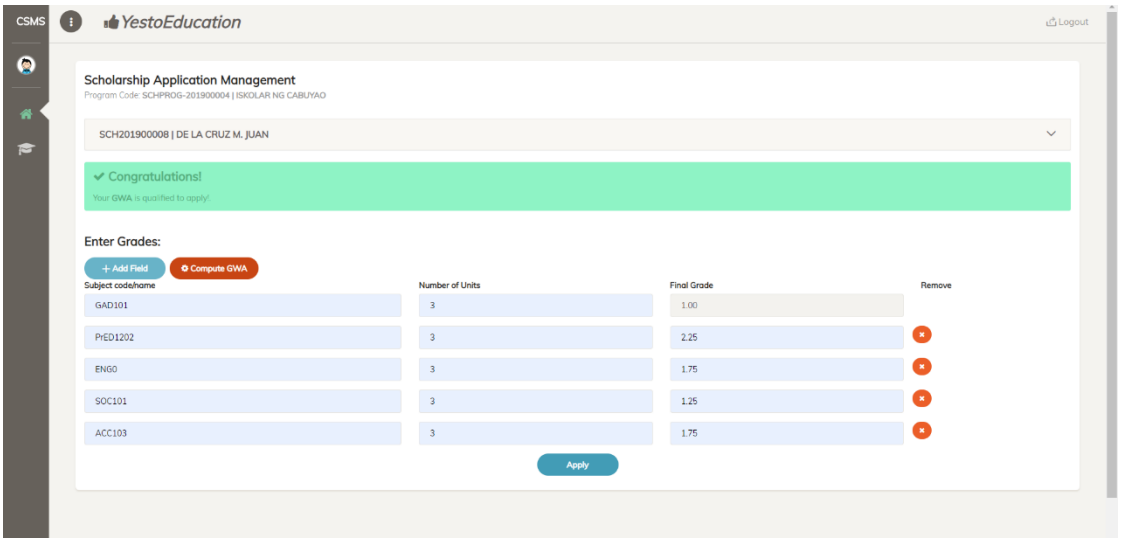

Figure 22. Scholarship Application Management

Figure 22 shows the scholarship application management. This is where scholars input their subjects together with their number of units and corresponding grades. And after submitting information, they can immediately know if they are qualified for the scholarship.

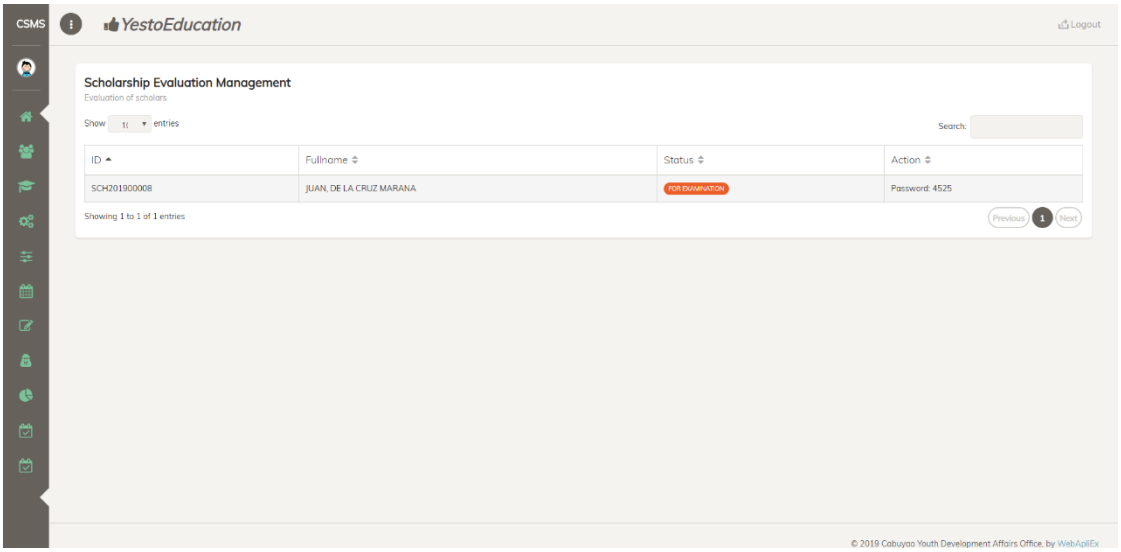

Figure 23. Scholarship Evaluation Management

Figure 23 shows the scholarship evaluation management. This is where the administrator and staff can look for the scholar's status and if they are going take the exam depending on the grade.

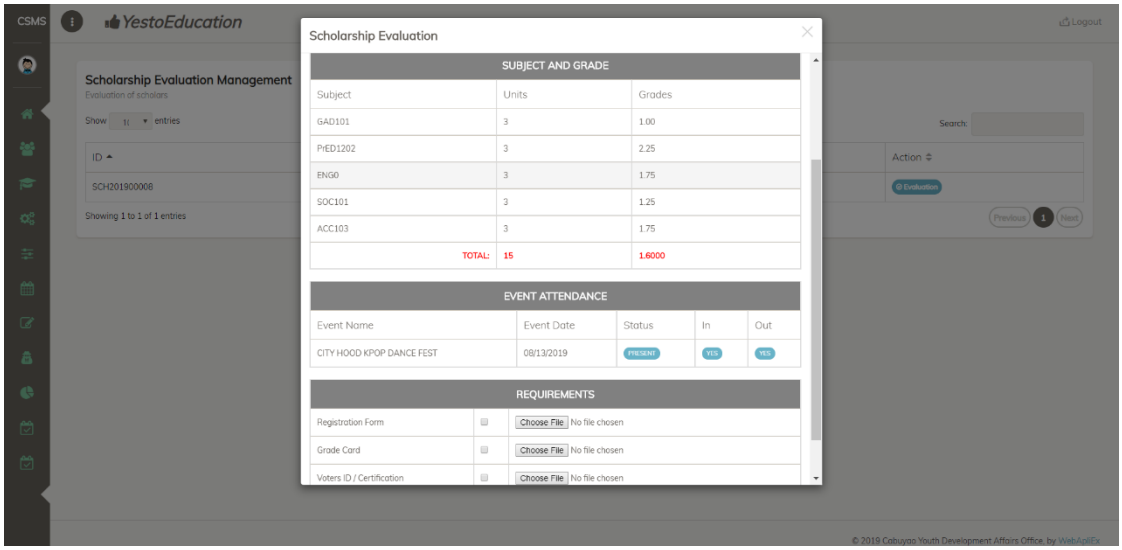

Figure 24. Scholarship Evaluation Form

Figure 24 shows the scholarship evaluation form. This is where staff or the administrator evaluates if scholars completed their requirements before continuing to the assessment.

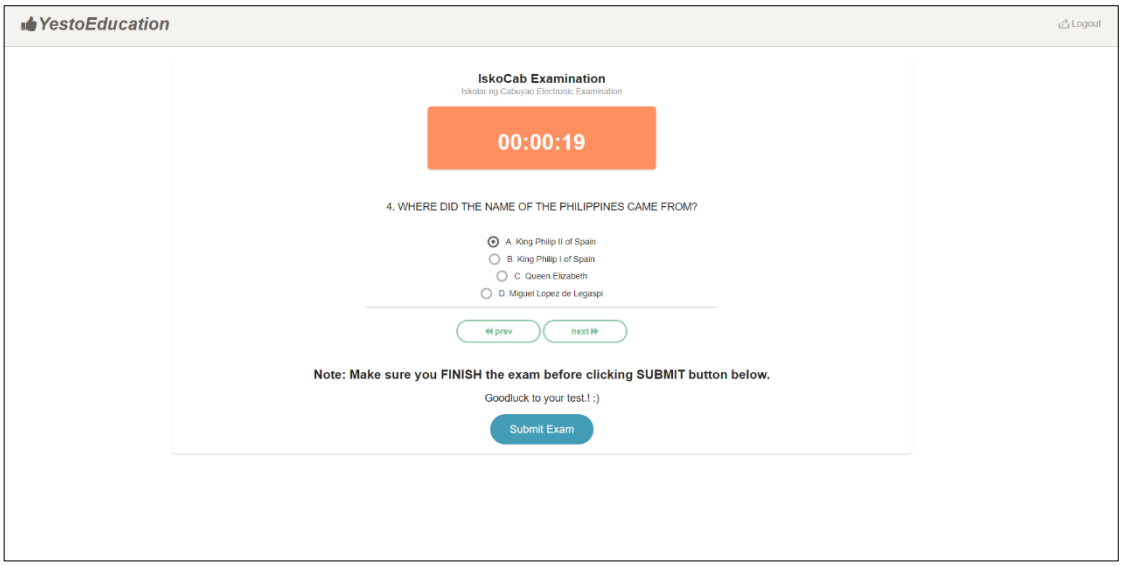

Figure 25. Examination

Figure 25 shows the examination. There is a time limit in answering the exam. Examinees should finish their exams before the time ends.

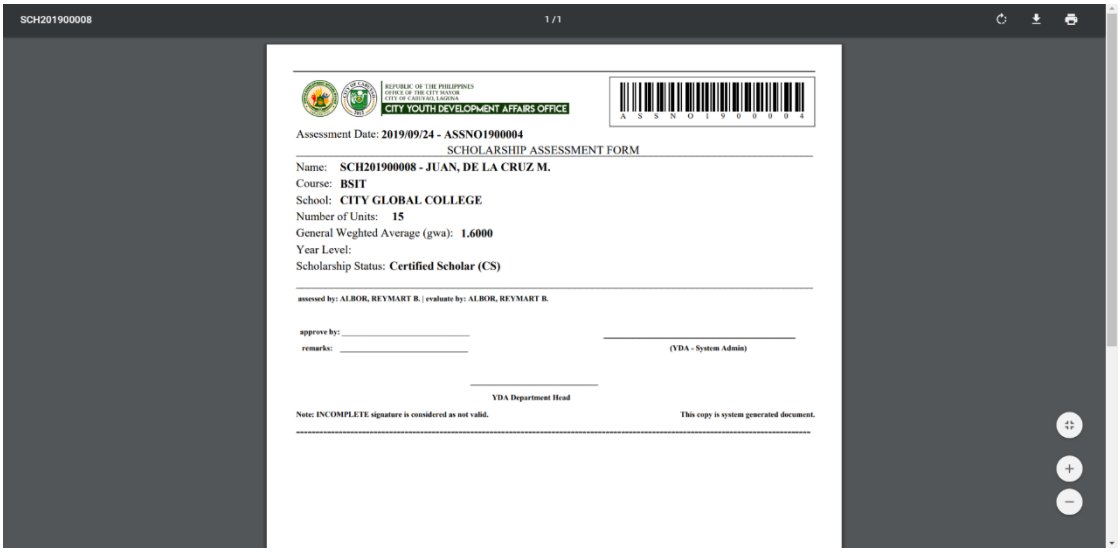

Figure 26. Assessment Form

Figure 26 shows the assessment form. It is the assessment form given to each scholars with their names, schools, number of units, general weighted average (GWA), year level and scholarship status.

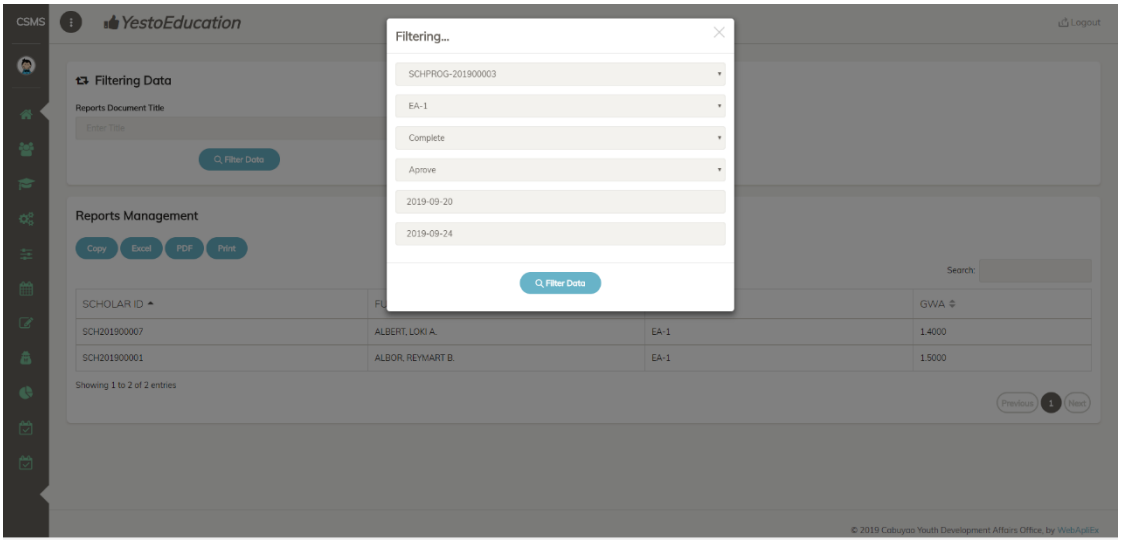

Figure 27. Reports Management

Figure 27 shows the reports management. This is where staff can find reports of specific events and can easily print compared to the old system.

System Structure

The proposed system as developed by using Sublime Text 3 as an editor to open and edit scripting language including PHP and JavaScript. The proposed system also used MySQL Server for the back-end which can manage and store the amount of data that is helpful to the user.

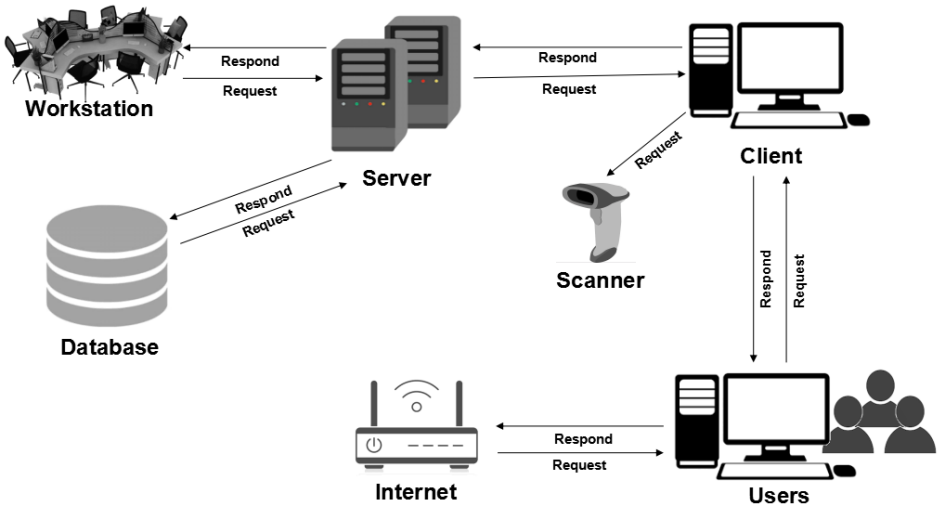

Figure 28. Figure of the System

Figure 28 showed the structure of the system. This shows how the data is processed. It also shows how to get data to the database.

Site Map

The proponents provided a site map to show functionalities of system applications. Below are the figures that will guide the user to access the system.

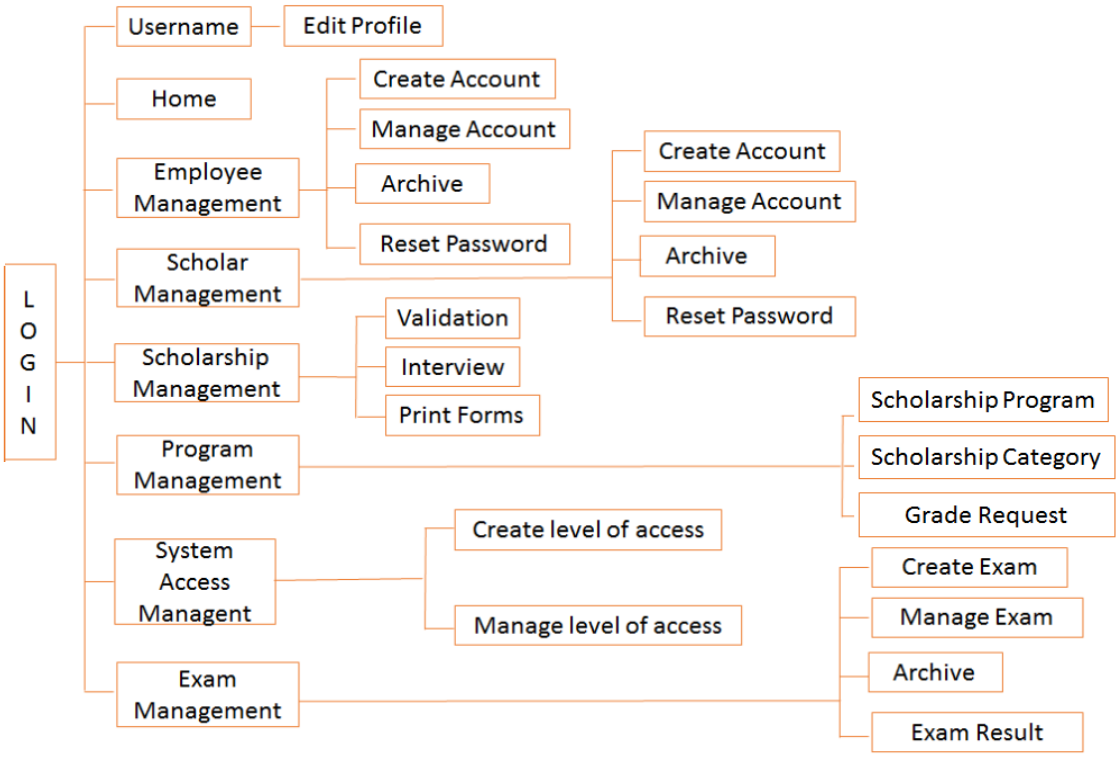

Figure 29. Site Map for Admin

Figure 29 shows the functional hierarchy of the administrator. Administrator can edit its profile, manipulate the employee management, scholar management, scholarship management, program management, system access management, and exams.

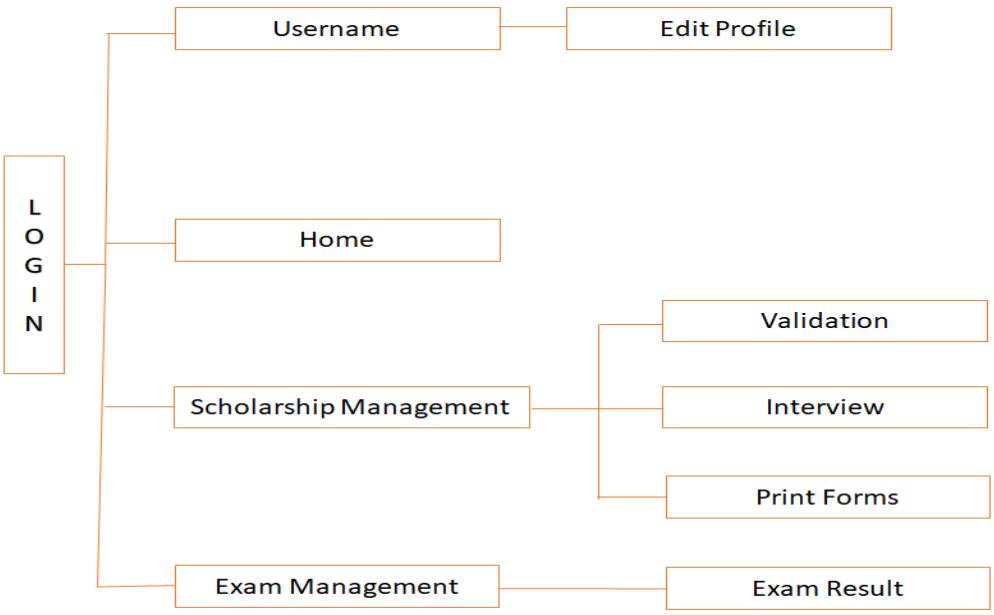

Figure 30. Site Map for Staff

Figure 30 shows the functional hierarchy of staff. Staff can only edit own profile, manipulate scholarship management other than the administrator and exam management but to show the exam results.

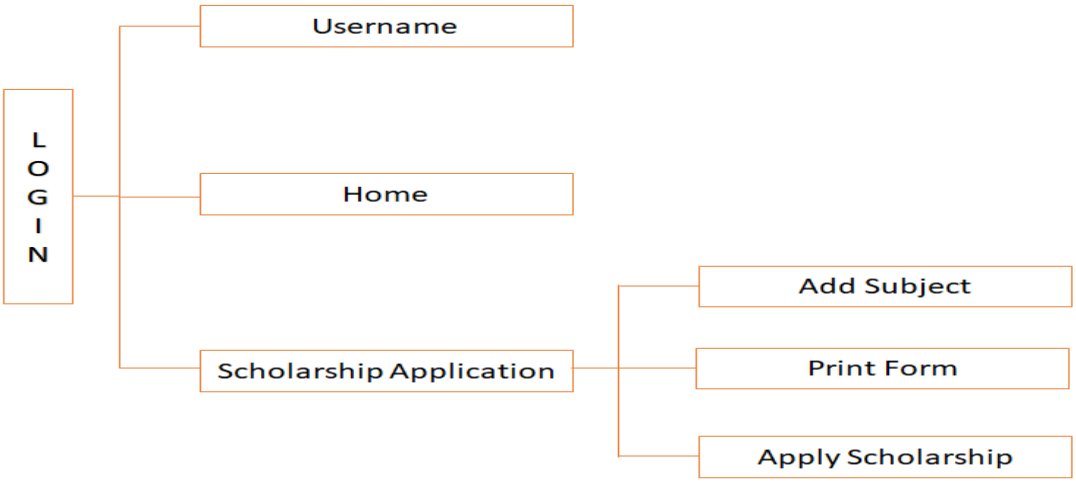

Figure 31. Site Map for Scholar

Figure 31 shows the functional hierarchy of scholars. The scholars have the least privilege because they can only edit own profile and manipulate their scholarship application.

System Requirements and Installation

The researchers provided guides for the proper installation of the system. These are the steps and requirements:

The following hardware requirements needed are as follows:

- Barcode Scanner
- Printer
- Any computer that can handle any tool that is required on the system.
- Internet Provider
- Domain Name
- Web Hosting Services

The following software requirements needed are as follows:

- Any platform or operating system
- XAMPP
- MySQL Server
- Browser the supports HTML 5 (example: Google Chrome, Mozilla)

For the Installation of the application, the following steps are as follow:

1) Go to your browser.
2) Access the Hosting Accounts page.
3) Ensure that you set up your cPanel hosting account and you have downloaded and installed the Filezilla application.
4) Open Filezilla on your computer.
5) Enter the IP address for your website.
6) Enter the username and password for your hosting account.
7) In the port field, type 21.
8) Click the Quickconnect button.
9) On the right side (remote site area), open your website's root directory or the public html folder.
10) On the left side (local site area), find and open the folder that contains your website's files.
11) Select all of the files in your website folder and drag them across to the remote side area.
12) You can now access the web application using your domain name.

Testing Procedure

The researchers used the Alpha and Beta Testing to test the performance of the system.

Alpha Test. It is one of the most common software testing used in software development. Its main purpose is to improve the system by looking at the errors that have not yet been discovered from the previous tests. Alpha testing is the software field test that is done by the proponents to discover errors existing within the web application. The researchers tested the validation of the system by entering the incorrect data that could lead to debugging to test the system consistency. The researchers also checked the system flow if it is understandable for the user and test the functionalities of the system to know what part of the system needs to be improved.

Beta Test. This test is the final test completed done by the selected users of the system. After the alpha testing, beta testing is now the next step to be done in the testing phase. The researchers allow the IT experts to identify the errors and debug them as they relate within the system and to know the part of the system that needs to be improved. The developers have appointed five web development experts to check and assess the completeness of the proposed website. Thirty scholars and five staff of the CYDA were also appointed by the developers to assess

their response with regards to using the proposed website. The researchers gathered all feedback from the IT experts to improve the proposed system.

System Evaluation

To achieve a clear understanding of the overall performance of the proposed system, it was evaluated through the following criteria.

For Scholars/Users:

Functional Suitability. The system can perform all types of transactions needed by the user and the results of all transactions performed by the system accurate. It can also perform all types of content and account management operations needed by the user.

Performance Efficiency. The system perform immediate modification by inserting, updating and deleting of data in the database.

Security. The system also requires the user to change their password regularly.

Usability. The system can be accessed using different devices. It can also accessed using different web browsers.

For IT experts:

Maintainability. The system provides consistency of the records and provide the backup needed.

Reliability. The system consistently performs task based on the user's request and validate user input.

Security. The system has features to protect sensitive data.

Usability. The system can be accessed using different devices. It can also be accessed using different web browsers.

Assessment of the Users

Assessment of the users shows the median, percentage and the result assessed by the users with regards to the proposed system in terms of the following criteria usability, security, functional suitability and performance efficiency.

Table 17. Assessment of the Users for the Proposed System in Terms of Usability

Question	SA	A	U	D	SD	Total Percentage	Median
Q1	45.71%	31.43%	14.29%	8.57%	0	100%	4.0
Q2	51.43%	40%	5.71%	2.86%	0	100%	5.0
Q3	48.57%	42.86%	5.71%	2.86%	0	100%	4.0
Q4	48.57%	42.86%	5.71%	2.86%	0	100%	4.0
Q5	45.71%	42.86%	11.43%	0	0	100%	4.0
Q6	40%	54.29%	2.86%	2.86%	0	100%	4.0
Q7	42.86%	45.71%	11.43%	0	0	100%	4.0
Q8	25.71%	60%	11.43%	2.86%	0	100%	4.0
Q9	48.57%	37.14%	11.43%	2.86%	0	100%	4.0
Q10	57.14%	20%	14.29%	5.71%	2.86%	100%	5.0
Q11	45.71%	37.14%	14.29%	2.86%	0	100%	4.0
Q12	51.43%	40%	5.71%	0	2.86%	100%	5.0
Q13	31.43%	51.43%	14.29%	2.86%	0	100%	4.0
Q14	74.29%	25.71%	0	0	0	100%	5.0
Q15	51.43%	34.29%	14.29%	0	0	100%	5.0

Where:

Q1 - The layout of the system interface is consistent.

Q2 - The system uses high contrast of colors which promotes readability.

Q3 - The graphic content is appropriate to the purpose of the system.

Q4 - The text content of the system is comprehensible.

Q5 - Interactive elements (eg., links, buttons, and text boxes) are noticeable.

Q6 - The labels of interactive elements (eg., links, buttons, and text boxes) are descriptive.

Q7 - The system incorporates elements (e.g., icons) which can be found in other systems to promote familiarity.

Q8 - The system provides visual cues (eg., tool tips and in-line tips) to aid the user in performing complicated tasks.

Q9 - The system provides appropriate validation for user input.

Q10 - All system functionality can be accessed using a keyboard.

Q11 - The order in which focusable elements (eg., links, buttons, and text boxes) are accessed using the Tab key in the keyboard makes logical sense.

Q12 - The system provides several navigation mechanisms (eg., navigation menu, site search, and list of related links) to easily find a page.

Q13 - Aside from using the mouse and keyboard, the system functionality can be accessed using other modes of input.

Q14 - The system can be accessed using different devices (eg., personal computers, smartphones, and tablet computers).

Q15 – The system can be accessed using different web browsers (eg., Mozilla Firefox, Google Chrome, and Opera).

Table 17 displays the assessment of the users for the proposed system in terms of usability. Q2, Q10, Q12, Q14 and Q15 had received a median of 5.0. It implies that the users Strongly Agree that the system uses high contrast of colors which promotes readability, system functionality can be accessed using a keyboard, system provides several navigation mechanisms to

easily find a page, system can be accessed using different devices and system can be accessed using different web browsers. Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q11 and Q13 had received a median of 4.0. It implies that the layout of the system interface is consistent, the graphic content is appropriate to the purpose of the system, the text content of the system is comprehensible, interactive elements are noticeable, the labels of interactive elements are descriptive, system incorporates elements which can be found in other systems to promote familiarity, system provides visual cues to aid the user in performing complicated tasks, system provides appropriate validation for user input, the order in which focusable elements

are accessed using the Tab key in the keyboard makes logical sense and aside from using the mouse and keyboard, the system functionality can be accessed using other modes of input.

Table 18. Assessment of the Users for the Proposed System in Terms of Security

Question	SA	A	U	D	SD	Total Percentage	Median
Q1	45.71%	48.57%	2.86%	2.86%	0	100%	4.0
Q2	42.86%	48.57%	5.71%	2.86%	0	100%	4.0
Q3	31.43%	48.57%	14.29%	2.86%	2.86%	100%	4.0
Q4	45.71%	22.86%	22.86%	5.71%	2.86%	100%	4.0
Q5	31.43%	22.86%	37.14%	5.71%	2.86%	100%	4.0
Q6	37.14%	37.14%	17.14%	2.86%	5.71%	100%	4.0

Where:

Q1 - The system are given appropriate access levels based on their category.

Q2 - All actions performed by the users involving access of data in the system are logged.

Q3 - All actions performed by the users involving modification of data in the system are logged.

Q4 - The system enforces use of strong passwords.

Q5 - The system requires the user to change their password regularly.

Q6 – The system enforces automatic logout for user accounts when idle for certain number of minutes.

Table 18 displays the assessment of the users for the proposed system in terms of security. Q1, Q2, Q3, Q4, Q5 and Q6 had received a median of 4.0. It implies that the users Agree that the system are given appropriate access levels based on their category, all actions performed by the users involving access of data in the system are logged, all actions performed by the users involving modification of data in the system are logged, the system enforces use of strong passwords, the system requires the user to change their password regularly and the system enforces automatic logout for user accounts when idle for certain number of minutes.

Table 19. Assessment of the Users for the Proposed System in Terms Functional of Suitability

Question	SA	A	U	D	SD	Total Percentage	Median
Q1	45.71%	45.71%	5.71%	0	2.86%	100%	4.0
Q2	57.14%	40%	2.86%	0	0	100%	5.0
Q3	40%	42.86%	17.14%	0	0	100%	4.0
Q4	62.86%	37.14%	0	0	0	100%	5.0
Q5	45.71%	42.86%	11.43%	0	0	100%	4.0
Q6	54.29%	40%	5.71%	0	0	100%	5.0
Q7	51.43%	37.14%	11.43%	0	0	100%	5.0
Q8	60%	31.43%	8.57%	0	0	100%	5.0

Where:

Q1 - The system can perform all types of transactions needed by the user.

Q2 - The result of all transactions performed by the system is accurate.

Q3 - The system can perform all types of content management operations needed by the user.

Q4 - The system information displayed on the web pages is up-to-date.

Q5 - The system can perform all types of user account management operations needed by the user.

Q6 - User account information displayed by the system is up-to-date.

Q7 - The system can generate all types of reports needed by the user.

Q8 – Reports generated by the system are accurate.

Table 19 displays the assessment of the users for the proposed system in terms of functional suitability. Q2, Q4, Q6,

Q6, Q7 and Q8 had a median of 5.0. It implies that the users Strongly Agree that the result of all transactions performed by the system is accurate, information displayed on the web pages is up-to-date, user account information displayed by the system is up-to-date, the system can generate all types of reports needed by the user, and reports generated by the system are accurate. Q1, Q3 and Q5 had a median of 4.0. It implies that the system can perform all types of transaction needed by the user, the system can perform all types of content management operations needed by the user.

Table 20. Assessment of the Users for the Proposed System in Terms Performance of Efficiency

Question	SA	A	U	D	SD	Total Percentage	Median
Q1	45.71 %	48.57 %	5.71 %	0	0	100%	4.0
Q2	54.29 %	42.86 %	2.86 %	0	0	100%	5.0
Q3	60%	31.43 %	8.57 %	0	0	100%	5.0
Q4	54.29 %	42.86 %	2.86 %	0	0	100%	5.0

Where:

Q1 - The system displays any information requested by the user in a real-time manner.

Q2 - The system performs immediate modification of data in the database as requested by the user.

Q3 - The system performs transactions in a fast manner.

Q4 - The system generates printable reports in a real-time manner.

Table 20 displays the assessment of the users for the proposed system in terms of performance efficiency. Q2, Q3 and Q4 had a median of 5.0. It implies that the users Strongly Agree that the system performs immediate modification of data in the database as requested by the user, the system performs transactions in a fast manner, and the system generates printable reports in a real-time manner. Q1 had a median of 4.0. It implies that the system displays any information requested by the user in a real-time manner.

Assessment of the Web Development Experts

Assessment of the Web Development Experts show the median, percentage and the result assessed by the Web Development Experts with regards to the proposed system in terms of the following criteria maintainability, security, reliability and usability.

Table 21. Assessment of the Web Development Experts for the Proposed System in terms of Maintainability

Question	SA	A	U	D	SD	Total Percentage	Median
Q1	40%	60%	0	0	0	100%	4.0
Q2	40%	60%	0	0	0	100%	4.0
Q3	80%	20%	0	0	0	100%	5.0
Q4	40%	60%	0	0	0	100%	4.0
Q5	20%	80%	0	0	0	100%	4.0
Q6	40%	60%	0	0	0	100%	4.0
Q7	20%	80%	0	0	0	100%	4.0
Q8	60%	20%	20%	0	0	100%	5.0
Q9	60%	40%	0	0	0	100%	5.0
Q10	40%	60%	0	0	0	100%	4.0

Where:

Q1 - Identifiers are descriptive.

Q2 - A consistent naming convention for identifiers is observed.

Q3 - Codes are properly indented.

Q4 - A length limit is observed for each line of code.

Q5 - Comments clearly explains what the code is accomplishing and how.

Q6 - There are no repeating codes.

Q7 - Each distinct section of the program addresses a separate concern.

Q8 - There is no unnecessary nesting of codes.

Q9 - A limit for the number of lines of code for each program unit is observed.

Q10 - A limit for the number of parameters for each program unit is observed.

Table 21 displays the assessment of the web development experts for the proposed system in terms of maintainability. Q3, Q8 and Q9 had a median of 5.0. It implies that the users Strongly Agree that the codes are properly indented, there is no unnecessary nesting of codes and a limit for the number of lines of code for each program unit is observed. Q1, Q2, Q4, Q5, Q6, Q7 and Q10 had a median of 4.0. It implies that identifiers are descriptive, a consistent naming convention for identifiers is observed, a length limit is observed for each line of code, comments clearly explains what the code is accomplishing and how, there are no repeating codes, each distinct section of the program addresses a separate concern and a limit for the number of parameters for each program unit is observed.

Table 22. Assessment of the Web Development Experts for the Proposed System in terms of Security

Question	SA	A	U	D	SD	Total Percentage	Median
Q1	20%	80%	0	0	0	100%	4.0
Q2	40%	60%	0	0	0	100%	4.0
Q3	40%	60%	0	0	0	100%	4.0
Q4	20%	60%	20%	0	0	100%	4.0
Q5	80%	20%	0	0	0	100%	5.0
Q6	60%	40%	0	0	0	100%	5.0
Q7	0	100%	0	0	0	100%	4.0
Q8	20%	80%	0	0	0	100%	4.0
Q9	20%	60%	20%	0	0	100%	4.0
Q10	0	80%	20%	0	0	100%	4.0
Q11	20%	60%	20%	0	0	100%	4.0

Where:

Q1 - The system is not vulnerable to injection attacks.

Q2 - The system is not vulnerable to authentication-related attacks.

Q3 - The system has features to protect sensitive data.

Q4 - The system is not vulnerable to XML external entities attacks.

Q5 - Users of the system are given appropriate access levels based on their category.

Q6 - Security settings of the system components are configured correctly.

Q7 - The system is not vulnerable to cross-site scripting attacks.

Q8 - The system performs secure deserialization of objects.

Q9 - The system has no components with known vulnerabilities.

Q10 - The system implements sufficient logging of suspicious activities.

Q11 - The system implements sufficient logging of suspicious activities.

Table 22 displays the assessment of the web development experts for the proposed system in terms of security. Q5 and Q6 had a median of 5.0. It implies that the users Strongly Agree that the users of the system are given appropriate access levels based on their category and security settings of the system components are configured correctly. Q1, Q2, Q3, Q4, Q7, Q8, Q9, Q10 and Q11 had a median of 4.0. It implies that the system is not vulnerable to injection attacks, the system is not vulnerable to authentication-related attacks, the system has features to protect sensitive data, the system is not vulnerable to XML external entities attacks, the system is not vulnerable to cross-site scripting attacks, the system performs secure deserialization of objects, the system has no components with known vulnerabilities, the system implements sufficient logging of suspicious activities and the system sufficient logging of suspicious activities.

Table 23. Assessment of the Web Development Experts for the Proposed System in terms of Reliability

Question	SA	A	U	D	SD	Total Percentage	Median
Q1	20%	80%	0	0	0	100%	4.0
Q2	20%	60%	20%	0	0	100%	4.0
Q3	60%	40%	0	0	0	100%	5.0
Q4	80%	20%	0	0	0	100%	5.0
Q5	80%	20%	0	0	0	100%	5.0

Where:

Q1 - The system remains usable even in the case wherein the assets did not load properly.

Q2 - The system can recover lost data due to erroneous transactions made by the user.

Q3 - The system can be assessed using other modes of input in case of failure in the input device.

Q4 - The system is designed to handle the expected number of user.

Q5 - The software is designed to adapt to possible changes in user requirements.

Table 23 displays the assessment of the web development experts for the proposed system in terms of reliability. Q3, Q4 and Q5 had a median of 5.0. It implies that the users Strongly Agree that the system can be accessed using other modes of input in case of failure in the input device, the system is designed to handle the expected number of users and the software is designed to adapt to possible changes in user requirements. Q1 and Q2 had a median of 4.0. It implies that the system remains usable even in the case wherein the assets did not load properly and the system can recover lost data due to erroneous transactions made by the user.

Table 24. Assessment of the Web Development Experts for the Proposed System in terms of Usability

Question	SA	A	U	D	SD	Total Percentage	Median
Q1	100%	0	0	0	0	100%	5.0
Q2	60%	40%	0	0	0	100%	5.0
Q3	40%	60%	0	0	0	100%	4.0
Q4	80%	20%	0	0	0	100%	5.0
Q5	60%	20%	20%	0	0	100%	5.0
Q6	40%	60%	0	0	0	100%	4.0
Q7	60%	40%	0	0	0	100%	5.0
Q8	20%	80%	0	0	0	100%	4.0
Q9	100%	0	0	0	0	100%	5.0
Q10	20%	60%	20%	0	0	100%	4.0
Q11	40%	40%	20%	0	0	100%	4.0
Q12	100%	0	0	0	0	100%	5.0
Q13	20%	60%	20%	0	0	100%	4.0
Q14	40%	60%	0	0	0	100%	5.0
Q15	60%	40%	0	0	0	100%	4.0

Where:

Q1 – The layout of the system interface is consistent.

Q2 – The system uses high contrast of colors which promotes readability.

Q3 – The graphic content is appropriate to the purpose of the system.

Q4 – The text content of the system is comprehensible.

Q5 – Interactive elements are descriptive.

Q6 – The labels of interactive elements are descriptive.

Q7 – The system incorporates elements which can be found in other systems to promote familiarity.

Q8 – The system provides visual cues to aid the user in performing complicated tasks.

Q9 – The system provides appropriate validation for user input.

Q10 – All system functionality can be accessed using a keyboard.

Q11 – The order in which focusable elements are accessed using the Tab key in the keyboard makes logical sense.

Q12 – The system provides several navigation mechanisms to easily find a page.

Q13 – Aside from using the mouse and keyboard, the system functionality can be accessed using other modes of input.

Q14 – The system can be accessed using different devices.

Q15 – The system can be accessed using different web browsers.

Table 24 displays the assessment of the web development experts for the proposed system in terms of usability. Q1, Q2, Q4, Q5, Q7, Q9, Q12 and Q14 had a median of 5.0. It implies that the users Strongly Agree that the layout of the system interface is consistent, the system uses high contrast of colors which promotes readability, the text content of the system is comprehensible, interactive elements are noticeable, the system incorporates elements which can be found in other system to promote familiarity, the system provides appropriate validation for user input, the system provides several navigation mechanisms to easily find a page and the system can be accessed using different devices. Q3, Q6, Q8, Q10, Q11, Q13 and Q15 had a median of 4.0. It implies that the graphic content is appropriate to the purpose of

the system, the labels of interactive elements are descriptive, the system provides visual cues to aid the user in performing complicated tasks, all system functionality can be accessed using a keyboard, the order in which focusable elements are accessed using the Tab key in the keyboard makes logical sense, aside from using the mouse and keyboard, the system functionality can be accessed using other modes of input and the system can be accessed using different web browsers.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

This chapter gives a brief summary of the study and conclusion that the researchers have come up. It also contains the researcher's recommendation based on the constructed conclusion.

Summary of Findings

1. The problems encountered by the CYDA in terms of:

a. Processing scholarship applications and admissions. The current process of scholarship application is operated manually, starting from filling up the application forms up to the admission. This manual processing consumes a lot of time, resources, and energy from both the scholars and staff.

b. Conducting examinations. The examination is done manually with the use of a test questionnaire. In this way, this also consumes a lot of effort and time for the staff to check the papers and process the results.

c. Monitoring student performance. Since the current process does not include the proper encoding of students' grades, the basis for monitoring would be the photocopy of the computerized grades submitted by the student. Paper files may be unorganized and it is hard to search for a particular student manually.

d. Scheduling of scholarship grants distribution. The distribution of grants was done by category, whereby some grantees cannot claim their grants on the scheduled day. Some made excuses and ask for another date to claim their grants, where some of them claim their grants whenever they want.

e. Monitoring of event attendance. Manual monitoring was done in the current process. Scholars have to find their names in the provided list and attached their signature beside their names before and after the event, which made this process ineffective.

f. Report generation. CYDA is using Microsoft Excel Spreadsheet. And with the use of excel, it is difficult to look for the record of a specific person, to retrieve and update the information, especially if there are quite a number of data.

2. How to develop the proposed system in such a way that it would:

a. Fast processing of scholarship applications and admissions. With the use of the automated system, YDA can now process applications and admissions more conveniently. Instead of applying manually, scholars can now apply online without going through a hard time.

b. Fast generation of exam results. YDA staff can now have the examination results faster. And they will no longer have a bunch of papers to check one by one.

c. Effective monitoring of student's performance. Now that YDA has effective monitoring of student's performance, they can easily identify students who maintained their grades and can search for students' information easily.

d. Effective scheduling of scholarship grants. Having the new system, scholars should claim their grants on the date they are assigned to. If they fail to do so, YDA will be the one to schedule another date for them to claim their grants.

e. Accurate monitoring of event's attendance. Monitoring of event's attendance is now done using barcode readers, providing scholars with their ISKO Card. This will make the process more efficient because the staff will no longer need to use paper for attendance.

f. Efficient report generation. With the use of the new system, staff can easily print reports and search for events without scanning through thousands of data.

3. The result of the level of acceptability of the users on the application from categories of functional suitability, performance efficiency, security, and usability was analyzed. Based on the results the system had a median of 4.0 in terms of functional suitability, performance efficiency, security, and usability. This shows that the users agree that the system will be able to provide the needed features.

4. The result of the level of acceptability of the Web Development Experts on the application from categories of maintainability, reliability, security, and usability was analyzed. Based on the results the system had a median of 4.0 in terms of maintainability, reliability, security and usability which means that the experts agree that the system.

Conclusions

Based on the summary of the findings and conclusion, the following are concluded:

1. The current system of CYDA was inconvenient to the applicants. The manual system takes a lot of effort and time for facilitators and administrators.

2. The work of the facilitators and administrators will be simplified with the used of the scholarship management system. The scholars' information will be sorted out properly through the use of the system.

3. Based on the evaluation of the users, the researchers concluded that the web application has met the acceptable rate of the chosen respondents that answered the questions given the criteria functional suitability, performance efficiency, security, and usability.

4. Based on the evaluation n of the Web development experts, the researchers concluded that the web application has met the acceptable rate of the chosen respondents who answered the questions given the criteria maintainability, reliability, security, and usability.

Recommendations

Based on the summary of the findings and conclusion, the following recommendations were presented:

1. The researchers want to recommend that the facilitators and administrators of CYDA to use this system for reduce time and effort.

2. The researchers want to recommend to the administrators who will maintain the system to enhance in terms of suitability.

3. The researchers also recommend future researchers to improve the system in a much better way, to the point of making the limitations part of their scope.

4. The researchers also recommend the CYDA to have a calendar of activities so scholars can be informed that there will be events or activities that will be conducted. They should also have a proper dissemination of information. CYDA should announced a week before an event so that every scholar is informed.

Implementation Plan

Implementation is the part wherein the finished system is used to see if the system have successfully met its requirements based on its functionalities and performance in actual processes.

After the development of the proposed web application, in order to implement the proposed system, the installation procedures must be done first.

If the proposed system has met the requirements to be used by the CYDA who has the right to use the system, it could now be ready to use and perform tasks accordingly.

The first step in the implementation plan was to provide a server that can handle more than one computer.

The next thing is to provide PCs and other devices that can well handle the system for the whole scholarship process.

Then explain to the administrators and staff how to use the system in order for them to be aware and have knowledge in using the system.

References

Bhangu R. (2016). *Development of Online Student Course Registration System*. Retrieved from Oriental Journal of Computer Science and Technology resources:http://www.computerscijournal.org/vol9no2/development-of-online-student-course-registration-system/

Bijaya Kumar M. (2015). *Youth Development in India:does povertymatter?*//resources: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4628033/

Ernesto Neri. (2014). *Young and Empowered: A model for youth governance*//resources: https://www.rappler.com/move-ph/ispeak/62560-cagayan-oro-youth-empowerment-governance

Foley B.(2018). *What is purposive sampling?*. Surveygizmo//resources:https://www.surveygizmo.com/resources/purposive-sampling-101/

Hafeez Osman, A. v. (2012). *UML Class Diagram Simplification*. Retrieved from UML class diagram simplification: https://dl.acm.org/citation.cfm?id=2424570

Harshita S.P (2017). *Fully Automated Electronic Mock Examination in an Introductory Computer Science Course*//resources: https://www.slideshare.net/IJIRAE/fully-automated-electronic-mock-examination-in-an-introductory-computer-science-course

Parkar, V.(2015). *Automated Examination Support System*//resources: https://inpressco.com/wp-content/uploads/2015/03/Paper29754-757.pdf

Richard, Bemile.(2015). *Online Registration System*//resources:https://www.researchgate.net/publication/277302463_Online_Registration_System

Rouse, M. (2007). *What is use case? - Definition from WhatIs.com*. Retrieved from TechTarget Search Software Quality: http://searchsoftwarequality.techtarget.com/definition/use-case

Salem, Awad.(2016). *Automated Attendance Monitoring System*//resources:https://www.slideshare.net/SalemAwad1/automated-attendance-monitoring-system

Shin, Kamada.(2014). *Registration System of cloud campus by using android smart tablet*//resources:https://link.springer.com/article/10.1186/2193-1801-3-761

Sullivan, Marc O.(2015). *National Youth Strategy*//resources: https://www.dcya.gov.ie/documents/publications/20151008NatYouthStrat2015to2020.pdf

Virginia,Kearney.(2016). *Benefits of Online School Registration*//resources: https://owlcation.com/academia/Should-Your-School-Use-Online-Registration

Yilin, Li.(2017). *Add-on Course Registration System*//resources: https://digitalcommons.wou.edu/cgi/viewcontent.cgi?article=1000&context=computerscience_studentpubs

Appendix A – Questionnaire

Name (Optional): _____ **Date:** _____

Address (Optional): _____

CABUYAO SCHOLARSHIP MANAGEMENT SYSTEM FOR IT EXPERTS

5 - Strongly Agree (SA) **4** - Agree (A) **3** - Undecided (U)

2 - Disagree (D) **1** - Strongly Disagree (SD)

CRITERIA	**5**	**4**	**3**	**2**	**1**
MAINTAINABILITY					
1. Identifiers (names of variables, methods, structures, etc.) are descriptive.					
2. A consistent naming convention for identifiers is observed.					
3. Codes are properly indented.					
4. A length limit is observed for each line of code.					

5. Comments clearly explains what the code is accomplishing and how.					
6. There are no repeating codes.					
7. Each distinct section of the program addresses a separate concern.					
8. There is no unnecessary nesting of codes.					
9. A limit for the number of lines of code for each program unit (e.g., methods and constructors) is observed.					
10. A limit for the number of parameters for each program unit (e.g., methods and constructors) is observed.					
SECURITY					
1. The system is not vulnerable to injection attacks (e.g., SQL, code and CRLF injection).					
2. The system is not vulnerable to authentication-related attacks.					

3. The system has features to protect sensitive data.					
4. The system is not vulnerable to XML external entities (XXE) attacks.					
5. Users of the system are given appropriate access levels based on their category.					
6. Security settings of the system components (e.g., application servers, application frameworks, and databases) are configured correctly.					
7. The system is not vulnerable to cross-site scripting (XSS) attacks.					
8. The system performs secure deserialization of objects.					
9. The system has no components (including third party applications) with known vulnerabilities.					
10. The system implements sufficient logging of suspicious activities.					

11. The system implements sufficient logging of suspicious activities.					
RELIABILITY					
1. The system remains usable even in the case wherein the assets (e.g., stylesheets, scripts, and images) did not load properly.					
2. The system can recover lost data due to erroneous transactions made by the user.					
3. The system can be accessed using other modes of input in case of failure in the input device.					
4. The system is designed to handle the expected number of users.					
5. The software is designed to adapt to possible changes in user requirements.					
USABILITY					
1. The layout of the system interface is consistent.					

2. The system uses high contrast of colors which promotes readability.					
3. The graphic content is appropriate to the purpose of the system.					
4. The text content of the system is comprehensible.					
5. Interactive elements (e.g., links, buttons, and text boxes) are noticeable.					
6. The labels of interactive elements (e.g., links, buttons, and text boxes) are descriptive.					
7. The system incorporates elements (e.g., icons) which can be found in other systems to promote familiarity.					
8. The system provides visual cues (e.g., tool tips and in-line tips) to aid the user in performing complicated tasks.					
9. The system provides appropriate validation for user input.					

10. All system functionality can be accessed using a keyboard.					
11. The order in which focusable elements (e.g., links, buttons, and text boxes) are accessed using the Tab key in the keyboard makes logical sense.					
12. The system provides several navigation mechanisms (e.g., navigation menu, site search, and list of related links) to easily find a page.					
13. Aside from using the mouse and keyboard, the system functionality can be accessed using other modes of input.					
14. The system can be accessed using different devices (e.g., personal computers, smartphones, and tablet computers).					
15. The system can be accessed using different web browsers (e.g., Mozilla Firefox, Google Chrome, and Opera).					

Name (Optional): _____ **Date:** _____

Address (Optional): _____

CABUYAO SCHOLARSHIP MANAGEMENT SYSTEM FOR SCHOLARS

5 - Strongly Agree (SA) **4** - Agree (A) **3** - Undecided (U)

2 - Disagree (D) **1** - Strongly Disagree (SD)

CRITERIA	5	4	3	2	1
USABILITY					
1. The layout of the system interface is consistent.					
2. The system uses high contrast of colors which promotes readability.					
3. The graphic content is appropriate to the purpose of the system.					
4. The text content of the system is comprehensible.					

5. Interactive elements (e.g., links, buttons, and text boxes) are noticeable.					
6. The labels of interactive elements (e.g., links, buttons, and text boxes) are descriptive.					
7. The system incorporates elements (e.g., icons) which can be found in other systems to promote familiarity.					
8. The system provides visual cues (e.g., tool tips and in-line tips) to aid the user in performing complicated tasks.					
9. The system provides appropriate validation for user input.					
10. All system functionality can be accessed using a keyboard.					
11. The order in which focusable elements (e.g., links, buttons, and text boxes) are accessed using the Tab key in the keyboard makes logical sense.					
12. The system provides several navigation mechanisms (e.g., navigation menu, site					

search, and list of related links) to easily find a page.					
13. Aside from using the mouse and keyboard, the system functionality can be accessed using other modes of input.					
14. The system can be accessed using different devices (e.g., personal computers, smartphones, and tablet computers).					
15. The system can be accessed using different web browsers (e.g., Mozilla Firefox, Google Chrome, and Opera).					
SECURITY					
1. Users of the system are given appropriate access levels based on their category.					
2. All actions performed by the users involving access of data in the system are logged.					
3. All actions performed by the users involving modification (i.e., insertion, update and deletion) of data in the system are logged.					
4. The system enforces use of strong passwords.					
5. The system requires the user to change their password regularly.					

6. The system enforces automatic logout for user accounts when idle for certain number of minutes.					
FUNCTIONAL SUITABILITY					
1. The system can perform all types of transactions needed by the user.					
2. The result of all transactions performed by the system is accurate.					
3. The system can perform all types of content management operations (e.g., posting of news, deletion of spam posts, and updating of page content) needed by the user.					
4. Information displayed on the web pages is up-to-date.					
5. The system can perform all types of user account management operations (e.g., user account creation, updating of user account information, and setting of access level) needed by the user.					
6. User account information displayed by the system is up-to-date.					
7. The system can generate all types of reports needed by the user.					

8. Reports generated by the system are accurate.					
PERFORMANCE EFFICIENCY					
1. The system displays any information requested by the user in a real-time manner.					
2. The system performs immediate modification (insertion, update, or deletion) of data in the database as requested by the user.					
3. The system performs transactions in a fast manner.					
4. The system generates printable reports in a real-time manner.					

Appendix B – User's Manual

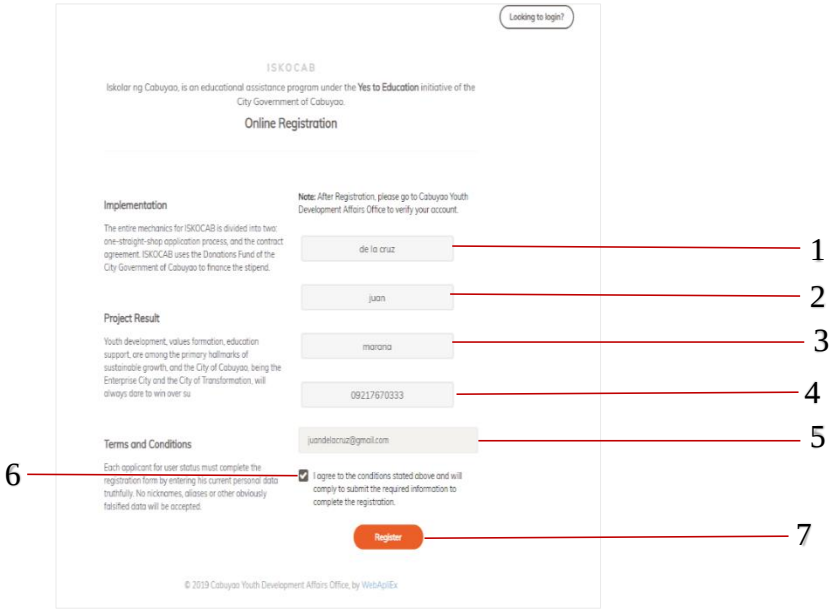

Figure 32. Registration Form for Scholars

1) Enter last name.
2) Enter first name.
3) Enter middle name.
4) Enter mobile number.
5) Enter email.
6) Click to agree to the conditions.
7) Click the "Register" button to register an account.

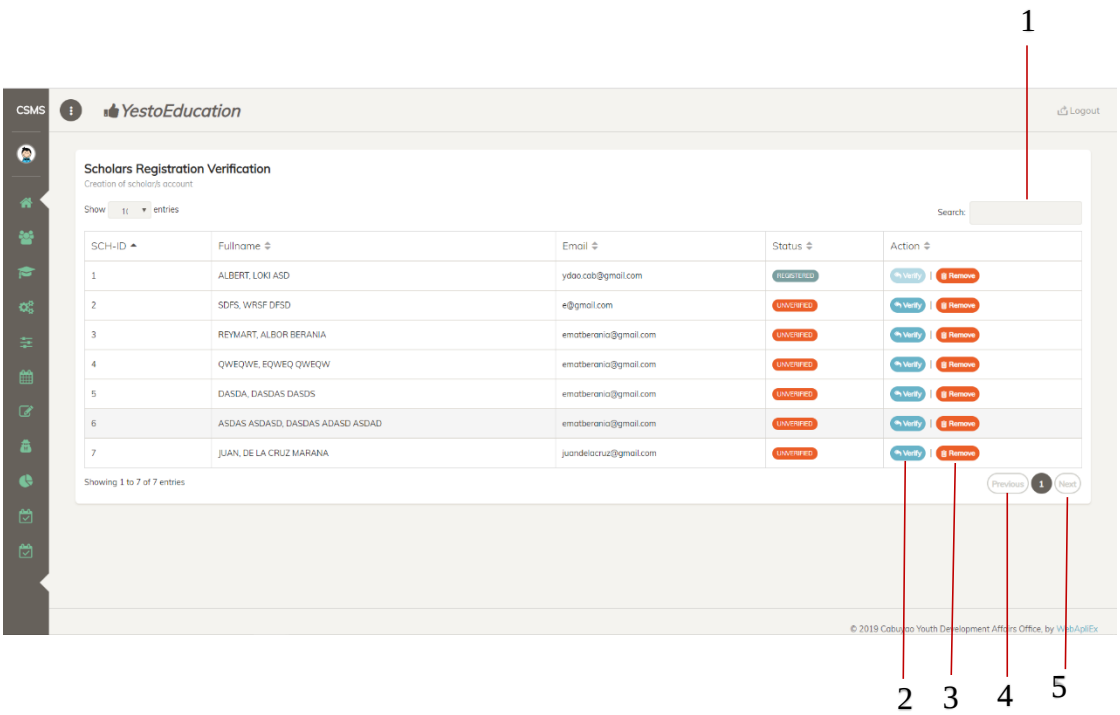

Figure 33. Scholars' Registration Verification

1) The search box can be used to search the names of scholars.
2) Click the "Verify" button to verify the scholar's registration.
3) Click the "Remove" button to remove a scholar's registration.
4) Click the "Previous" button to show previous entries.
5) Click the "Next" button to show the next entries.

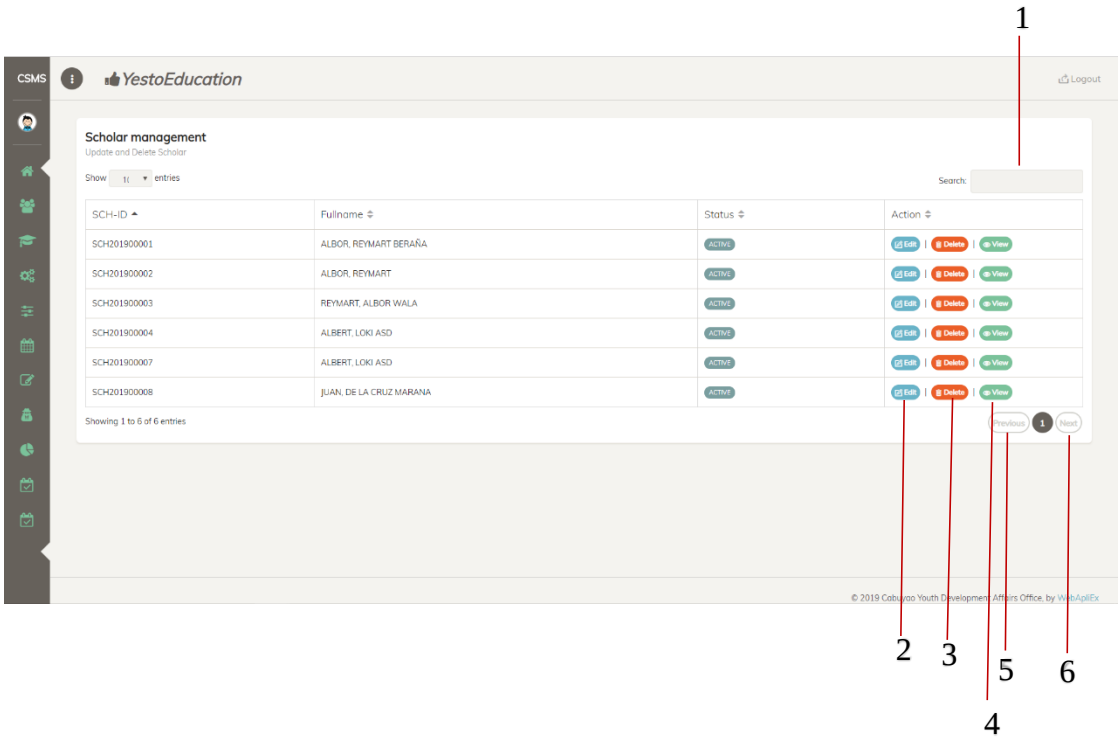

Figure 34. Scholar Management

1) The search box can be used to search the names of scholars.
2) Click the “Edit” button to edit a scholar’s info.
3) Click the “Delete” button to delete a scholar.
4) Click the “View” button to show each scholar’s info.
5) Click the “Previous” button to show previous entries.
6) Click the “Next” button to show the next entries.

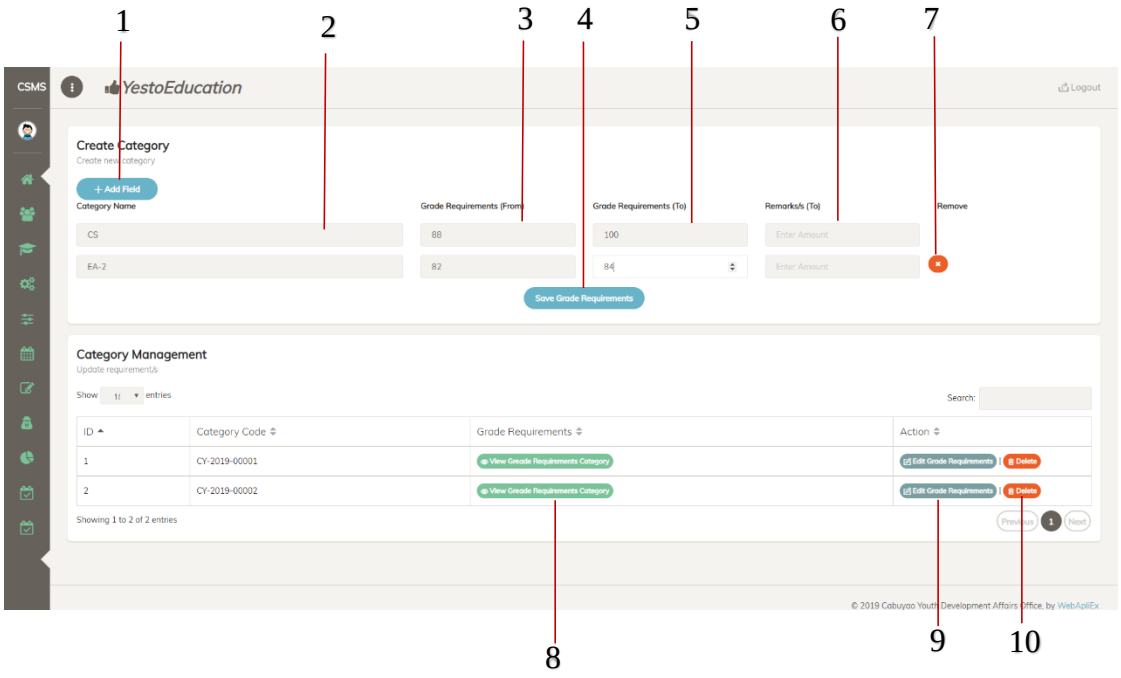

Figure 35. Category Management

1) Click the "Add Field" button to add fields to enter categories.
2) Enter category name.
3) Enter the minimum grade requirement.
4) Click the "Save Grade Requirements" button to save the created fields.
5) Enter the maximum grade requirement.
6) Enter amount.
7) Click the "x" button to remove excess fields.

8) Click the “View Grade Requirements Category” button to show details about a specific category.
9) Click the “Edit Grade Requirements” button to edit a specific category.
10) Click the “Delete” button to delete a specific category.

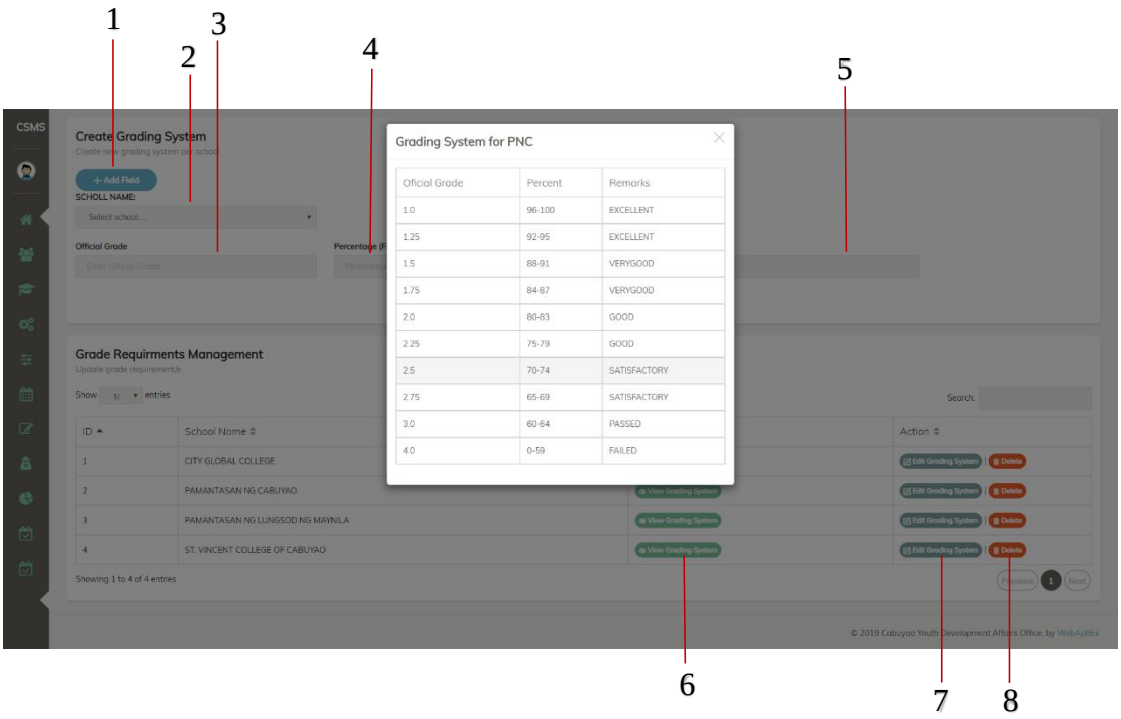

Figure 36. Grading System of Schools

1) Click the “Add Field” button to add fields to enter categories.
2) Enter school name.
3) Enter official grade.
4) Enter equivalent percentage of official grade.

5) Enter remarks.
6) Click the “View Grading System” button to show grading system of a specific school.
7) Click the “Edit Grading System” button to edit the grading system of a specific school.
8) Click the “Delete” button to delete the grading system of a specific school.

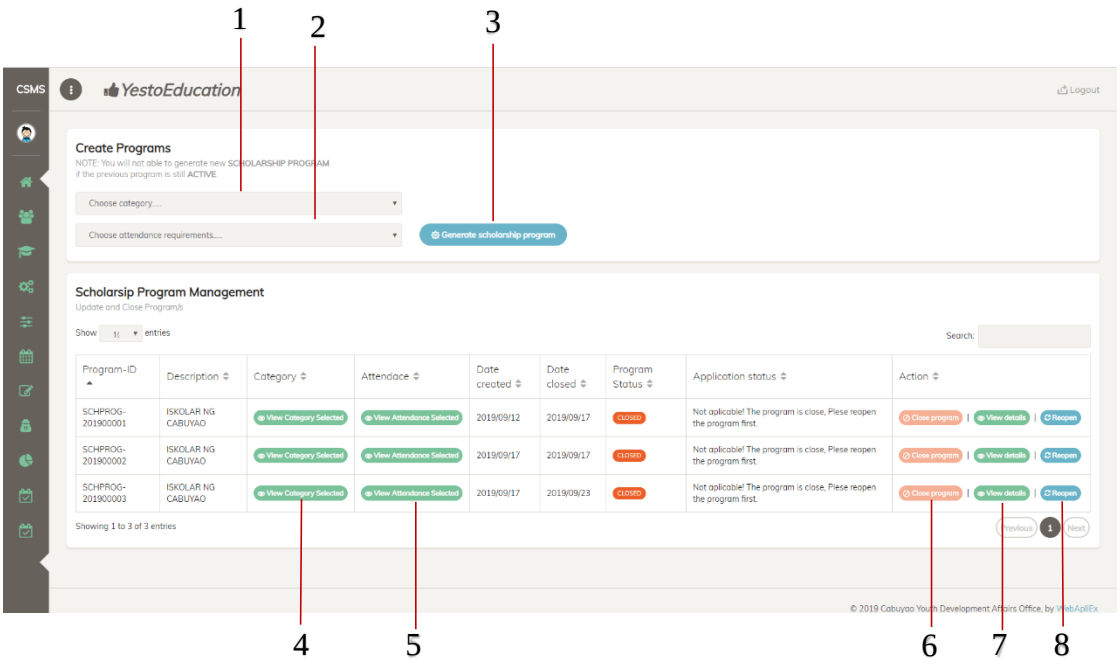

Figure 37. Scholarship Program Management

1) Choose the category from the dropdown list.
2) Choose attendance requirement from the dropdown list.
3) Click the “Generate scholarship program” to create a scholarship program.
4) Click the “View Category Selected” button to show the category of a specific scholarship program.
5) Click the “View Attendance Selected” button to show the attendance of a specific scholarship program.
6) Click the “Close Program” button to close a specific scholarship program.

7) Click the "View Details" button to show details of a specific scholarship program.
8) Click the "Reopen" button to reopen a specific scholarship program.

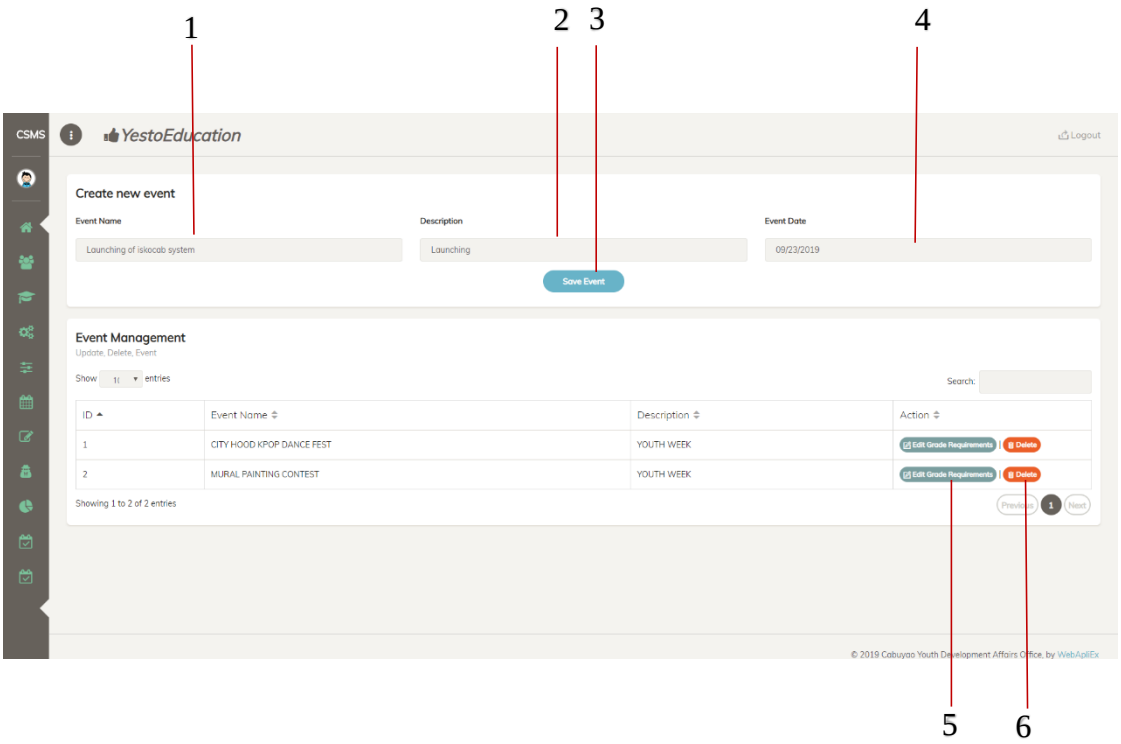

Figure 38. Event Management

1) Enter event name.
2) Enter description.
3) Click the "Save Event" button to save the created event.
4) Enter the event date.

5) Click the “Edit Grade Requirements” button to show the details of a specific event.
6) Click the “Delete” button to delete a specific event.

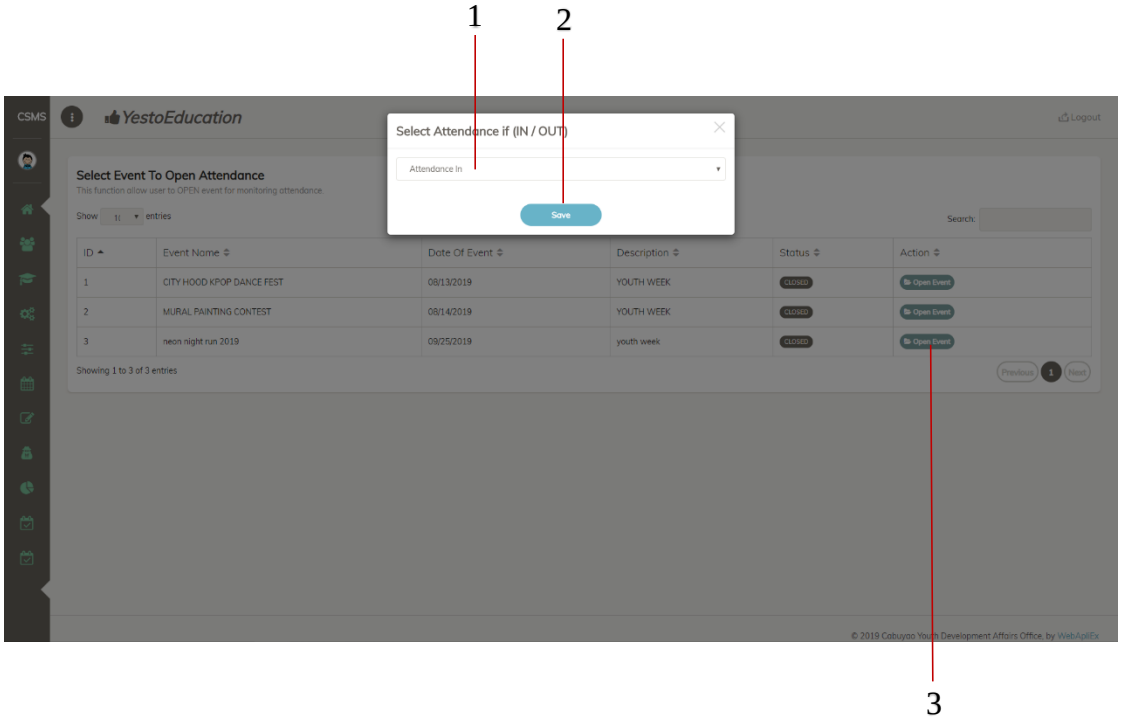

Figure 39. Attendance Monitoring

1) Choose whether time-in or time out from the dropdown list.
2) Click the “Save” button to save changes.
3) Click the “Open Event” button to open a specific event.

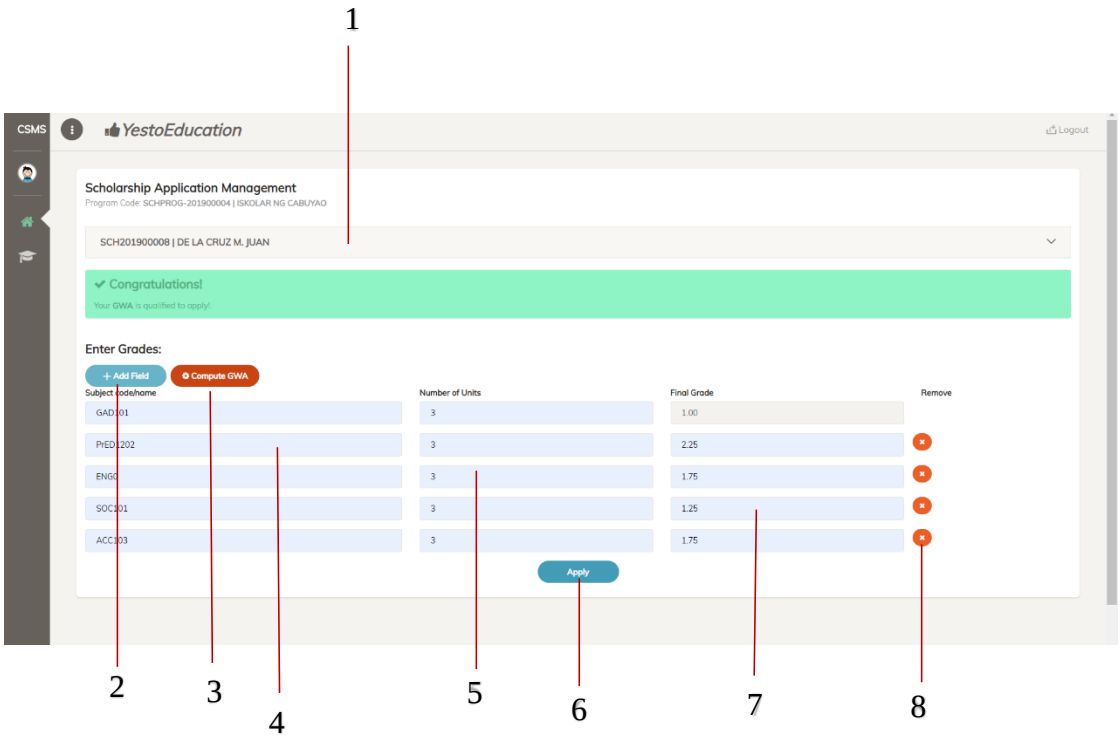

Figure 40. Scholarship Application Management

1) Click to view a scholar's details.
2) Click the "Add Field" button to add fields.
3) Click the "Compute GWA" button to compute the average of grades entered.
4) Enter subject code.
5) Enter number of units per subject.
6) Click the "Save" button to save details.
7) Enter final grade per subject.
8) Click the "x" button to remove excess fields.

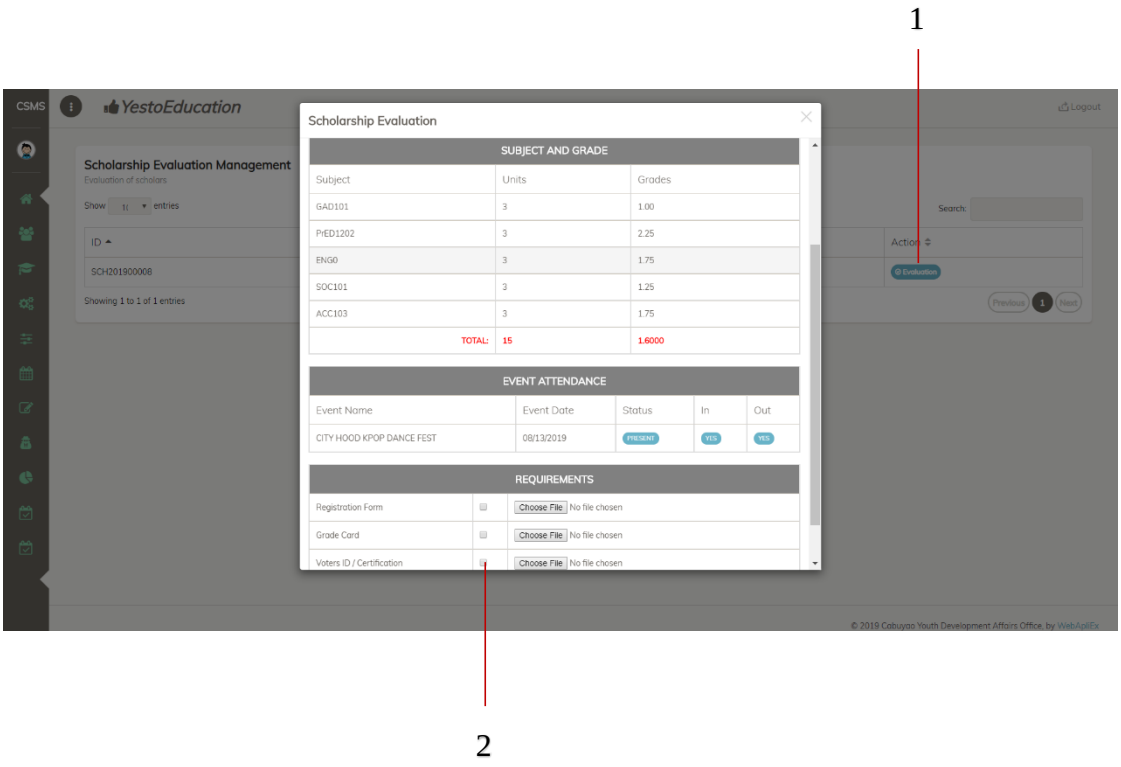

Figure 41. Scholarship Evaluation Form

1) Click “Evaluation” to evaluate a student.
2) Click when requirements are met.

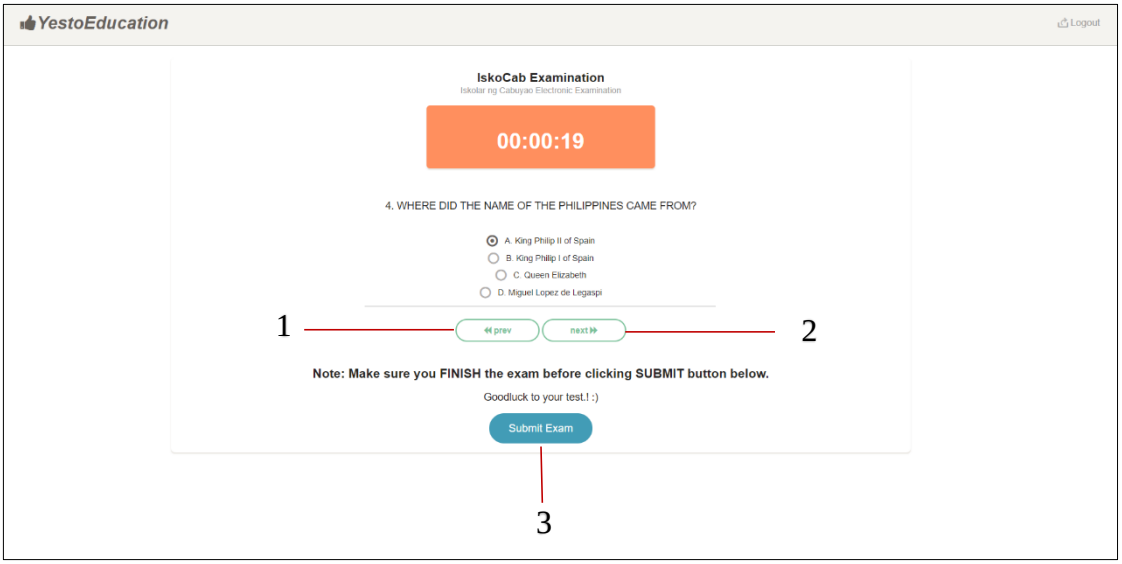

Figure 42. Examination

1) Click the “prev” button to display previous questions.
2) Click the “next” button to display the next questions.
3) Click the “Submit Exam” button to check and save the exam.

Appendix C – Program Listing

application.php

```
<?php

defined('BASEPATH')        OR
exit('No direct script access
allowed');

class Application mgt extends
MY_Controller {

  public              function
__construct()

  {

    parent::__construct();

    //load the database model

    $this->load-
>model('category_model','cat
egory');

    $this->load-
>model('course_model','cours
e');

    $this->load-
>model('schedulelist_model',
'schedulelist');

    $this->load-
>model('gradereqs_model','re
quirements');

    $this->load-
>model('schprogram_model','p
rogram');

    $this->load-
>model('scholar_model','scho
lar');

    $this->load-
>model('application_model','
applications');

    $this->load-
>helper('url');

    $this-
>login_authentication();

  }

  //Load application page

  public              function
application(){
```

```
if(!in_array('application', $this->permission)){
show_404(); }

    $schprogramlist = $this->program->get_by_status('1');

    $schprogram_description = '';

    $program_id = 0;

    $categoryId = 0;

    $attendanceId = 0;

    if($schprogramlist){


$schprogram_description = "Program Code: <b>".$schprogramlist->program_code." | ".$schprogramlist->description."</b>";

      $program_id = $schprogramlist->program_id;

      $categoryId = $schprogramlist->sch_category_id;

      $attendanceId = $schprogramlist->attendance_id;

    }else{


$schprogram_description = 'Not Available!';

      $program_id = 0;

      $categoryId = 0;

      $attendanceId = 0;

    }

    $data['create'] = "Create Grading System";

    $data['create_subtitle'] = "Create new grading system per school";

    $data['title'] = "Grade Requirments Management";

    $data['subtitle'] = "Update grade requirement/s";

    $data['generate'] = "Create Grade Requirments";

    $data['subgenerate'] = "NOTE: You will not able to generate new <b>SCHOLARSHIP PROGRAM</b><br>if the previous program is still <b>ACTIVE</b>.";
```

```
    $data['program_id']     =
$program_id;

    $data['category_id']    =
$categoryId;

    $data['attendance_id']  =
$attendanceId;


$data['schprogram_descriptio
n']                         =
$schprogram_description;

    $this-
>render_template('applicatio
nmgt/application',$data);

  }

//method to load all programs

public               function
get_all_programs($id){

 $list    =    $this->program-
>get_all_program($id);

 echo json_encode($list);

}

// method to check available
program (open program)

//returning True or False and
get active program

public               function
checkprogram(){

    $status = true;

    $schprogram    =    $this-
>program-
>get_by_status('1');

    if ($schprogram)

    {

      $status = true;

    }

    else

    {

      $status = false;

    }

    $data = array(

      'flag'=> $status,

      'mydata' => $schprogram

    );

    echo json_encode($data);

}

//method to load all active
scholars
```

```
  public function application_list()
  {
    $_POST['flag'] = "application";
    $list = $this->scholar->get_datatables();
    $data = array();
    $no = $_POST['start'];
    $counter = "";
    $status ="";
    foreach ($list as $scholar)
    {
        $no++;
        $counter++;
        $row = array();
        $row[] = $scholar->barcode;
        $row[] = $scholar->lastname.", ".$scholar->firstname." ".$scholar->middlename;
        $button = "";
        $statusname ='ACTIVE';
        $pass_badge = 'primary';
        $button = '<a class="btn btn-xs btn-success btn-fill btn-rotate" onclick="apply_scholar('."'".$scholar->scholar_id."'".')" ><span class="btn-label"><i class="fa fa-check-circle-o"></i></span>&nbspApply Scholar</a>';
        $row[] = '<span class="label label-'.$pass_badge.'">'.$statusname.'</span>';
        //add html for action
        $row[] = $button;
        $data[] = $row;
    }
    $output = array(
            "draw" => $_POST['draw'],
            "recordsTotal" => $this->scholar->count_all(),
```

```
"recordsFiltered"  =>  $this->scholar->count_filtered(),
            "data" => $data
        );
    //output to json format
    echo json_encode($output);
  }
//get account value
   public            function account_value($id){
    $list  =  $this->scholar->get_by_id2($id);
    echo json_encode($list);
}
//metho  to  refresh  scholars status in database
public                function bulk_update(){
  $_POST['flag']            = "managing";
  $counter  =  $this->scholar->count_all();
  $data = array(
    'application_status' => 1
    );
  for($i = 0; $i < $counter;$i++){
    $this->scholar->update(array('scholar_id' => $i + 1), $data);
  }
  echo json_encode(array("status" => TRUE));
}
//get available schedule
public                function get_schedule($id){
  $list       =       $this->schedulelist->get_by_id($id);
  $data = array(
    'mydata' => $list
  );
  echo json_encode($data);
}
//create examination password
```

```
function create_exam_password(){
  return rand(1000,5000);
}

//method to apply scholars check if required to take exam
public function apply_scholar($scholar_id){
  $count_application = $this->applications->count_all_2();
  if($this->input->post('txtCategory') == 'CS'){
    $exam_status = 'required';
    $exam_password = $this->create_exam_password();
  }else{
     $exam_status = 'notrequired';
    $exam_password = null;
  }

//grade list
  $scholar_gradelist = array(
    'subject_code' => $this->input->post('subject_code'),
    'number_of_units' => $this->input->post('number_of_units'),
    'final_grade' => $this->input->post('final_grade')
    );
  //application data
  $data = array(
    'scholar_id' => $scholar_id,
    'program_id' => $this->input->post('txtProgramId'),
    'grade_list' => serialize($scholar_gradelist),
    'gwa' => $this->input->post('txtGwaValue'),
    'sch_category_status' => $this->input->post('txtCategory'),
    'fenancial_grants' => $this->input->post('txtGrants'),
```

```
    'status' => "1",
    'date_created'         => date("Y/m/d"),
    'time_created'         => date("h:i:sa"),
    'schedule_list_id'     => $this->input->post('txtScheduleId'),
    'attendance_id' => $this->input->post('txtAttendanceId'),
    'year_level'   =>  $this->input->post('txtYearLevel'),
    'exam_status'          => $exam_status,
    'exam_password'        => $exam_password
    );
//update status
    $data2 = array(
      'application_status' => 0,
      'exam_password'      => $exam_password,
      'app_id_for_exam_use' => $count_application + 1
      );
    $this->scholar->update(array('scholar_id' => $scholar_id),$data2);
    //$insert    =    $this->requirements->save($data);
    $insert     =     $this->applications->save($data);
    //print_r($data);
    echo json_encode(array("status" => TRUE));
}
//get grading system for each school
public               function get_grading_system_by_id($id)
{
  $data       =       $this->requirements->get_cross($id);
```

```
  $news                    =
unserialize($data['grade_lis
t']);

    $output = array(

    "schoolname"           =>
$data['school_code'],

    "counter2"             =>
count($news['ograde']),

    "mydata" => $news

      );

  //output to json format

  echo json_encode($output);

}

//get scholarship category

public                function
get_category_by_id($id)

{

  $data   =   $this->category-
>get_cross($id);

  $news                    =
unserialize($data['category_
list']);

    $output = array(

    "cat_code"             =>
$data['cat_code'],

    "counter2"             =>
count($news['cat_name']),

    "mydata" => $news

      );

  //output to json format

  echo json_encode($output);

}

//get all course

public                function
get_all_course()

{

  $data   =   $this->course-
>all_course();

  echo json_encode($data);

}

}
```

assessment.php

```
<?php

defined('BASEPATH')        OR
exit('No direct script access
allowed');
```

```
class Assesment extends MY_Controller {

  public function __construct()

  {

    parent::__construct();

    //Load database model

    $this->load->model('category_model','category');

    $this->load->model('gradereqs_model','requirements');

    $this->load->model('schprogram_model','program');

    $this->load->model('scholar_model','scholar');

    $this->load->model('application_model','applications');

    $this->load->helper('url');

    $this->load->library('tcpdf/Pdf');

    $this->login_authentication();

  }

  //Load assessment page

  public function index(){

$data['schprogram_description'] = 'Assesment of scholars';

    $this->render_template('assesment/index',$data);

  }

//check program selected

public function checkprogram_selected(){

      $status = true;

      $program_id = null;

      $schprogram = $this->program->get_by_status('1');

    if ($schprogram)

    {

      //$status = true;
```

```
      $program_id          =
$schprogram->program_id;
    }
    else
    {
      //$status = false;
      $program_id = 0;
    }
    echo $program_id;
}
//load available scholars for
assessment
  public             function
assesment_list()
  {
    $_POST['flag']          =
"assesment";
    $_POST['filter'] = $this-
>checkprogram_selected();
    $list      =      $this-
>applications-
>get_datatables();
    $data = array();
    $no = $_POST['start'];
    $counter = "";
    $status ="";
    foreach     ($list     as
$scholar_application)
    {
if($scholar_application-
>evaluation == null){
            $statusname
='unevaluated';
            $pass_badge     =
'danger';
            $button  =  '-----
';
        }
elseif($scholar_application-
>evaluation == 'INCOMPLETE')
        {
            $statusname
='incomplete';
            $pass_badge     =
'warning';
            $button  =  '-----
';
```

```
        }

        else{

            $statusname
='completed';

            $pass_badge     =
'success';

            $button  =    '<a
class="btn  btn-xs  btn-info
btn-fill          btn-rotate"
onclick="print_form('."'".$s
cholar_application-
>sch_app_id."'".')"    ><span
class="btn-label"><i
class="fa                  fa-
print"></i></span>&nbspPrint
Assesment Form</a>';

        }

        $no++;

        $counter++;

        $row = array();

        $row[]              =
$scholar_application-
>barcode;

        $row[]              =
$scholar_application-
>lastname.",
".$scholar_application-
>firstname."
".$scholar_application-
>middlename;

        $row[]    =    '<span
class="label          label-
'.$pass_badge.'">'.$statusna
me.'</span>';

        //add html for action

        $row[] = $button;

        $data[] = $row;

    }

    $output = array(

            "draw"         =>
$_POST['draw'],

            "recordsTotal" =>
$this->applications-
>count_all(),


"recordsFiltered"  =>  $this-
>applications-
>count_filtered(),

            "data" => $data

        );

    //output to json format

    echo
json_encode($output);
```

```
  }

//load selected account value

public                function
account_value($id){

    $list       =       $this-
>applications-
>get_by_id_2($id);

    $news                    =
unserialize($list-
>requirements_list);

    $output = array(

      "myData" => $list,

      "myRequirements"     =>
$news

        );

    echo
json_encode($output);

}

//print  assessment  form  pdf
out put

public                function
print_action($id){

    $list       =       $this-
>applications-
>get_by_id_2($id);

    $id ='SCH2019000001';

    $fullName     =     $list-
>lastname.    ",    ".    $list-
>firstname."          ".$list-
>middlename[0].".";

    $course = "BSIT-WEB";

    $schoolName = "PAMANTASAN
NG CABUYAO";

    $noOfUnits = "15";

    $gwa = "1.75";

    $examStatus = "PASSED";

    $trans = 'TRNS201900001';

    $city = "";

    $contact = "";

    $dataIssue  =  "09/15/2019
- ";

    $req  =  '[  ]Coputerized
Card, [ ]Registration Form, [
]Voters ID';

    $email = "";

    $school = "";

    $units = "";

    $year = "";

    $degree = "";
```

```
    $image = "";

    $voter =  "";

    /**

     * Creates an example PDF TEST document using TCPDF

     *                @package com.tecnick.tcpdf

     *  @abstract  TCPDF  -  Example:  Default  Header  and Footer

     * @author Nicola Asuni

     * @since 2008-03-04

     */

    // Include the main TCPDF library      (search      for installation path).

    //  require_once('tcpdf_include. php');

    //    create    new    PDF document

    //$pdf        =        new TCPDF(PDF_PAGE_ORIENTATION, PDF_UNIT,    PDF_PAGE_FORMAT, true, 'UTF-8', false);

    $pdf        =        new TCPDF(PDF_PAGE_ORIENTATION, PDF_UNIT,    PDF_PAGE_FORMAT, false, 'ISO-8859-1', false);

    //      set      document information

    $pdf->SetTitle($id);

    $pdf->SetAuthor('Cabuyao Youth Development Affairs');

    //                  $pdf- >SetSubject('TCPDF Tutorial');

    //                  $pdf- >SetKeywords('TCPDF,     PDF, example, test, guide');

    //  set  default  header data

    // set auto page breaks

    //  set  some  language- dependent strings (optional)

    // ----------------------- ---------------------------- -------

    // Set font

    // dejavusans is a UTF-8 Unicode font, if you only need to
```

```
    // print standard ASCII chars, you can use core fonts like

    // helvetica or times to reduce file size.

    $pdf->SetFont('times', '', 12, '', true);

    define ("pdf_page_format", "letter");

    // Add a page

    // This method has several options, check the source code documentation for more information.

    $pdf->AddPage();

    $header = base_url('assets/image/ass1.png');

    // // The '@' character is used to indicate that follows an image data stream and not an image file name

    // $pdf->Image('@'.$imgdata);

    $html2 = '<div align="left" style="margin: 0px; padding: 0px;"><img src="'.$header.'" alt="test alt attribute" style="margin: 0px; padding: 0px;"/></div>';

    // output the HTML content

    $pdf->writeHTML($html2, true, false, true, false, '');

    $pdf->Cell(16, 5, 'TranNo:');

    $pdf->Cell(50, 5, $trans);

    $pdf->Ln(6);

    // First name

    $pdf->Cell(55, 5, '_____
    _____
    _____
    ______');

    $pdf->Cell(50, 5, 'SCHOLARSHIP ASSESSMENT FORM');

    $pdf->Ln(6);

    // First name

    $pdf->Cell(16, 5, 'Name:');
```

```
    $pdf->Cell(50, 5, $id.' -
'.$fullName);

    $pdf->Ln(6);

    // First name

    $pdf->Cell(16,          5,
'Course: ');

    $pdf->Cell(50,          5,
$course);

    $pdf->Ln(6);

    // First name

    $pdf->Cell(16,          5,
'School: ');

    $pdf->Cell(50,          5,
$schoolName);

    $pdf->Ln(6);

    // First name

    $pdf->Cell(35, 5, 'Number
of Units:');

    $pdf->Cell(50,          5,
$noOfUnits);

    $pdf->Ln(6);

    // First name

    $pdf->Cell(60,          5,
'General    Weghted    Average
(gwa): ');

    $pdf->Cell(50, 5, $gwa);

    $pdf->Ln(6);

    // First name

    $pdf->Cell(25,  5,  'Exam
Status: ');

    $pdf->Cell(50,          5,
$examStatus);

    $pdf->Ln(6);

    // First name

    $pdf->Cell(25,          5,
'Requirements: ');

    $pdf->Cell(50, 5, $req);

    $pdf->Ln(6);

    $pdf->Cell(55,          5,
'_____
_____
_____
_____');

    $pdf->Ln(6);

    // First name

    // First name

    $pdf->Cell(110,         5,
'Approve By:');

    $pdf->Cell(50, 5, '');
```

```
    $pdf->Ln(6);

    $pdf->Cell(110, 5, '');

    $pdf->Cell(50, 5, '');

    $pdf->Ln(6);

    $pdf->Cell(110,    5,    '
_____');

    $pdf->Cell(50,    5,    '
_____');

    $pdf->Ln(6);

    $pdf->Cell(120,    5,    '
System Administrator');

    $pdf->Cell(50,  5,  'Youth
Development Assistant');

    $pdf->Ln(6);

     $pdf->Cell(55, 5, '');

    $pdf->Cell(50,         5,
'_____');

    $pdf->Ln(6);

    $pdf->Cell(65, 5, '');

    $pdf->Cell(50, 5, '    YDA
Department Head');

    $pdf->Cell(70,    5,    '
Date                    issue:
'.$dataIssue.'(scholar
copy)');

    $pdf->Ln(6);

    $pdf->Cell(55,         5,
'_____');

    $pdf->Ln(6);

    $pdf->Cell(55, 5, '');

    $pdf->Ln(6);

    $pdf->Cell(65, 5, '------
----------
----------
----------
----------
---------');

    $pdf->Ln(6);

    $pdf->Cell(55,         5,
'_____');

    $pdf->Ln(6);

    //=============second
copy
```

```
    // output the HTML content
    $pdf->writeHTML($html2, true, false, true, false, '');
    $pdf->Cell(16, 5, 'TranNo:');
    $pdf->Cell(50, 5, $trans);
    $pdf->Ln(6);
    // First name
    $pdf->Cell(55, 5, '_____
_____
_____
______');
    $pdf->Cell(50, 5, 'SCHOLARSHIP ASSESSMENT FORM');
    $pdf->Ln(6);
    // First name
    $pdf->Cell(16, 5, 'Name:');
    $pdf->Cell(50, 5, $id.' - '.$fullName);
    $pdf->Ln(6);
    // First name
    $pdf->Cell(16, 5, 'Course: ');
    $pdf->Cell(50, 5, $course);
    $pdf->Ln(6);
    // First name
    $pdf->Cell(16, 5, 'School: ');
    $pdf->Cell(50, 5, $schoolName);
    $pdf->Ln(6);
        // First name
    $pdf->Cell(35, 5, 'Number of Units:');
    $pdf->Cell(50, 5, $noOfUnits);
    $pdf->Ln(6);
    // First name
    $pdf->Cell(60, 5, 'General Weghted Average (gwa): ');
    $pdf->Cell(50, 5, $gwa);
    $pdf->Ln(6);
```

```
    // First name

    $pdf->Cell(25,  5,  'Exam
Status: ');

    $pdf->Cell(50,         5,
$examStatus);

    $pdf->Ln(6);

    // First name

    $pdf->Cell(25,         5,
'Requirements: ');

    $pdf->Cell(50, 5, $req);

    $pdf->Ln(6);

    $pdf->Cell(55,         5,
'_____
_____
_____
______');

    $pdf->Ln(6);

    // First name

    // First name

    $pdf->Cell(110,        5,
'Approve By:');

    $pdf->Cell(50, 5, '');

    $pdf->Ln(6);

    $pdf->Cell(110, 5, '');

    $pdf->Cell(50, 5, '');

    $pdf->Ln(6);

    $pdf->Cell(110,    5,    '
_____
_____');

    $pdf->Cell(50,    5,    '
_____
_____');

    $pdf->Ln(6);

    $pdf->Cell(120,    5,    '
System Administrator');

    $pdf->Cell(50,  5,  'Youth
Development Assistant');

    $pdf->Ln(6);

     $pdf->Cell(55, 5, '');

    $pdf->Cell(50,         5,
'_____
______');

    $pdf->Ln(6);

    $pdf->Cell(65, 5, '');

    $pdf->Cell(50, 5, '   YDA
Department Head');

    $pdf->Cell(70,    5,    '
Date                    issue:
'.$dataIssue.'(cyda copy)');
```

```
    $pdf->Ln(6);

    // Close and output PDF document

    // This method has several options, check the source code documentation for more information.

    $pdf->Output($id.'.pdf', 'I');

    exit;


//============================================================+

    // END OF FILE


//============================================================+

    }

}
```

examination.php

```
<?php
defined('BASEPATH') OR exit('No direct script access allowed');

class Examination extends MY_Controller {

  public function __construct()

  {

    parent::__construct();

    $this->load->model('subject_model','subject');

    $this->load->model('examtype_model','examtype');

    $this->load->model('question_model','question');

    $this->load->model('examination_model','examination');

    $this->load->model('examtitle_model','examtitle');

    $this->load->helper('url');
```

```
    $this->login_authentication();
  }
  //Load exam page
  public function exam(){

if(!in_array('createExamination',    $this->permission)){ show_404(); }
    //
if(!in_array('manageEvent', $this->permission)){ show_404(); }
    $this->render_template('examination/exam');
  }
    //Load question page
  public function question(){

if(!in_array('ManageQuestion',       $this->permission)){ show_404(); }
    //
if(!in_array('manageEvent', $this->permission)){ show_404(); }
    $this->render_template('examination/question');
  }
  //Load subject page
  public              function typesubject(){

if(!in_array('manageTypeAndSubject', $this->permission)){ show_404(); }
    //
if(!in_array('manageEvent', $this->permission)){ show_404(); }
    $this->render_template('examination/typesubject');
  }
//method to convert data
  public              function htmlspecial($string){
    return htmlspecialchars(strtoupper($string));
  }//method    to    add    new subject in database
```

```
  public function add_new_subject(){

          $data = array(

            'subject'      => $this->htmlspecial($this->input->post('txtSubjectName')),

            'description'  => $this->htmlspecial($this->input->post('txtSubjectDescription')),

            'status'  => 1,

            'date_created' => date("Y/m/d"),

            'time_created' => date("h:i:sa")

            );

            $insert = $this->subject->save($data);

            echo json_encode(array("status" => TRUE));

    }

//add new exam type
```

```
    public function add_new_type(){

      $data = array(

        'type_of_exam'     => $this->htmlspecial($this->input->post('txtTypeName')),

        'description'      => $this->htmlspecial($this->input->post('txtTypeDescription')),

        'status'  => 1,

        'date_created'     => date("Y/m/d"),

        'time_created'     => date("h:i:sa")

        );

        $insert    =    $this->examtype->save($data);

        echo json_encode(array("status" => TRUE));

    }

//list   of   subject   (JSON format)
```

```
  public function subject_list()
  {
    $list = $this->subject->get_datatables();
    $data = array();
    $no = $_POST['start'];
    $counter = "";
    $status ="";
    $dateclosed = "";
    foreach ($list as $subject)
    {
        $no++;
        $counter++;
        $row = array();
        $row[] = $subject->exam_subject_id;
        $row[] = $subject->subject;
        if($subject->status == 1)
        {
            $subjectStatus = 'ACTIVE';
            $pass_badge = 'primary';
        }else{
            $subjectStatus = 'DEACTIVE';
            $pass_badge = 'danger';
        }
        $row[] = '<span class="label label-'.$pass_badge.'">'.$subjectStatus.'</span>';
        $btnedit = '<a class="btn btn-xs btn-primary btn-fill btn-rotate" onclick="edit_subject('."'".$subject->exam_subject_id."'".')" ><span class="btn-label"><i class="ti-pencil-alt"></i></span>&nbspEdit</a>';
        $btndelete = '<a class="btn btn-xs btn-danger btn-fill btn-rotate" onclick="delete_subject('."'".$subject-
```

```
>exam_subject_id."'".')"
><span   class="btn-label"><i
class="ti-
trash"></i></span>&nbspDelet
e</a>';

        $row[] = $btnedit." |
".$btndelete;

        $data[] = $row;

    }

    $output = array(

            "draw"         =>
$_POST['draw'],

            "recordsTotal" =>
$this->subject->count_all(),


"recordsFiltered"  =>  $this-
>subject->count_filtered(),

            "data" => $data

        );

    //output to json format

    echo
json_encode($output);

  }

  //list of exam types

  public function type_list()
  {

    $list = $this->examtype-
>get_datatables();

    $data = array();

    $no = $_POST['start'];

    $counter = "";

    $status ="";

    $dateclosed = "";

    foreach     ($list     as
$examtype)

    {

        $no++;

        $counter++;

        $row = array();

        $row[]  =  $examtype-
>exam_types_id;

        $row[]  =  $examtype-
>type_of_exam;

        if($examtype->status
== 1)

        {

          $examtypeStatus   =
'ACTIVE';
```

```
            $pass_badge      =
'primary';

        }else{

          $examtypeStatus   =
'DEACTIVE';

            $pass_badge      =
'danger';

        }

        $row[]    =    '<span
class="label           label-
'.$pass_badge.'">'.$examtype
Status.'</span>';



          $btnedit    =    '<a
class="btn btn-xs btn-primary
btn-fill          btn-rotate"
onclick="edit_type('."'".$ex
amtype-
>exam_types_id."'".')" ><span
class="btn-label"><i
class="ti-pencil-
alt"></i></span>&nbspEdit</a
>';

          $btndelete   =   '<a
class="btn  btn-xs  btn-danger
btn-fill          btn-rotate"
onclick="delete_type('."'".$
examtype-
>exam_types_id."'".')" ><span
class="btn-label"><i
class="ti-
trash"></i></span>&nbspDelet
e</a>';

        $row[] = $btnedit." |
".$btndelete;

        $data[] = $row;

    }

    $output = array(

            "draw"         =>
$_POST['draw'],

            "recordsTotal" =>
$this->examtype-
>count_all(),


"recordsFiltered"  =>  $this-
>examtype->count_filtered(),

            "data" => $data

        );

    //output to json format

    echo
json_encode($output);

  }

//method to delete subject
```

```
public function delete_subject($id)
{
  $data = array(
    'status' => '0'
    );
  $this->subject->update(array('exam_subject_id' => $id), $data);
  echo json_encode(array("status" => TRUE));
}
//method to delete types
public function delete_type($id)
{
  $data = array(
    'status' => '0'
    );
  $this->examtype->update(array('exam_types_id' => $id), $data);
  echo json_encode(array("status" => TRUE));
}
//get subject
public function get_subject($id)
{
  $data = $this->subject->get_by_id($id);
  echo json_encode($data);
}
//get types
public function get_type($id)
{
  $data = $this->examtype->get_by_id($id);
  echo json_encode($data);
}
//method to update subject
public function update_subject($id)
{
```

```
  $data = array(

    'subject'    =>    $this->htmlspecial($this->input->post('txtSubjectNameModal')
),

    'description'  =>  $this->htmlspecial($this->input->post('txtSubjectDescriptionModal'))

    );

  $this->subject->update(array('exam_subject_id' => $id), $data);

  echo json_encode(array("status" => TRUE));

}

//metho update types

public                function update_type($id)

{

  $data = array(

    'type_of_exam'  =>  $this->htmlspecial($this->input->post('txtTypeNameModal')),

    'description'  =>  $this->htmlspecial($this->input->post('txtTypeDescriptionModal'))

    );

  $this->examtype->update(array('exam_types_id' => $id), $data);

  echo json_encode(array("status" => TRUE));

}


//list of question type

  public              function question_list()

  {

    $list = $this->question->get_datatables();

    $data = array();

    $no = $_POST['start'];

    $counter = "";

    $status ="";

    $dateclosed = "";
```

```
    foreach ($list as $question)
    {
        $no++;
        $counter++;
        $row = array();
        $row[] = $question->exam_question_id;
        $row[] = $question->question;
        $btnchoicelist = '<a class="btn btn-xs btn-primary btn-fill btn-rotate" onclick="view_choices_details('."'".$question->exam_question_id."'".')" ><span class="btn-label"><i class="fa fa-eye"></i></span>&nbspView Choices</a>';
        $row[] = $btnchoicelist;
        $row[] = $question->type_of_exam;
        $row[] = $question->subject;
        if($question->status == 1)
        {
          $subjectStatus = 'ACTIVE';
           $pass_badge = 'primary';
        }else{
          $subjectStatus = 'DEACTIVE';
           $pass_badge = 'danger';
        }
        $row[] = '<span class="label label-'.$pass_badge.'">'.$subjectStatus.'</span>';
          $btnedit = '<a class="btn btn-xs btn-primary btn-fill btn-rotate" onclick="edit_subject('."'".$question->exam_question_id."'".')" ><span class="btn-label"><i class="ti-pencil-alt"></i></span>&nbspEdit</a>';
```

```
            $btndelete  =  '<a
class="btn btn-xs btn-danger
btn-fill          btn-rotate"
onclick="delete_subject('."'
".$question-
>exam_question_id."'".')"
><span   class="btn-label"><i
class="ti-
trash"></i></span>&nbspDelet
e</a>';

        $row[] = $btnedit." |
".$btndelete;

        $data[] = $row;

    }

    $output = array(

            "draw"         =>
$_POST['draw'],

            "recordsTotal" =>
$this->question-
>count_all(),


"recordsFiltered"  =>  $this-
>question->count_filtered(),

            "data" => $data

        );

    //output to json format

    echo
json_encode($output);

  }

//get question by id

  public             function
get_question_by_id($id){

    $data  =  $this->question-
>get_by_id($id);

    $myarr = array

      'mydata' => $data,

      'unser'              =>
unserialize($data-
>choice_list)

    );

    echo json_encode($myarr);

  }

//get all subject

  public             function
get_all_subject(){

    $data  =  $this->subject-
>get_all_subject();

    echo json_encode($data);

  }

//get all titles
```

```
  public function get_all_title(){
    $data = $this->examtitle->get_all_title();
    echo json_encode($data);
  }
//add new question
  public function add_new_question(){
    $data = array(
      'question' => $this->htmlspecial($this->input->post('txtQuestion')),
      'answer' => $this->htmlspecial($this->input->post('txtAnswer')),
      'choice_list' => serialize($this->input->post('txtOption')),
      'exam_type_id' => 1,
      'exam_subject_id' => $this->input->post('txtSubject'),
      'question_status' => 1,
      'date_created' => date("Y/m/d"),
      'time_created' => date("h:i:sa")
      );
      $insert = $this->question->save($data);
      echo json_encode(array("status" => TRUE));
  }
  //list of question
  public function add_question_list()
  {
    $list = $this->question->get_datatables();
    $data = array();
    $no = $_POST['start'];
    $counter = "";
    $status ="";
    $dateclosed = "";
    foreach ($list as $question)
    {
        $no++;
```

```
        $counter++;

        $row = array();

        $row[]    =    '<input
type="checkbox"
name="chckQuestion[]"
value="'.$question-
>exam_question_id.'"style="b
ackground:  green;  padding:
0px;   width:  200px;  height:
20px;line-height: 20px;color:
white;text-align: center;">';

        $row[]  =  $question-
>question;

        $btnchoicelist = '<a
class="btn btn-xs btn-primary
btn-fill          btn-rotate"
onclick="view_choices_detail
s('."'".$question-
>exam_question_id."'".')"
><span   class="btn-label"><i
class="fa                fa-
eye"></i></span>&nbspView
Choices</a>';


        $row[]              =
$btnchoicelist;

        $row[]  =  $question-
>type_of_exam;

        $row[]  =  $question-
>subject;

        if($question->status
== 1)

        {

          $subjectStatus    =
'ACTIVE';

           $pass_badge      =
'primary';

        }else{

          $subjectStatus    =
'DEACTIVE';

           $pass_badge      =
'danger';

        }

        $row[]    =    '<span
class="label          label-
'.$pass_badge.'">'.$subjectS
tatus.'</span>';

        $data[] = $row;

    }

    $output = array(

            "draw"         =>
$_POST['draw'],
```

```
            "recordsTotal" =>
$this->question-
>count_all(),

"recordsFiltered"  =>  $this-
>question->count_filtered(),

            "data" => $data

        );

    //output to json format

    echo
json_encode($output);

  }

//method to save new created
examination

  public             function
save_new_examination(){

    $countExamTitle =  $this-
>examtitle->count_all();

    $arrayQuestionId = $this-
>input-
>post('chckQuestion');

    $examTitledata = array(

      'title'    =>    $this-
>htmlspecial($this->input-
>post('txtExamTitle')),

      'time' => $this->input-
>post('txtTime'),

      'item_number' => $this-
>input->post('txtItems'),

      'passing'   =>   $this-
>input->post('txtPassing'),

      'status' => 1,

      'date_created'       =>
date("Y/m/d"),

      'time_created'       =>
date("h:i:sa")

      );

      $insert    =    $this-
>examtitle-
>save($examTitledata);

    $counter                =
$countExamTitle +1;

    for($i    =    0;    $i    <
count($arrayQuestionId)     ;
$i++){

        $data = array(

          'question_id'    =>
$arrayQuestionId[$i],

          'exam_title_id'  =>
$counter,

          'status' => 1,
```

```
            'date_created'    =>
date("Y/m/d"),
            'time_created'    =>
date("h:i:sa")
            );
            $insert   =   $this-
>examination->save($data);
        }
          echo
json_encode(array("status" =>
TRUE));
    }
    //examination list
    public              function
examination_list($title)
    {
        $list       =       $this-
>examination-
>get_datatables($title);
        $data = array();
        $data2 = array();
        $row = array();
        $no = $_POST['start'];
        $counter = "";
        $status ="";
        $dateclosed = "";
        foreach ($list as $key
=> $value)
        {
            $data[$key] = $value;
        }
        for($x    =    0;    $x    <
count($data); $x ++)
        {
            unset($row);
            $btnchoicelist = '<a
class="btn btn-xs btn-primary
btn-fill           btn-rotate"
onclick="view_choices_detail
s('."'".$data[$x]-
>exam_question_id."'".')"
><span    class="btn-label"><i
class="fa                  fa-
eye"></i></span>&nbspView
Choices</a>';
            $row[]   =   $data[$x]-
>title;
            $row[]                =
"<b><i>".$data[$x]-
>question."</i></b>";
```

```
        $row[]              =
$btnchoicelist;

        $row[]  =  $data[$x]-
>type_of_exam;

        $row[]  =  $data[$x]-
>subject;

        $row[]  =  $data[$x]-
>status;

        $data2[] = $row;

    }

    $output = array(

            "draw"        =>
$_POST['draw'],

            "recordsTotal"
=>        $this->examination-
>count_all_where($title),


"recordsFiltered"  =>  $this-
>examination-
>count_filtered($title),

            "data" => $data2

        );

    //output to json format

    echo
json_encode($output);
    }


//method to take exam

public                function
take_exam($title){

  $list = $this->examination-
>get_examination_by_title($t
itle);

  $data = array();

  $data2 = array();

  $row = array();

  //$no = $_POST['start'];

  $counter = "";

  $status ="";

  $dateclosed = "";

  foreach ($list as $key =>
$value)

  {

     $data[$key] = $value;

  }

  for($x    =    0;    $x    <
count($data); $x ++)

  {
```

```
    unset($row);

    //$btnchoicelist  =  '<a
class="btn btn-xs btn-primary
btn-fill          btn-rotate"
onclick="view_choices_detail
s('."'".$data[$x]-
>exam_question_id."'".')"
><span   class="btn-label"><i
class="fa                fa-
eye"></i></span>&nbspView
Choices</a>';

    $row[]    =    $data[$x]-
>title;

    $row[]                =
"<b><i>".$data[$x]-
>question."</i></b>";

}

    //        $row[]        =
$btnchoicelist

    $row[]    =    $data[$x]-
>type_of_exam;

    $row[]    =    $data[$x]-
>subject;

    $row[]    =    $data[$x]-
>status;

    $data2[] = $row;

  }

  //output to json format

  echo json_encode($data2);

}
```

Appendix D – Curriculum Vitae

Reymart B. Albor
Phase 2 Blk 2 Lot 11 Lakeside Nest
Subdivision, Banay-Banay,
City of Cabuyao, Laguna
0921-767-0333
ematberania@gmail.com

PERSONAL DATA

Nickname:	Emat
Age:	22
Gender:	Male
Date of Birth:	February 18, 1996
Place of Birth:	Bulan, Sorsogon
Father's Name:	Reynaldo Albor
Mother's Name:	Margei Albor

EDUCATIONAL ATTAINMENT

Tertiary

Bachelor of Science in Information Technology
Major in Web Development
Pamantasan ng Cabuyao
Katapatan Homes, Banay-Banay, Cabuyao, Laguna
2015 – present

Secondary

Solis Institute of Technology
Zone 5, Bulan Sorsogon
2014-2015

Primary

Bulan North Central School
Managa-naga, Bulan Sorsogon

2009-2010

Yanilyn J. Jordan
Phase 2 Blk 12 Lot 1B Centennial Homes, Pulo, City of Cabuyao, Laguna
0999-967-7132/0936-520-2587
yanilynjordan22@gmail.com

PERSONAL DATA

Nickname:	Yani
Age:	21
Gender:	Female
Date of Birth:	July 5, 1998
Place of Birth:	Lucena City, Quezon
Father's Name:	Nestor G. Jordan Jr.
Mother's Name:	Teodora J. Jordan

EDUCATIONAL ATTAINMENT

Tertiary

Bachelor of Science in Information Technology
Major in Web Development
Pamantasan ng Cabuyao
Katapatan Homes, Banay-Banay, Cabuyao, Laguna
2015 – present

Secondary

Pulo, National High School
Pulo, City of Cabuyao, Laguna
2014-2015

Primary

Mamatid Elementary School
Mamatid, City of Cabuyao, Laguna
2009-2010

Jerelyn G. Murillo
Phase 4 Blk 9 Lot 14 SJV7,
Marinig, City of Cabuyao, Laguna
0939-246-7794
jerelyn.murillo19@gmail.com

PERSONAL DATA

Nickname:	Je, Lyn
Age:	21
Gender:	Female
Date of Birth:	September 19, 1998
Place of Birth:	Marinduque
Father's Name:	Jerry Murillo Sr.
Mother's Name:	Milody Gonzales

EDUCATIONAL ATTAINMENT

Tertiary

Bachelor of Science in Information Technology
Major in Web Development
Pamantasan ng Cabuyao
Katapatan Homes, Banay-Banay, Cabuyao, Laguna
2015 – present

Secondary

Cabuyao National High School
City of Cabuyao, Laguna
2014-2015

Primary

Jovellar Central School
4515 Brgy.Calzada, Jovellar, Albay
2009-2010