

**A Web-based Student Information System for Bakakeng National High School**

An IT Project Proposal  
Presented to the  
Faculty of the School of Accountancy, Management,  
Computing and Information Studies  
Saint Louis University

In Partial Fulfillment of the  
Requirements for the Course  
IT 421

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April 2019

## **Abstract**

A Student Information System (SIS) is a system that is concerned in tracking and management of student's records. It also provides other capabilities such as enrollment of the student, transcript of records, payment of miscellaneous fees, fixing student's schedule, tracking of student's attendance and other student-related data that the system could perform.

The proposed project for Bakakeng National High School (BNHS) is a web-based student information system which facilitates the automation of the school's manual processes including the enrollment, payment, sectioning, tracking of student's attendance, fixing the schedule, report generation and others. It will also help the school in organizing the student data that will be gathered in each school year. An assessment of the existing processes of the school was done through interviews and observations with the school's ICTR Coordinator to briefly explain how the different processes of the school operates and how were they able to maximize the different resources they have in performing those processes. The aim of the proposed system is to address the problems that was encountered by the school and to improve the different processes in the school.

The purpose of implementing a student information system is to improve the paper-based work processes of the school by integrating different technologies to come up with the features and functionalities of the system. The system will be utilizing technologies such as PHP that serves as the scripting language for the server-side, HTML, CSS3 for the structure and design of the system, and other technologies such as JQuery, JQuery UI and MySQL for the database.

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## **Chapter 1**

### **INTRODUCTION**

#### **1.1 Context of the Study**

Adapting technologies like Student Information System, processes like student enrollment, attendance monitoring, schedule management, and record keeping will make tasks faster. This student information system handles every aspect of student data right from admission, class schedules, subject enrolled by the student, overall student performance, and personal information of student. All these elements are integrated into a single database, accessing and tracking data of any student happens with just a click of the mouse! (Bayangan-Cosidon, 2016).

Student Information Management System (SIMS) provides a simple interface for maintenance of student information (Bharamagoudar et. al., 2013). It can be used by educational institutes or colleges to maintain the records of students easily. The creation and management of accurate, up-to-date information regarding a students' academic career is critically important in the university as well as colleges. Student information system deals with all kind of student details, academic related reports, college details, course details, curriculum, batch details, placement details and other resource related details too.

Enrollment system is used particularly in recording and retrieving student information (Geraldine Landicho, 2016). Tracking student's information is also one feature of this, in which the school can trace the standing of a student. Verifying payments was also added to update or browse student's billings. Enrollment system is a good example of a computer-generated process.

The project is to develop a web-based student information system for Bakakeng National High School. Modern student information system consists of different components, some are enrollment, sectioning, record keeping, accounting and scheduling. The school currently relies on paper-based process, especially for accounting, sectioning and record keeping. On the other hand, the student information system supports all of these processes like student registration or enrollment and scheduling which is handled by faculties who are assigned, attendance monitoring for the school teachers, and updating the student's balance for the PTA treasurer. The ICT coordinator has a privilege in all the modules and has the ability to create accounts for the staffs and updating the miscellaneous fees.

#### **1.2 Background of the Project**

This section covers the discussion about the Bakakeng National High School (BNHS) and is divided into five (5) subsections. This section discusses about the short background of the school, organizational chart, basic operations of the school, problems encountered by the school. Moreover, it also discusses the rationale of the project, statement of objectives, scope of the project, and the significance of the study.

##### **1.2.1 Background of BNHS**

BNHS is a public junior high school with two sections per grade level located at Bakakeng Norte Baguio City, Philippines. BNHS was formerly known as Baguio City National High School (BCNHS) - Bakakeng Annex until the year 2013 when they became an independent national high school to be known as Bakakeng National High School (BNHS).

The school consists of fifteen (15) teachers and headed by a Head Teacher. The school has three (3) main buildings and one (1) borrowed classroom. Eight (8) classrooms are used as an instructional room, while the rest is used for administrative offices and ancillary services.

### 1.2.2 Organizational Structure

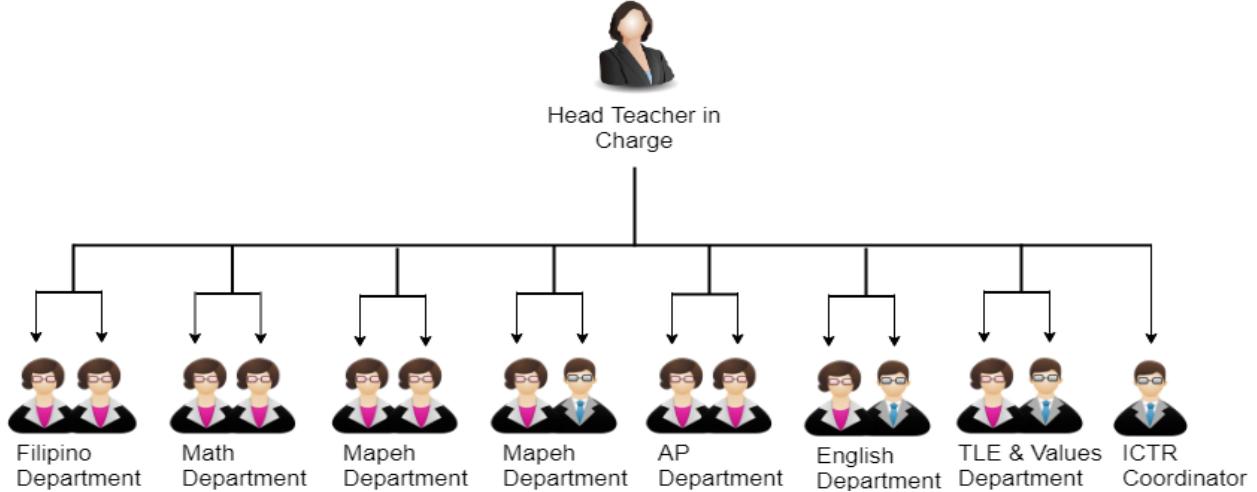


Figure 1. Organizational Chart

As illustrated in Figure 1, BNHS has eight (8) departments, and is headed by the head teacher-in-charge. The head teacher-in-charge is the one who motivates and manages the faculty through delegation of responsibility, help organize school activities, and evaluating faculty performance. The head teacher-in-charge along with the faculty are responsible for organizing school matters such as assigning on who will be in charge in the enrollment, the advisers, sectioning, and the class schedule.

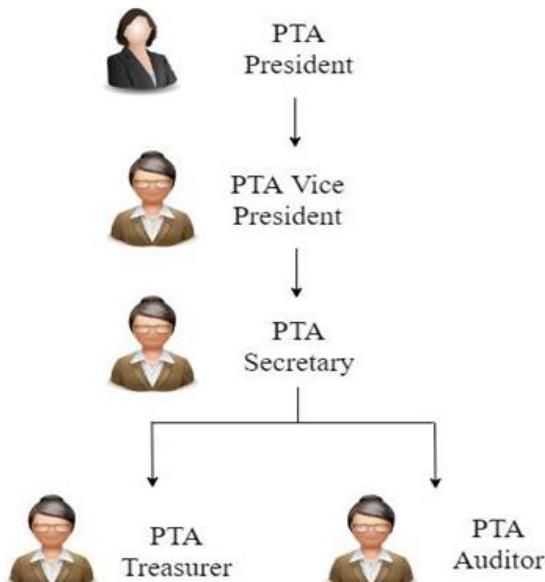


Figure 2. PTA Organizational Chart

As illustrated in figure 2, Parents-Teachers Association (PTA) is part of the school organization for the purpose of ensuring the welfare of the students. PTA addresses the issues and offers solutions with regards to the implementation of student activities and programs. They are also responsible for collecting School Publications Fee, Supreme Student Government (SSG) Developmental Fund and other club membership fees and contributions.

### **1.2.3 Basic Operations**

#### **1.2.3.1 Enrollment Process**

As illustrated in Figure 3, new students are required to submit the Form 137, certificate of good moral character (CGMC), birth certificate, and optional to join the “*Brigada Eskwela*”. On the other hand, old students need to submit requirements such as the clearance from the previous grade level, Form 138, and needs to perform or join the “*Brigada Eskwela*”. All of these requirements must be submitted to the teacher-in-charge for the enrollment. After the enrollee had submitted such requirements, the teacher-in-charge will validate what the enrollee had submitted. If a new student has not submitted any of the requirements, the student will be a temporary enrolled student, and must request a birth certificate from the Philippine Statistics Authority (PSA), or a CGMC or Form 137 from the previous school and must be submitted to and validated by the teacher-in-charge. If the old student has not submitted any of the requirements, the student will not be enrolled until he/she processed and submitted the requirements. After which the old or new student have submitted and performed the requirements, the teacher-in-charge of the enrollment will validate these. If all the submitted requirements are valid, the student will be an officially enrolled in the school.

#### **1.2.3.2 Sectioning & Scheduling Process**

Currently, the assignment of section of students is done manually whereas the following criteria is taken into consideration: the distribution of male and female per section and following a first-come first-served basis (See Figure 3 below). The criteria for the distribution of the sections is also affected by the adviser’s discretion. On the other hand, the assignment of the class advisers and schedule of classes is done through the deliberation of the faculty and thereafter arranged by the teacher-in-charge.

#### **1.2.3.3 Payment Process**

For the payment of the miscellaneous fee, the assigned PTA Treasurer for the school year is responsible for the collection and management of fees, thus, allocating the budget of the different organizations of the school (see Appendix E). The treasurer also records all the payments, balances, and transactions to a logbook, and manually issues an official receipt when a student made a payment.

#### **1.2.3.4 Recording of Class Attendance**

The recording of class attendance is very important because students are more likely to succeed in academics when they always attend school consistently and will make a big impact on their grades. 95% to 100% (less than 10 days absence in year) is a good attendance (Lainesmead, 2016). In BNHS, the teacher checks the attendance of the students every subject. If the student incurred ten (10) consecutive absences, the adviser will then approach the student’s parent to report the student’s behavior.

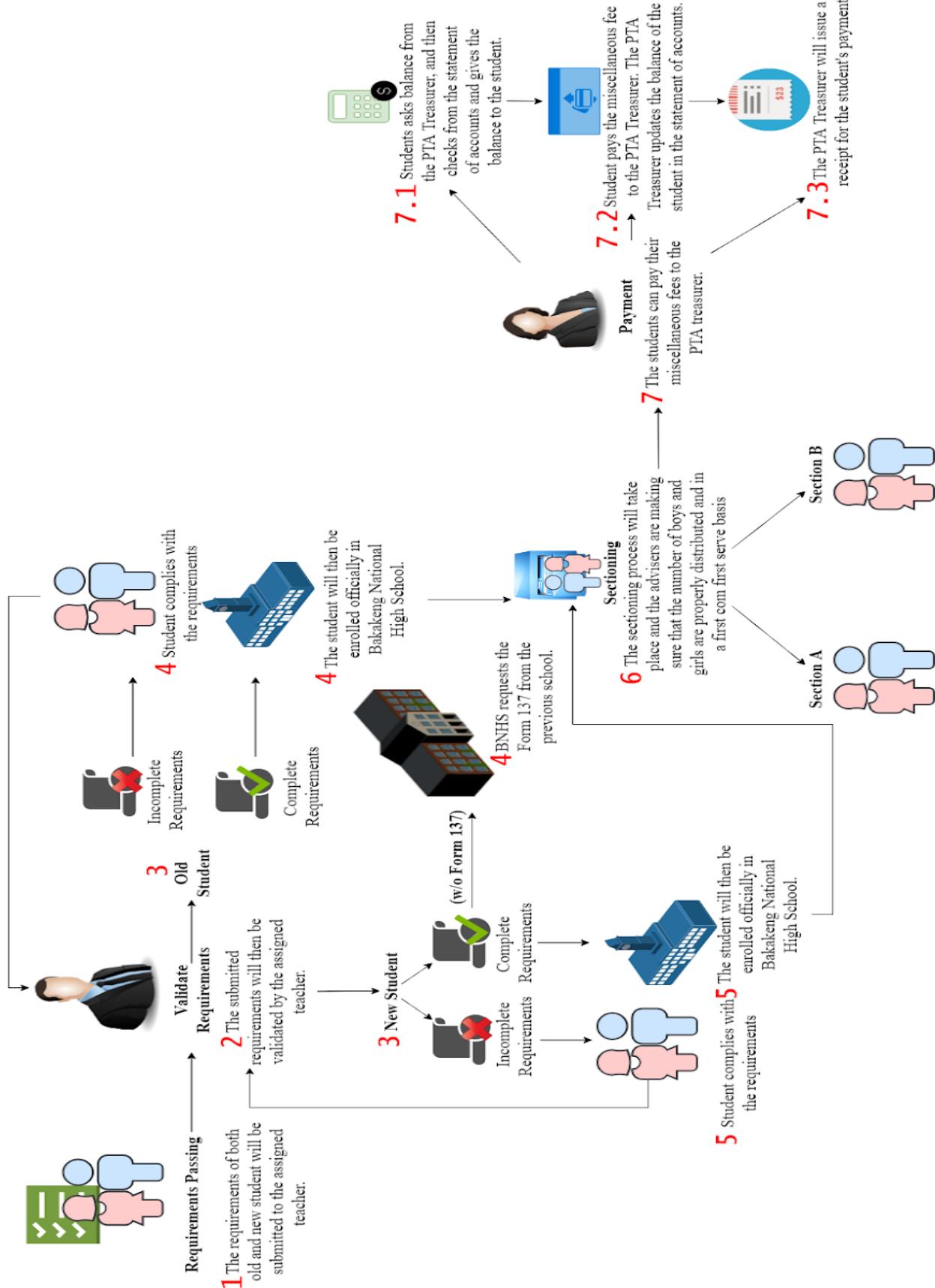


Figure 3. Current Enrollment Process for Old and New Students

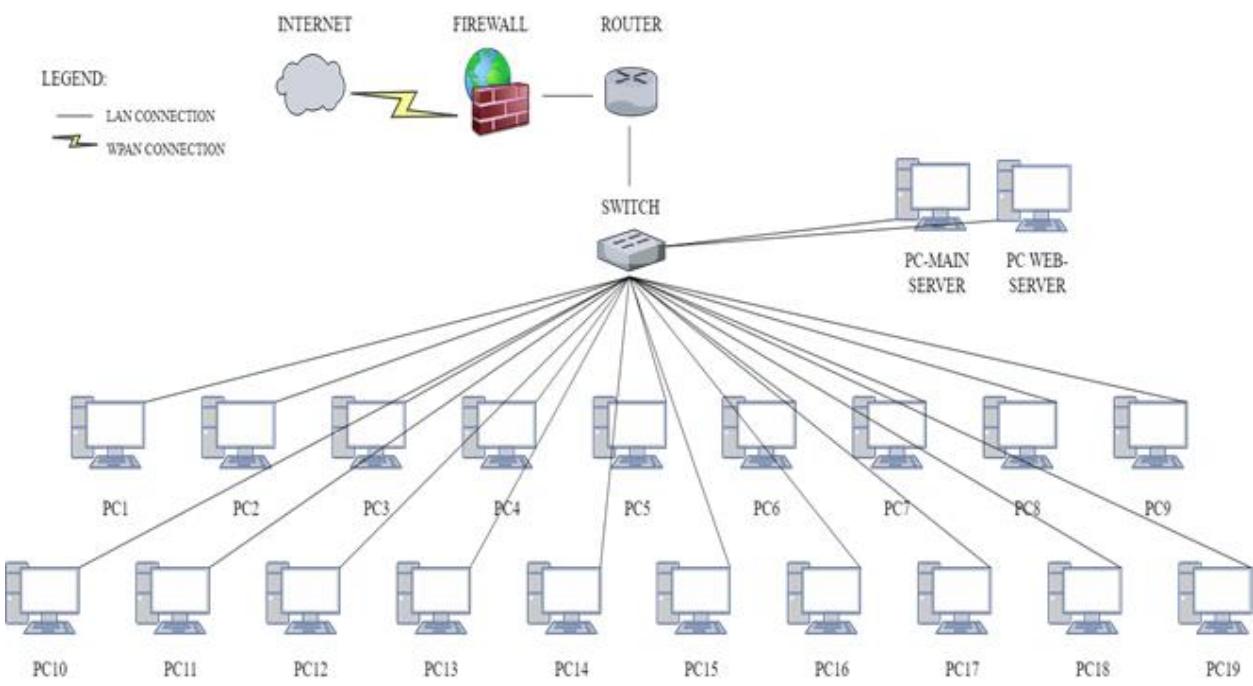
### **1.2.3.5 Report Presentation and Generation**

BNHS need to deliver the reports of every school year such as financial statements and population of the students. For the PTA Treasurer, the report must contain all the necessary information of the payment such as the actual amount of money paid, the payment date, the name of the student, and whether or not the student is cleared. The purpose of this report is to establish the needed information as to how the payment is allocated into the breakdown of their miscellaneous fees for the school year. On the other hand, for the number of students in each school year, this report is generated to record the number of students that is added in each school year which can help them conceptualized future goals such as construction of new classrooms and for allocating funds for the activities and events of students.

### **1.2.3.6 Dissemination of Announcements**

BNHS currently relies on day to day encounter to relay the information with respect to specific events or activities that will be done in the school year. The head teacher in charge have to disseminate the necessary information to the different teachers in each department and tell it to their respective classes. For the PTA assembly, the assigned PTA officer would have to inform student's parents about the PTA meetings as well as the other announcements with regards to their child's activities in the school.

## **1.2.4 IT Infrastructure**



*Figure 4. Current IT Infrastructure of BNHS*

As illustrated in Figure 4, BNHS has 21 computers which is utilized by both student and teachers. The student uses the computers for their activities and assignments, while the teacher uses the computers for their school work and creation of events.

### **1.2.5 Problems Encountered**

<b>STUDENTS</b>	<b>POPULATION</b>
Grade 7	96
Grade 8	85
Grade 9	70
Grade 10	68
<b>TOTAL</b>	<b>319</b>

*Table 1. Total population of BNHS (as of 2018)*

As shown in Table 1, the current population of BNHS is 319. Over the years, the student population in BNHS is continuously increasing which makes it harder to record and track student data. The more students are enrolling in BNHS, the storage of physical documents might arise as a problem since they store the information from all their students over the past few years.

The school is currently implementing manual collection of data that uses plainly pen and paper which is vulnerable to data loss and data duplication. Since BNHS uses paper-based work in their processes, certain problems arise such as workload of staff increases, data loss, data duplication and lack of communication which can cause serious effect in the school. Data loss happens or might happen when old forms may fade texts, prints, or handwritings due to some instances like the paper or the form gets wet because of raindrop, absorbed moisture, or because the paper is stocked in a long period of time. Data duplication occurs and might happen when a faculty thinks that a paper or forms are loss or misplaced then fill-out form again. Another problem that arise in the school is the lack of communication between the faculty and the parent, where in some instances, whenever there is a meeting, most of the parents asks the teacher on what is going on about their child's behavior or attendance, statement of accounts, and other school-related activities. Also, after the student is enrolled, there will be no confirmation that he/she is enrolled. Faculty may also get into confusion or uncertainty with respect to the temporarily enrolled students, where they need to find the forms or in the list on who is temporarily enrolled.

On the other hand, the treasurer experience confusion when it comes to the computation of collected payments, lost some list of students who paid, and having hard time in allocating the budget per organization. BNHS had also a hard time on processing the different paperworks especially for presentation of reports for the grades of student.

### **1.2.6 Rationale of the Project and Related Literature**

The rationale of the project is to help improve the processes of workload in Bakakeng National High School. Reasons on why to build the system is because of the different problems that has encountered by the faculties, staff, students, and parents. With this, the developers want to improve their processes by making a student information system in which this would reduce the paper works, and this would make it up for the data loss, data duplication and miscommunication. Due to the problems that has happened, the student information system can be helpful in which the

faculty and staff will be able to easily enroll students, monitor what is currently happening in the school, and through the system they will be able to check the different data that has been updated in the system, in which this could cover up the data loss and data duplication. On the other hand, for the miscommunication of the parent and faculty, there would be a module in the system where the parent will be notified with the use of the website whenever there are meetings, and can monitor the child's activity or performance in school, so with the use of the system, there wouldn't be any miscommunication between the parent and the faculty. In addition, the system will also have a feature of filtering or searching for students, so that the faculties will be able to easily find out if who is still a temporarily enrolled in the school, instead of looking for the forms or list of the temporarily enrolled students.

The journal with a title "Web Based Student Information Management System in Universities: Experiences from MZUZU University" will support the discussion about the concept of Student Information System. Most paper-based processes could no longer handle student's record effectively especially when there is a lot of manual storing of student's information. Nowadays, SMS have been described as Student Information Systems (SIS). Maere(2011) explains that the SMS handles the administration part of students which includes; admission, examination records, assessment process, finance, room allocation, transcripts, students union electronic voting, mobile text messaging, examination results feedback. Therefore, it is certain that in most institutions of higher learning, online student management systems are created in house to assist in registration of students, student online profiling, financial recording, examination grades records, transcript generation, student accommodation management, and keeping student records (Maere, 2011; College of Medicine (CoM), 2016 & Mzuzu University Annual Report, 2015).

### **1.3 Statement of Objectives**

The objective of the project is to develop a web-based student information system for Bakakeng National High School that will be used by the faculty, ICT Coordinator as the administrator, students, and parents.

The specific objectives are the following:

1. To determine the functional and non-functional requirements that are needed in the system.
2. To determine the features and modules that will be implemented in the system.
3. To identify the system & data design that will be used in the system.
4. To develop a student information system that will cover the enrollment, finance, reports and grading system.
5. To determine the testing methods and tools to be used in verifying the system then to develop a plan for the deployment of the system.

### **1.4 Scope of the Project**

The developers will develop a web-based Student Information System for Bakakeng National High School (BNHS). The project's scope is the automation of manual processing of records of BNHS such as the actual enrollment, managing of sections, uploading of notes, posting of events/announcements, attendance of students, assessment fees to be paid by the enrollee, storing of student information in a central repository, tracking of student's record, and printing the assessment fee of the student. The proposed system will also include the printing of the Form 138 (Report

Card) and report generation of account balances of students and archiving of data at the end of the school year. Throughout the discussed scope, this will lessen the problems encountered due to the automation of some of the processes. In addition, the scope of the system will be able to guide and help the faculties, students, and parents of Bakakeng National High School (BNHS). The Student Information System can only be used by the system administrator, faculty, student and parent. The system would not include printing of receipts and Form 137.

### **1.5 Significance of the Study**

The proposed project will improve the manual storing of files, management of student's statement of accounts and student's record, student data and all other manual processes of Bakakeng National High School that are stated in Section 1.4.

The system that will be developed will redound to the benefit of the school considering that the manual processes will be automated. Thus, the enrollment of students will be faster than usual as their data are already stored in the system. The teachers will easily track student records such as grades, absences, and the system will also help them to facilitate the enrollment process such that managing sections has an ease, and they will just look for the students' records in the system for enrolling students. The treasurer will also have an ease in computing the collections and the system will help him/her to manage the payments for budgeting as to what organization or group will the money be allocated. The parents will also benefit from the system as they will have their own accounts and be notified about school events like PTA meeting and getting of report cards (Form 138).

## Chapter 2

### METHODOLOGY

This chapter discusses the methodology which defines the methods that was used throughout the creation of the proposed project. It also has seven subsections that are being discussed below. The methodology provides a significant part in the making of the project, and each part of its section provides different discussions about how the proposed project was constructed.

Before the implementation of the project, the crucial phase is the detailed requirement stage where all the system functional requirements shall be understandable and analyzed well by the developers. The figure below shows the following phases of the modified waterfall model.

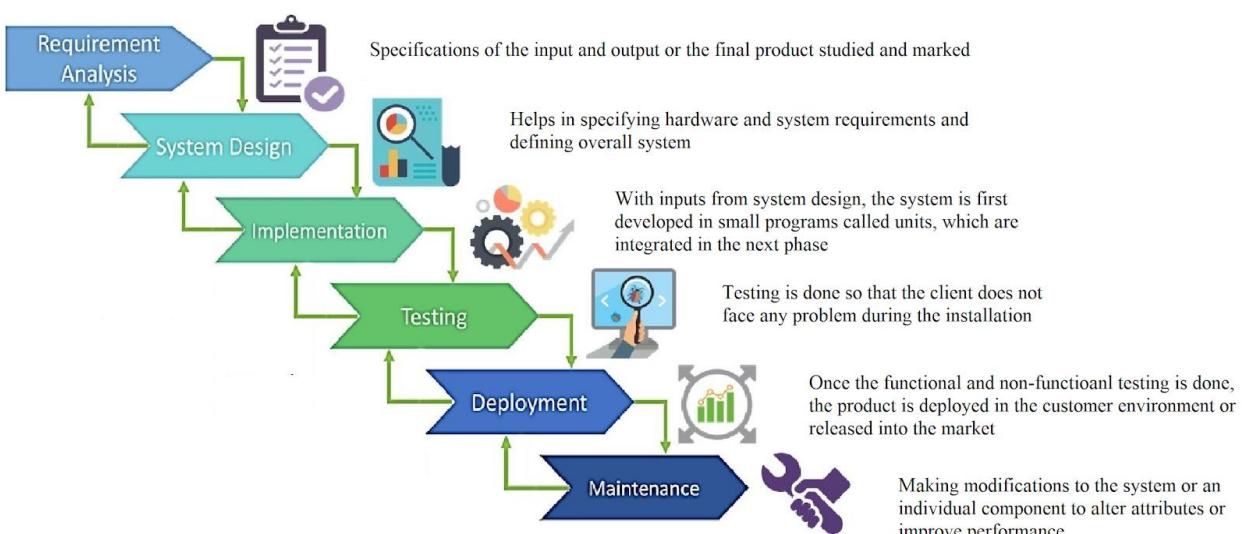


Figure 5. Modified Waterfall Process Model for BNHS (Rayo, L., 2015 January 30)

As illustrated in Figure 5, the developers have utilized modified waterfall model for the project due to its advantages such as its flexibility to go back to the phases. Once the system has some revisions, it will go back to its previous stages to make some changes and be able to produce an output accordingly. Moreover, this model has additional arrows added from the maintenance stage up to its recent stages where it explicitly specifies that after the web-based student information system of BNHS is deployed, there are expected changes that will be based from the feedback of the clients thus applying versions in the product. It will also imply a key role for the developers in ensuring the appropriate functionalities of the system that will support them with a better version of a future web-based student information system of BNHS. In the software engineering methodology, maintenance will still be part of the model. However, the developers will not cover and proceed to the maintenance phase because it will already be on the administration side of Bakakeng National High School given that the user manual of the system will be provided by the developers. In addition, the duration of the project development is only in the course of a limited time.

#### **2.1 Identifying the Functional and Non-Functional Requirements**

The requirements for the proposed student information system in Bakakeng National High School were collected and gathered through an interview with the ICT Coordinator of BNHS, observation within the school premises, and form analysis of some resources needed by the developers such as the actual enrollment form and the

clearance of the students. Based on the observation of the team members, they were able to identify some of the processes needed for the development of the system such as the functional and non-functional requirements. The ICT Coordinator explained all the current manual processes in their school such as the enrollment process, gathering of student data, collection and computation of payments, dissemination of announcements, and specified all of the needs and requirements for the system that will be developed. Computer specifications were also asked for possible technologies and development tools to be utilized in the future development of the project.

The developers have validated all the requirements that were specified in the interview and added some functionalities so that the stakeholder's requests and system requirements shall be entirely addressed. DepEd's requirements and protocols for enrollment system of public schools are also considered to come up with the functional and non-functional requirements of the proposed system.

## **2.2 Identifying the Features and Modules of the System**

In identifying the features and modules, the team will interview the stakeholder so that the team would be able to identify most if not all the common problems in the school. The team will also observe the work flow to identify different tasks in the school that is taking too much time and workload. By obtaining these issues, the team would be able to develop a specific features and modules as a solution to their problem by assuring that this features and modules would lessen the time they have spent on that task and the workloads.

## **2.3 Identifying the System and Data Design**

This section discusses how the developers will design the system based on the specifications that the stakeholder has provided. These specifications should clearly be discussed because it includes the integration of the problems encountered and the identified features and modules of the system that will address the specified problems. By identifying the system and data design, the different technologies will be conceptualized based on the specifications that was clearly identified and specified.

### **2.3.1 Identifying the System Design**

Through interviews and observations, the developers assessed what the client have specified as their needs and will have to analyze the requirements to identify the features and modules of the system. Once the features and modules have been identified, the developers will have to research the different technologies that will be utilized and mapped on the features and modules of the system. The system architecture will have to be constructed once the different technologies have been identified for the design of the system. The system architecture will depict the integration of the features and modules of the system and the technologies that will be utilized in order to make the system function.

### **2.3.2 Identifying the Data Design**

The design of the system will be created with the use of all the different tools with its corresponding features which the system will need in the present and future use. The design of the system will be produced using different design models which includes different diagrams such as the Entity-Relationship Diagram (ERD) with its Schema, Data Flow Diagram (DFD) to foresee or illustrate what will be the flow and

actual design of the data in the system, UML Diagram, and Use Case Diagram for the interaction of elements in the system.

## **2.4 Identifying how the system will be Developed**

On the development phase there will be different diagrams that will be created which contains the different functionalities of each modules, and a system architecture to distinguish each technology from one another, this diagrams and system architectures has been created to serve as a map for the developers, and the team will use a specific tool for developing the system. These tools are text editor, the text editor will be utilized to edit the different files of the website; the team will also utilize a visual database design tool for editing the database; tools for editing images; the team will also utilize a tool for mockup or prototype, this tool will be a guide for developing the front-end of the website; the team will also utilize some existing frameworks and libraries for some the front-end functionalities; and lastly the team will use a cross-platform web server solution for local development. The system will adapt some of the existing designs of related research on existing student information systems and this design will carefully be picked as to who will use the system so that all the end-users would be able to use the system easily.

## **2.5 Identifying how the System will be Tested & Deployed**

### **2.5.1 System Testing**

When the development is done, this is where the testing phase will start. The testing part is an activity which is performed with the gathered requirements of the system. The testing part will determine if there are more changes that are needed, if the project is almost done, or if the project is close to being deployed. In addition, the testing part will also determine if the project is near to the goal that has been set and if the requirements has been met base on the client's requests. The techniques were (1) functional testing checks every validation of the field, check the database connections if there are no errors shown, check if there are no wrong redirects and what will happen when there are wrong inputs, (2) usability testing validates if the website is easy to use, test the content of the website, check if the words are clear to the users and there are no wrong grammars, (3) interface testing that checks and tests if the database is sending the request correctly and being displayed correctly. Check if the web server is on proper use that would not cause error handling and service denial, (4) database testing that checks all the responses made on the database and when the queries are all okay, check and test if the retrieved data from the database is accurate from the web application, and (5) compatibility testing that checks if it is suitable for the system through the available browsers that the compatibility of the system will be probable to the operating system. As shown in Table 3, it shows the different testing tools that will be utilize in the development of the system.

### **2.5.2 System Deployment**

After the local development and system testing, the system will be hosted online. In hosting the website, the team will choose an appropriate web hosting provider and after choosing a web hosting provider the team will deploy the system using a file transfer protocol tool. For the database, the team will utilize a database design tool to import the database used in local development. After hosting the system and

importing the database, the team will execute a final testing to assure that the system was successfully deployed.

## **2.6 Time Frame**

A time frame indicates the different time allocation per phase. All the stages such as the research, requirement and analysis, system design, implementation, testing, deployment, and the maintenance stage are being classified according to the heaviness of load that will be utilized during and after the creation of the project. (See Appendix D)

## **Chapter 3**

### **OUTCOMES AND RESULTS**

#### **3.1 Functional and Non-Functional Requirements**

From the requirements analysis phase and through understanding the business process of BNHS, the functional and non-functional requirements were identified. The functional and non-functional requirements were thoroughly identified through observation, interviews, research, and forms analysis. The functional requirements specify the different features and functionalities of what the system should perform. On the other hand, non-functional requirements discuss the system's behavior once it will be deployed.

##### **3.1.1 Functional Requirements**

In Table 2, it depicts the different set of functional requirements that is categorized by modules. The different modules specify the different users of the system and provides their rights and limitations in accessing the system.

<b>Module</b>	<b>Description</b>
	<ul style="list-style-type: none"><li>• <b>Admin</b></li><li>• <b>Faculty</b></li><li>• <b>Treasurer</b></li><li>• <b>Parent</b></li><li>• <b>Student</b></li></ul> <ul style="list-style-type: none"><li>• The system can enable the functionality of login and logout.</li><li>• The system can create, update, and delete classes and subject in each school year.</li><li>• The system can create and update accounts for the users.</li><li>• The system can update miscellaneous fees.</li><li>• The system can add Fee Type</li><li>• The system can archive the information in each school year.</li><li>• The system can add, view, update, and delete announcements or events.</li><li>• The system can record the logs.</li><li>• The system can generate reports.</li><li>• The system can show and update user's personal information.</li><li>• The system can enroll the students.</li><li>• The system can generate sections for the students.</li><li>• The system can save data from forms to enroll students.</li><li>• The system can create, show or update a class schedule.</li><li>• The system can post, download, update, and delete notes or attachments.</li><li>• The system can upload and show the student's grades and remarks.</li><li>• The system can show and update the student's attendance.</li><li>• The system can print the assessment fee of the</li></ul>

	<p>student.</p> <ul style="list-style-type: none"> <li>• The system can show and update the statement of accounts.</li> <li>• The system can show and update the Breakdown of Fees</li> <li>• The system can allocate budget for different fees.</li> <li>• The system can show the payment transaction history.</li> <li>• The system can show the total amount collected.</li> <li>• The system can show Statistics of collected payments.</li> <li>• The system can show users such as the Admin, Faculty, Student, Parent, and Treasurer.</li> </ul>
--	--

*Table 2. Functional Requirements*

### **3.1.2 Non-Functional Requirements**

As shown in Table 3, it depicts the set of non-functional requirements of the system that explain how the system should behave in certain circumstances. The following set of requirements is defined in accordance to how the system will be developed.

<b>Module</b>	<b>Description</b>
<ul style="list-style-type: none"> <li>• <b>Admin</b></li> <li>• <b>Faculty</b></li> <li>• <b>Treasurer</b></li> <li>• <b>Parent</b></li> <li>• <b>Student</b></li> </ul>	<ul style="list-style-type: none"> <li>• The system must be able to perform the different processes with the right amount of response time and cater to the user's needs.</li> <li>• The system must secure all the necessary information with regards to all the data in the website.</li> <li>• The system must verify the integrity of data in the system.</li> <li>• The system must be responsive in terms of all the devices being used.</li> </ul>

*Table 3. Non-Functional Requirements*

## **3.2 Features and Modules of the System**

After the developers gathered the requirements, the features and modules were organized and classified accordingly. The subsections below discuss the set of features classified into the modules namely Admin Module, Faculty Module, Treasurer Module, Parent Module, and Student Module. The set of modules shows the relationship of the users in the system and the different functions they can perform.

### 3.2.1 Use Case Diagram

As illustrated in Figure 6, it shows the different set of operations that the admin can perform once he logs in in the website. The administrator plays a key role when it comes to the engaging in the system.

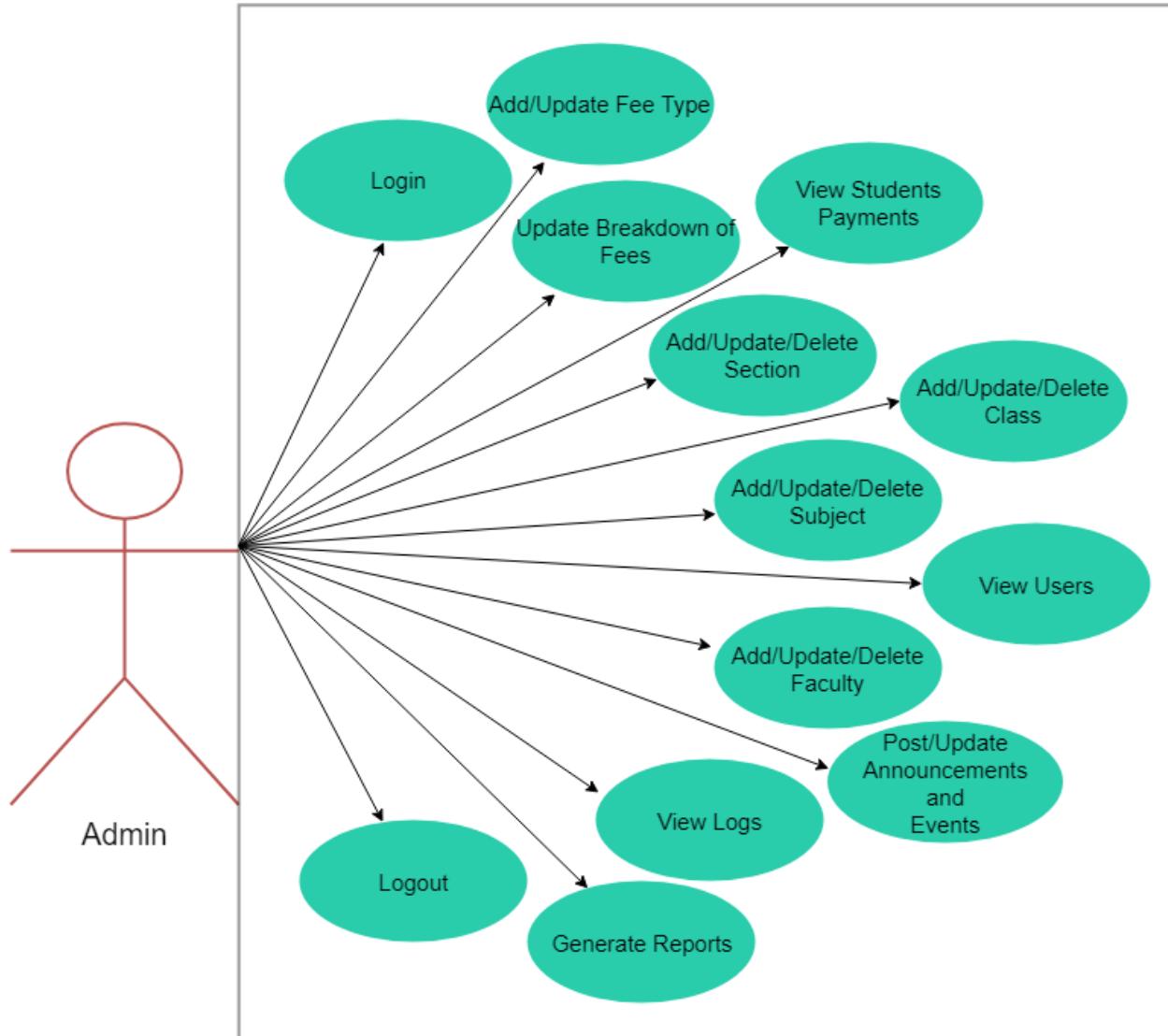
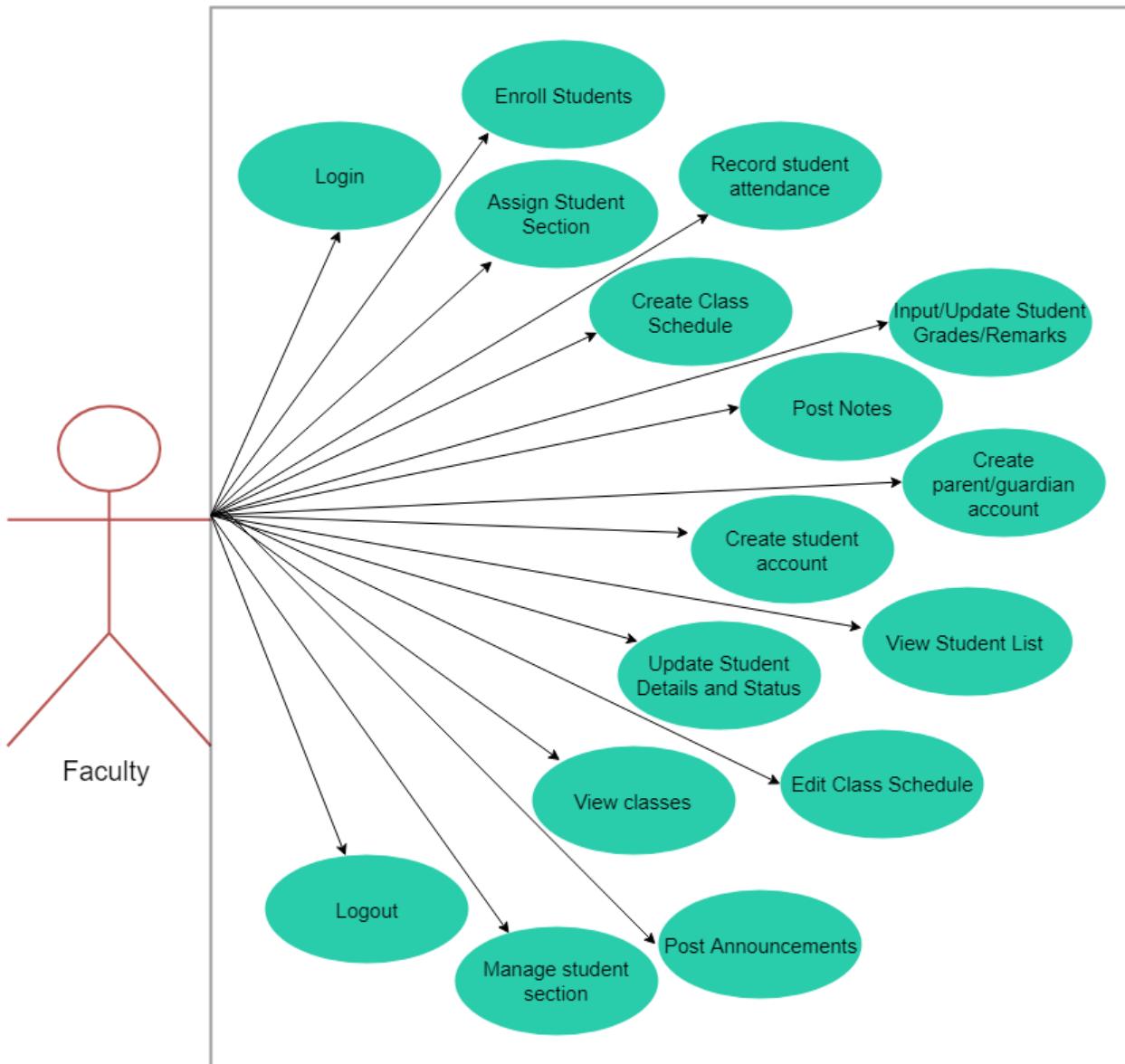


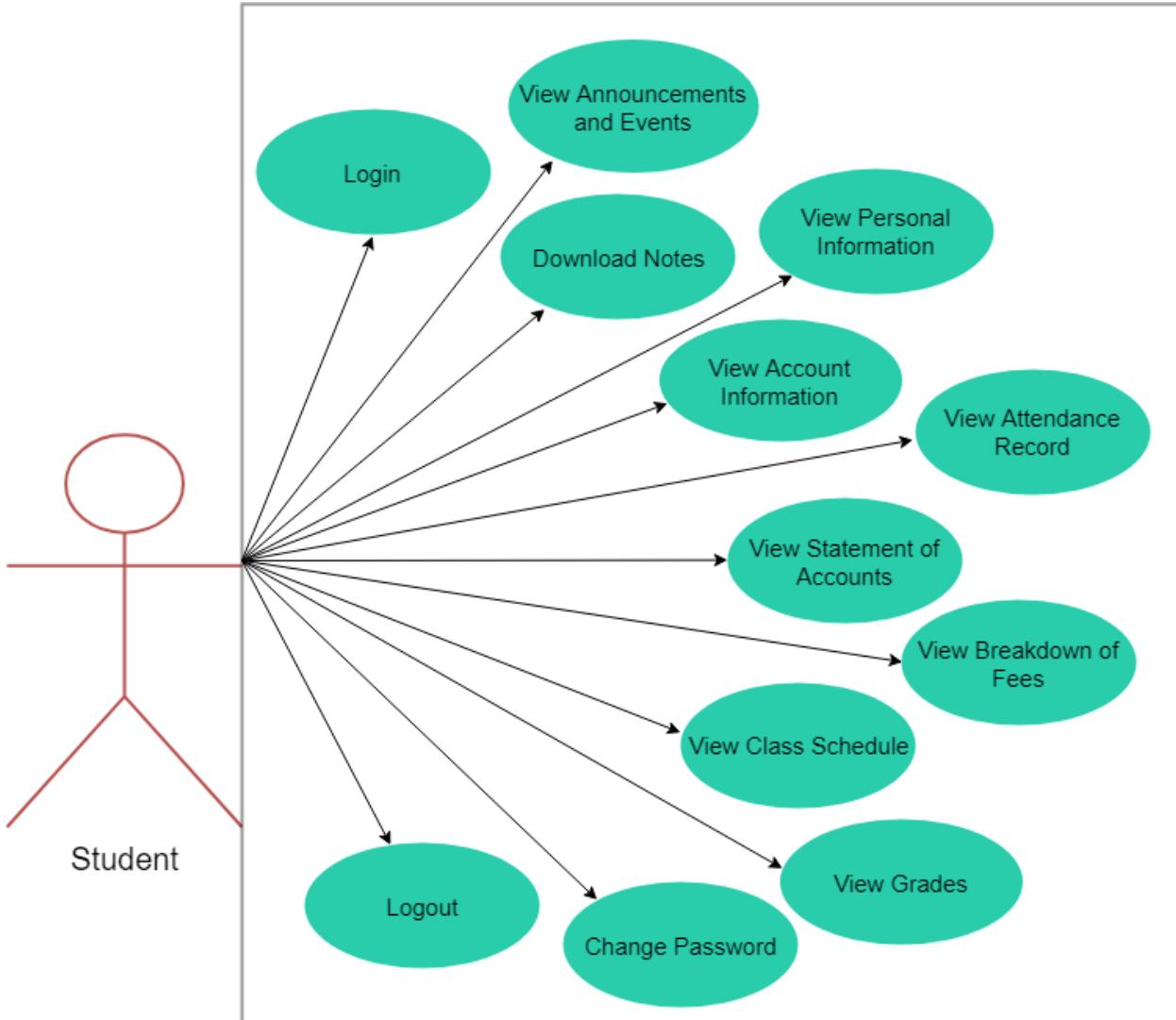
Figure 6. Admin Module

As illustrated in Figure 7, it displays the functions that the faculty can perform once logged-in in the system. The functionalities enable the faculty to enroll the students in the system which facilitates fast transaction and processing of student's information in the system.



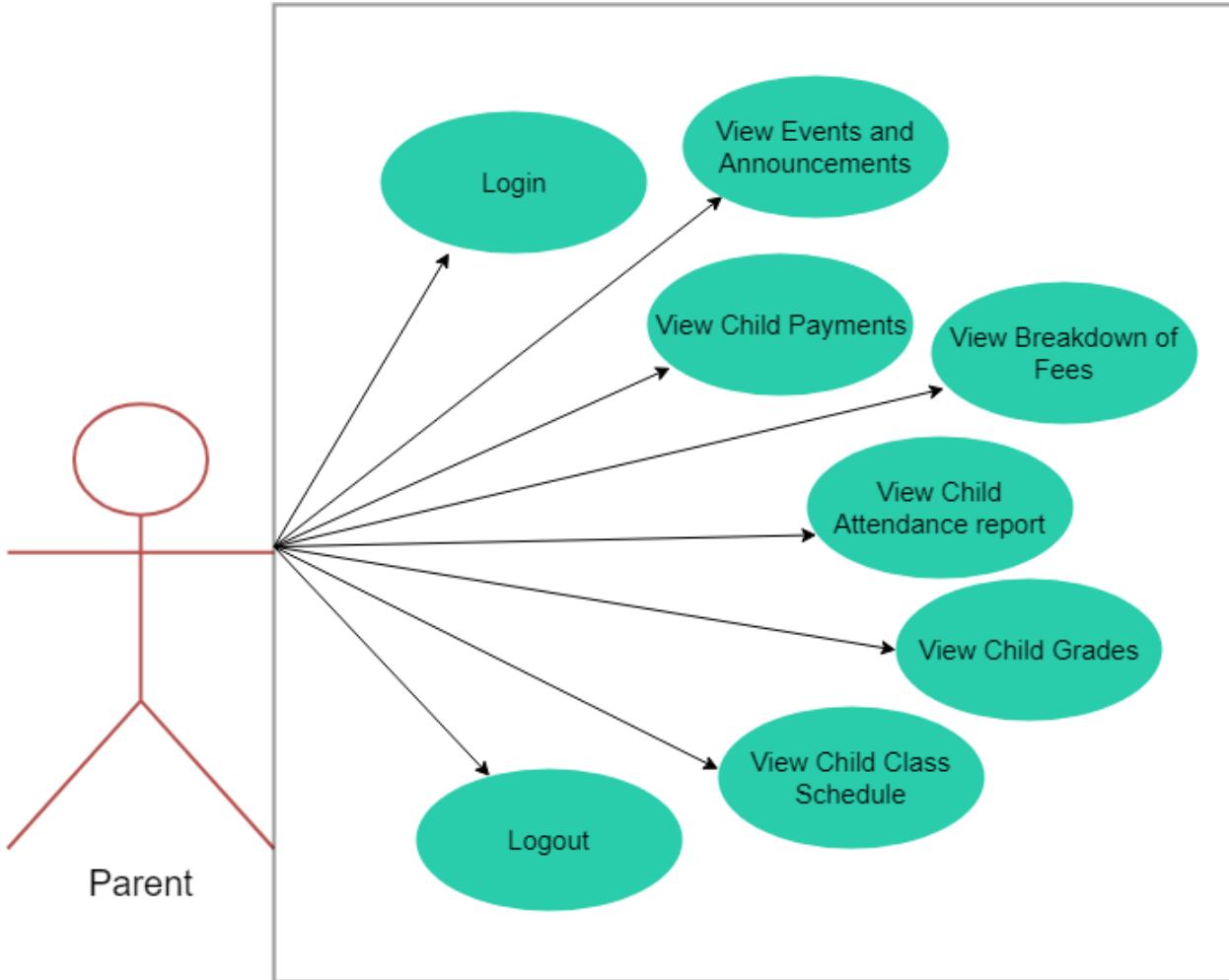
*Figure 7. Faculty Module*

As illustrated in Figure 8, it depicts all the functionalities that the student can perform using the system. With the different functions stated below, the system can help the student in managing the necessary things with regards to his performance in the school.



*Figure 8. Student Module*

As illustrated in Figure 9, it describes the functionalities that is certain to the parents of the students. It incorporates the participation of the parents to easily correlate the information between their child and his performances.



*Figure 9. Parent Module*

As illustrated in Figure 10, the functionalities of the PTA Treasurer is described below. The PTA Treasurer is part of the parent teacher association but with his participation, the transaction of payment will be easier and tracked easily.

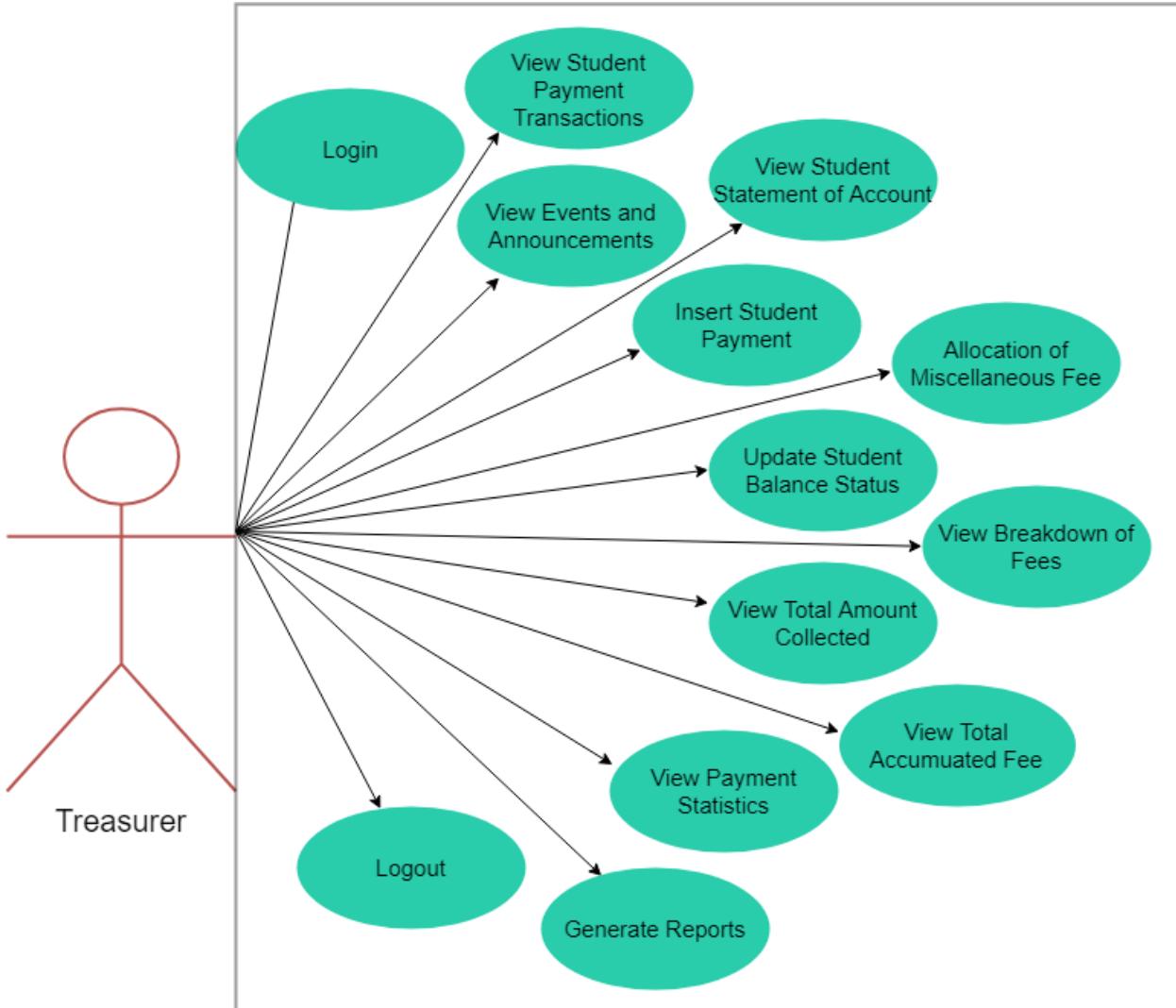


Figure 10. Treasurer Module

### 3.2.2 Admin Module

As illustrated in Figure 11, the admin is responsible in creating and managing all the account of the users. He is the one who will input the miscellaneous fee every school year. The admin can also view the statement of accounts of the enrolled students. The admin can create and view all the classes that will be assigned to the faculty. The admin can archive the information of the previous school year and can generate a report. Lastly, the admin can also create and view subjects that will be assigned to the enrollees.

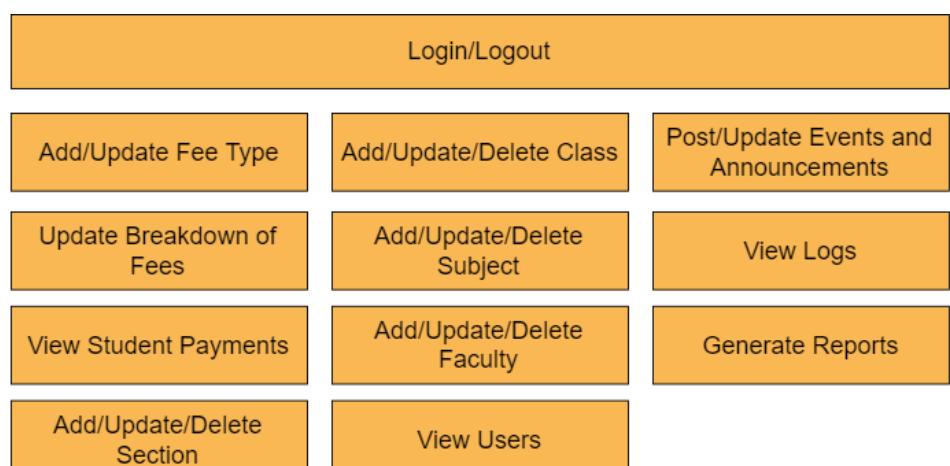


Figure 11. Features of Admin Module.

### 3.2.3 Faculty Module

As illustrated in Figure 12, the faculty is able to validate requirements of every enrollees which is a first-come-first-serve basis and once validated, then the students will be enrolled. After a student have been enrolled, the faculty can assign the section and create a class schedule per section. Also, the faculty can input the scores of the students of their activities that results to the computation of grades. In addition, the faculty can check their attendance through the system whether the student is late, absent, drop, or call parent if the student has many absences or drop subject. The faculty can also post some notes needed by their students and be able to generate a report.

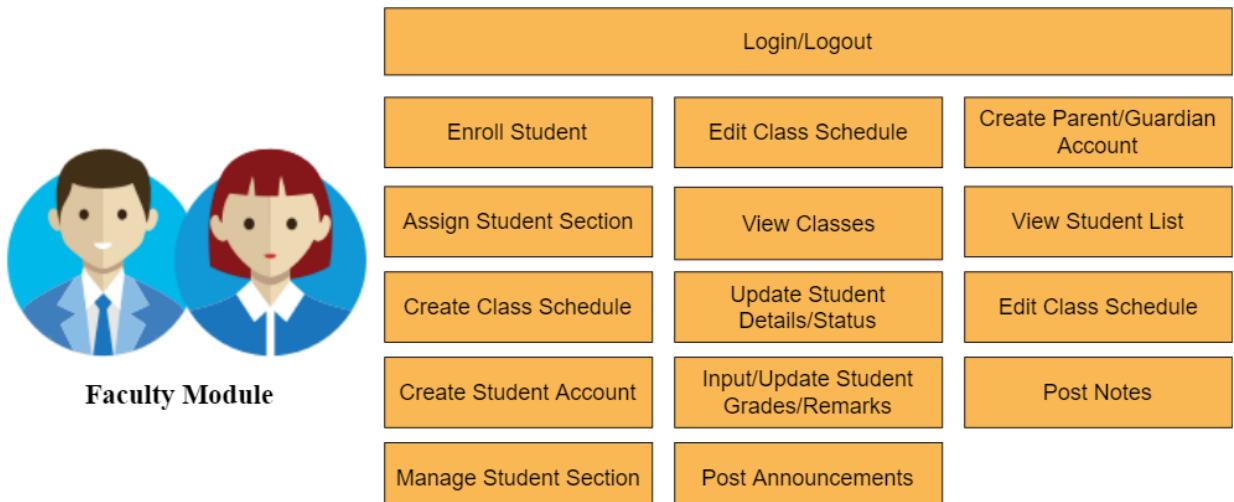


Figure 12. Features of Faculty Module

### 3.2.4 Student Module

As illustrated in Figure 13, once a student has been enrolled into a particular class, they are ablaze e to view their grades, attendance record, statement of accounts (breakdown of their miscellaneous fees) and can view all the events and announcement of their teachers in a particular subject. Moreover, the student can download and view their notes that was uploaded by their teacher.

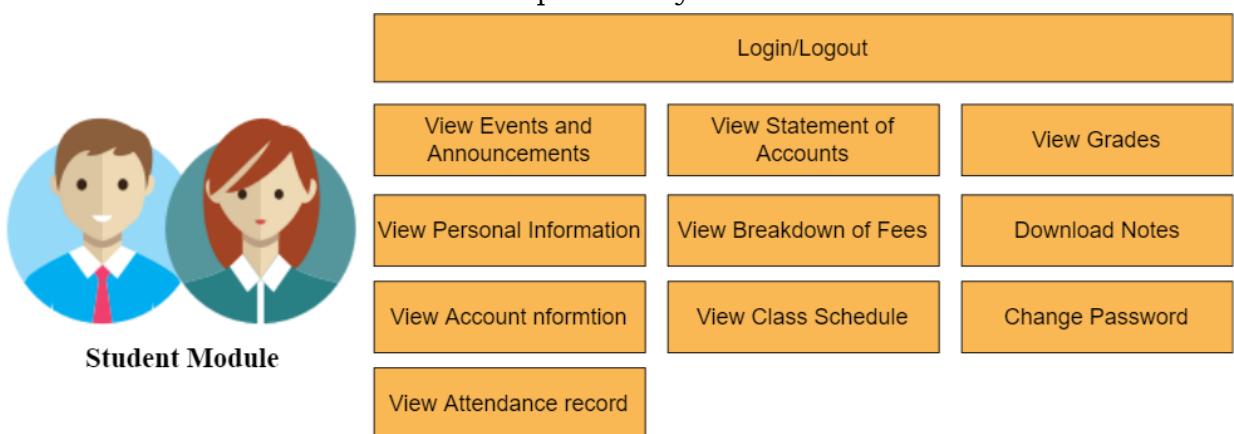


Figure 13. Features of Student Module

### 3.2.5 Parent Module

As illustrated in Figure 14 once the parent has logged-in into the system, they are able to view the statement of account of their child, announcements of the school, and also view the attendance of their child once their child is drop, absent, or even late.

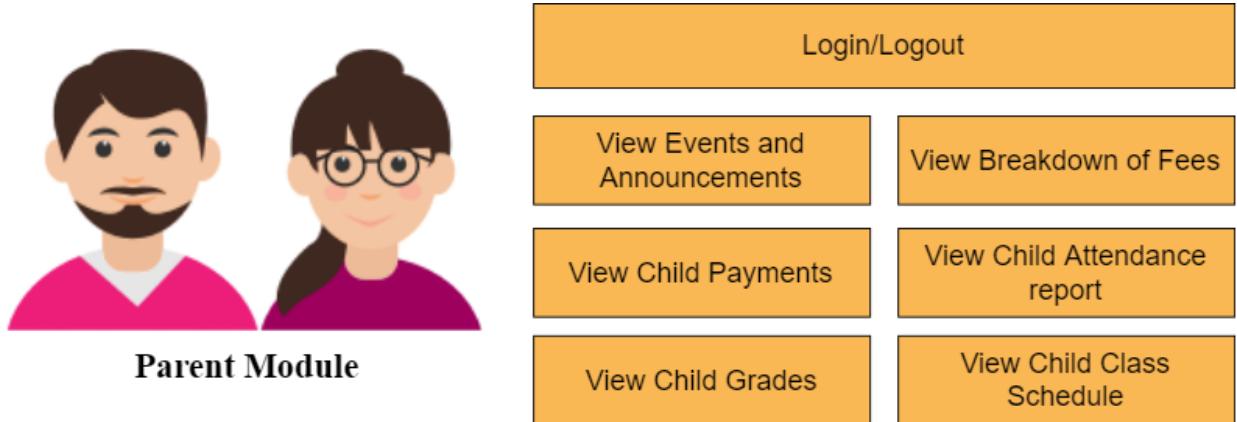


Figure 14. Features of Parent Module

### 3.2.6 Treasurer Module

As illustrated in Figure 15, the treasurer can view the statement of accounts of all the students who are currently enrolled and be able to update their statement of accounts once they pay. The assigned treasurer is responsible and accountable in budgeting all the collected payments from the students and the school itself.

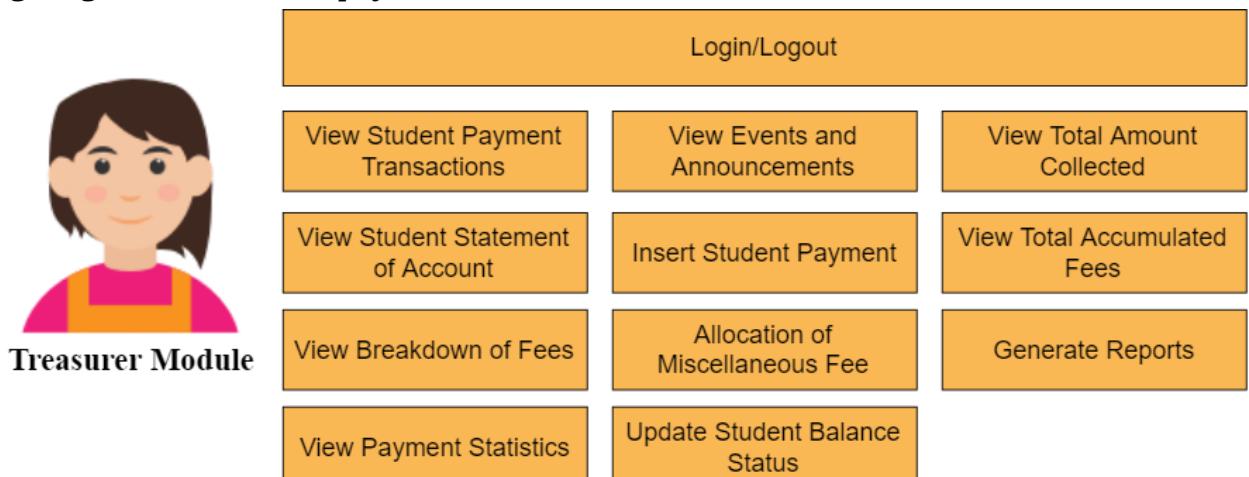


Figure 15. Features of Treasurer Module

## 3.3 System and Data Design

This section shows the results of the design models mentioned in Chapter 2.3. The different design models that were created are based from the requirements that was specified by the client, and all the diagrams represent the design of the system.

To summarize all the above-mentioned diagrams such as the ERD and DFD they are being utilized to suffice all the required specification for the system, end-users and most especially for the stakeholders.

### 3.3.1 System Design

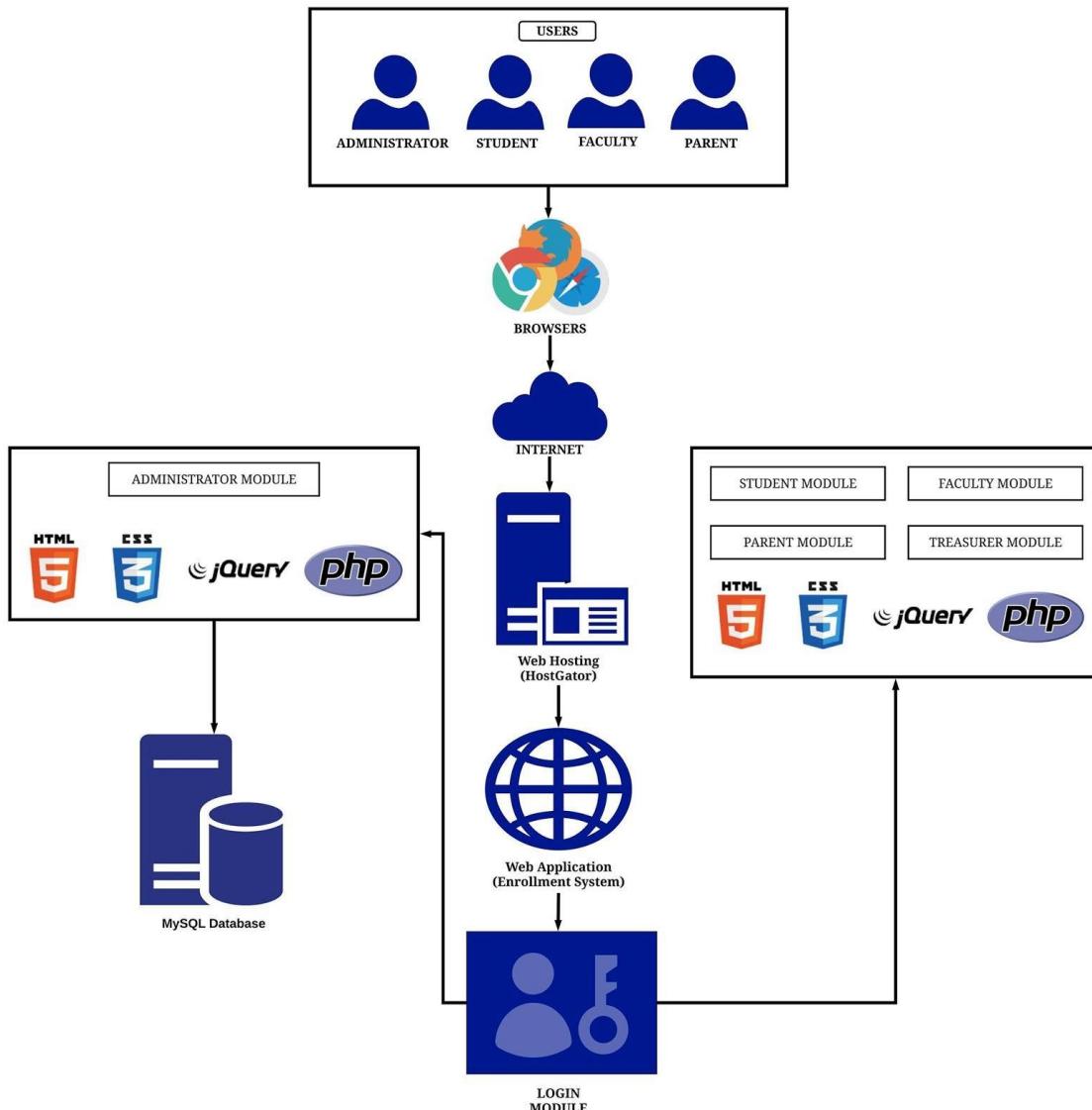


Figure 16. System Architecture of the Web-based Enrollment System

As illustrated in Figure 16, it shows the system architecture of the web-based student information system, the figure shows that the users can access the web application through different platforms such as Google, Mozilla Firefox and other browsers. The figure shows all the technologies used for the system including front-end, back-end and services such as MySQL and HostGator.

### 3.3.2 Data Design Tools

The Design Specification Tools are tools needed for the creation of different diagrams such as the Entity-Relationship Diagram (ERD), Data Flow Diagram (DFD), UML Diagram, and Use-Case Diagram. As shown in Table 4, it shows the tools that the developers will use for the development of such diagrams.

<b>Visual Paradigm</b>	<ul style="list-style-type: none"> <li>It is a UML CASE tool that supports UML 2, SysML and Business Process Modeling Notation (BPMN) from the Object Management Group (OMG). It gives engineering of code and report generation capabilities which includes code generation.</li> </ul>
------------------------	--

<b>Gliffy</b>	<ul style="list-style-type: none"> <li>• It is an HTML5-based diagramming online tool that offers two diagrams for free. It is also a cloud-based application that supports to draw amazing flowcharts along with other diagrams such as SWOT Analysis, Floor Plans, and Site Maps by using your own browser. It can also be used to make real-time flowcharts and even revise them while working on browser. Once finished, you can simple share the URL (read-only) of your flowchart on various social networking websites.</li> </ul>
<b>LucidChart</b>	<ul style="list-style-type: none"> <li>• Lucidchart is a free but limited web-based application that enables users to quickly create different diagrams such as UML, ERD, DFD, and Site Map. It provides different shapes so the user can quickly insert any shapes anywhere in the canvas, it is limited to 60 objects on free accounts and unlimited objects for premium accounts, and each shape contains a text box which can be easily modified, you can also connect different shapes with lines. It has flexible canvas, it extends as the user inserts more shapes. It also supports collaboration, so that users can collaborate anytime, anywhere.</li> </ul>
<b>Createley</b>	<ul style="list-style-type: none"> <li>• Createley is similar with lucidchart, it is a free web-based application that allows to create 5 diagrams for free accounts and unlimited diagrams for accounts with plan. It has drag and drop interface for quick and easier use. It provides different shapes specifically for each type of diagrams. It has also real-time collaboration, to enable users to work with other users. It also contains thousands of examples and libraries for users to guide and help them in creating diagrams.</li> </ul>

Table 4. Design Specification Tools

### 3.3.3 Data Design Specifications

The *Entity Relationship Diagram (ERD)* will show all the needed entities to suffice the whole functionalities of the student information system of BNHS. The database schema will help the developers to develop the database and will also show the database structure of the system. The use of the ERD is for database design, database troubleshooting, business information systems, business process re-engineering, education, and research.

The *Data Flow Diagram (DFD)* will depict the different flows of the data and will provide the model that shows of what the system will do. Data flowcharts can range from single even hand-drawn process overviews, to in-depth, multi-level DFDs that dig progressively deeper into how the data is handled. They can be utilized to analyze an existing system or model a new one.

The *Unified Modeling Language (UML)* diagram is being utilized to help the system and software developers for visualizing, constructing, specifying, and documenting the artifacts of software systems as well as for the business modeling and other non-

software systems. This is an essential component of developing object-oriented software and the software development process.

The *Use Case Diagram* is used to show the interaction with the elements of the system. This diagram is the methodology used in the analysis, identification, clarification, and organization of the requirements of the system. These diagrams are used to describe a set of actions that some system can perform in collaboration with one or more external users of the system (actors).

### **3.3.4 Entity-Relationship Diagram**

As illustrated in Figure 17, it depicts the ER diagram of the system. It explains the different entity that holds the various data that will be used in the system. It covers the data of the whole student information system. It also depicts the set of different relationships from entity to entity in the system.

### **3.3.5 Relational Database Schema**

ACCOUNTS (acc\_id, username, password, acc\_status, acc\_type, acc\_details, timestamp\_acc)

ADMANN (adminn\_id, annn\_id)

    FK adminn\_id REFERENCES admin NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    annn\_id REFERENCES announcements NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

ADMIN (admin\_id, adm\_fname, adm\_lname, adm\_midname, acc\_admid)

    FK acc\_admin REFERENCES accounts NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

ANNOUNCEMENTS (ann\_id, title, date\_start, date\_end, post, view\_lim, attachment, timestamp\_ann, post\_adminid, post\_facid, gr\_sec)

    FK post\_adminid REFERENCES admin NULLS ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    post\_facid REFERENCES faculty NULLS ALLOWED

        UPDATE CASCADE, DELETE CASCADE

ATTENDANCE (att\_id, att\_date, remarks, timestamp\_att, stud\_ida, fac\_idb, subjatt\_id)

    FK fac\_idb REFERENCES faculty NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    stud\_ida REFERENCES student NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    subjatt\_id REFERENCES subject NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

BALANCE (bal\_id, misc\_fee, bal\_amt, bal\_status, stud\_idb)

    FK stud\_idb REFERENCES student NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

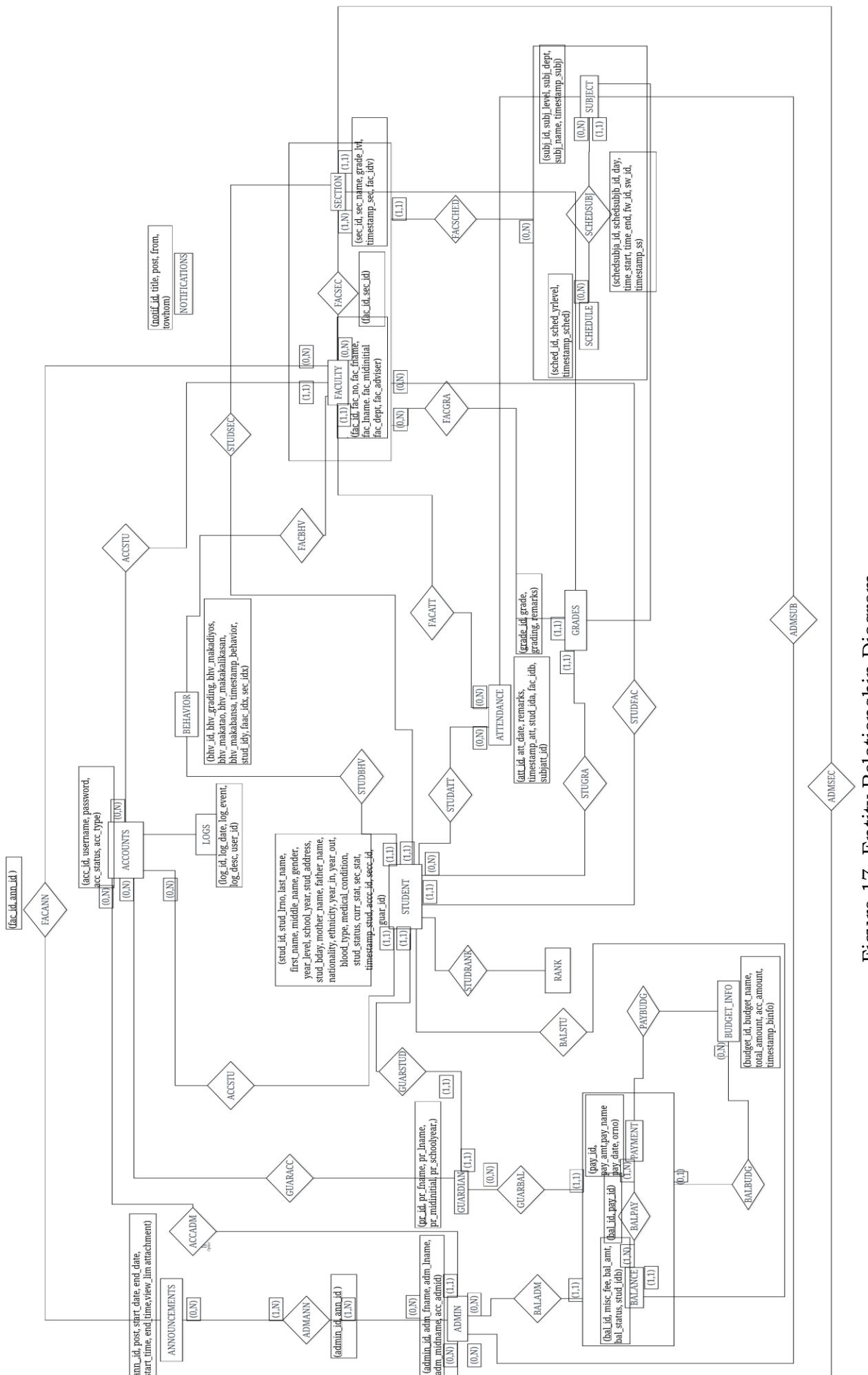


Figure 17. Entity Relationship Diagram

BALPAY (bal\_ida, pay\_ida)

    FK bal\_ida REFERENCES balance NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE RESTRICT

    pay\_ida REFERENCES payment NULLS NOT ALLOWED

        UPDATE RESTRICT, DELETE RESTRICT

BEHAVIOR (bhv\_id, bhv\_grading, bhv\_makadiyos, bhv\_makatao, bhv\_makakalikasan, bhv\_makabansa, timestamp\_behavior, stud\_idy, faac\_idx, sec\_idx)

    FK stud\_idy REFERENCES student NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    fac\_idx REFERENCES facsec NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    sec\_idx REFERENCES facsec NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE RESTRICT

BUDGET\_INFO (budget\_id, budget\_name, total\_amount, acc\_amount, timestamp\_binfo)

CORE\_VALUES (cv\_id, cv\_name, timestamp\_cv)

FACANN (fac\_idb, ann\_ida)

    FK fac\_idb REFERENCES faculty NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    ann\_ida REFERENCES announcement NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

FACSEC (fac\_idy, sec\_idy)

    FK fac\_idy REFERENCES faculty NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    sec\_idy REFERENCES section NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE RESTRICT

FACULTY (fac\_idy, fac\_no, fac\_fname, fac\_lname, fac\_midname, fac\_dept, fac\_adviser, timestamp\_fac, sec\_privilege, acc\_idz)

    FK acc\_idz REFERENCES accounts NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

GRADES (grade\_id, grade, grading, remarks, timestamp\_grades, studd\_id, facd\_id, secd\_id, subj\_ide)

    FK studd\_id REFERENCES student NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    facd\_id REFERENCES faculty NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

    secd\_id REFERENCES section NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE RESTRICT

    subj\_ide REFERENCES subject NULLS NOT ALLOWED

        UPDATE CASCADE, DELETE CASCADE

GUARDIAN (guar\_id, guar\_fname, guar\_lname, guar\_midname, guar\_address, guar\_mobno, guar\_telno, timestamp\_guar, acc\_idx)

    FK acc\_idx REFERENCES accounts NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE CASCADE

LOGS (log\_id, log\_date, log\_event, log\_desc, user\_id)

    FK user\_id REFERENCES accounts NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE CASCADE

PAYMENT (pay\_id, pay\_amt, ramain\_bal, pay\_date, orno, timestamp\_pm, balb\_id, budg\_ida)

    FK balb\_id REFERENCES balance NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE RESTRICT  
    FK budg\_ida REFERENCES budget\_info NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE RESTRICT

RANK (rank\_id, average, rank, gr\_level, stud\_idf)

    FK stud\_idf REFERENCES student NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE CASCADE

SCHEDSUBJ (schedsubj\_a\_id, schedsubj\_b\_id, day, time\_start, time\_end, fw\_id, sw\_id, timestamp\_ss)

    FK schedsubj\_a\_id REFERENCES schedule NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE RESTRICT  
    FK schedsubj\_b\_id REFERENCES subject NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE CASCADE  
    FK fw\_id REFERENCES facsec NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE CASCADE  
    FK sw\_id REFERENCES facsec NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE RESTRICT

SCHEDULE (sched\_id, sched\_yrlevel, timestamp\_sched)

SECTION (sec\_id, sec\_name, grade\_lvl, timestamp\_sec, fac\_idv)

    FK fac\_idv REFERENCES faculty NULLS ALLOWED  
        UPDATE CASCADE, DELETE CASCADE

STUDENT (stud\_id, stud\_lrno, last\_name, first\_name, middle\_name, gender, year\_level, school\_year, stud\_address, stud\_bday, mother\_name, father\_name, nationality, ethnicity, year\_in, year\_out, blood\_type, medical\_condition, stud\_status, curr\_stat, sec\_stat, timestamp\_stud, accc\_id, secc\_id, guar\_id)

    FK accc\_id REFERENCES accounts NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE CASCADE  
    FK secc\_id REFERENCES section NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE RESTRICT  
    FK guar\_id REFERENCES guardian NULLS NOT ALLOWED  
        UPDATE CASCADE, DELETE CASCADE

SUBJECT (subj\_id, subj\_level, subj\_dept, subj\_name, timestamp\_subj)

TREASURER (tr\_id, tr\_fname, tr\_lname, tr\_midname, tr\_sy, acctrid)  
 FK acc\_trid REFERENCES accounts NULLS NOT ALLOWED  
 UPDATE CASCADE, DELETE CASCADE

### 3.3.6 Data Flow Diagram

As illustrated in Figure 18, the Data Flow Diagram explains how the different data input and output will be processed in the system. The different input and output are based on the different users of the system. The processes are the different features and functionalities of the system that helps the system in performing the transformation of the input to its desire input.

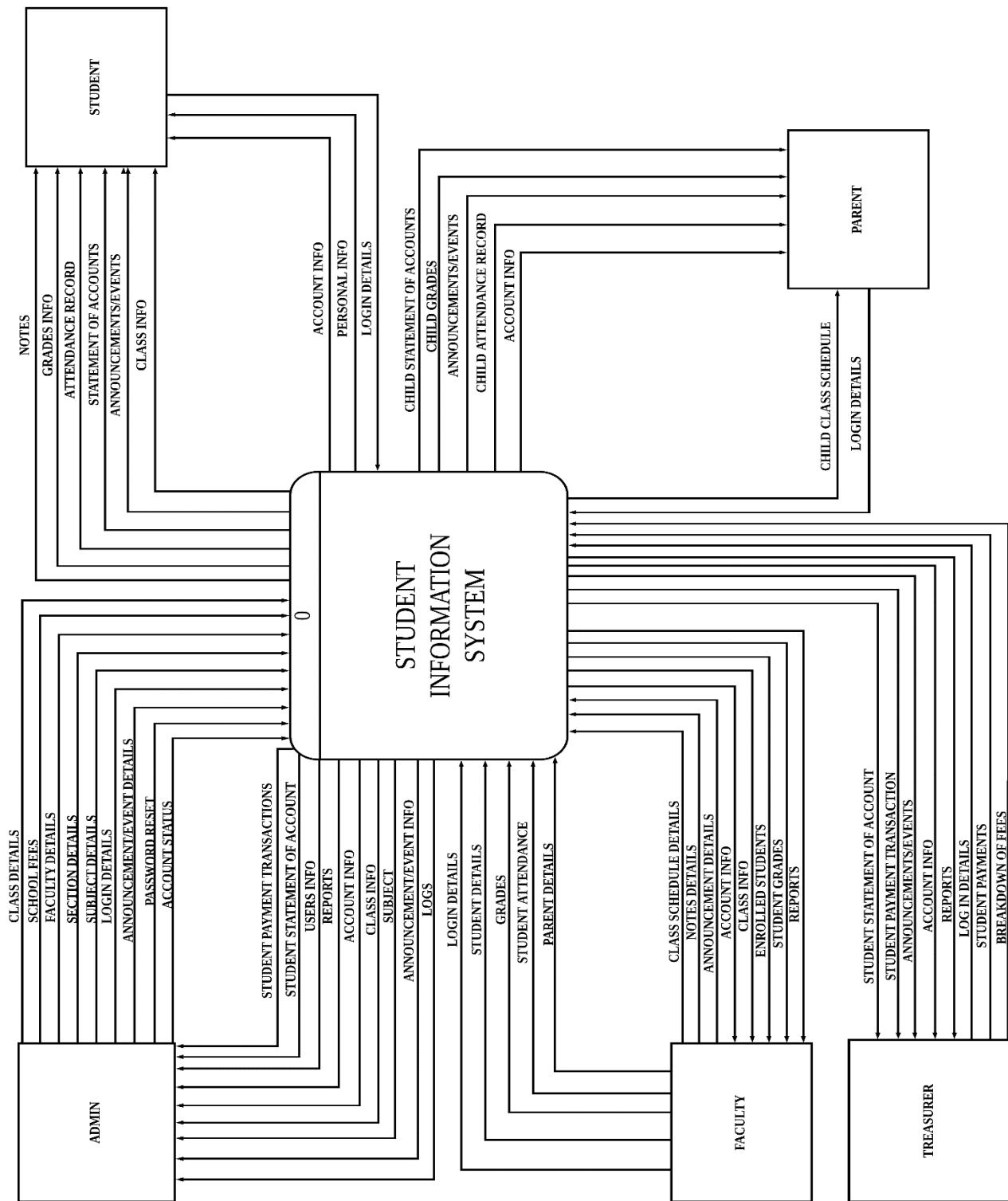


Figure 18. Data Flow Diagram

### **3.3.7 Data Dictionary**

#### **ADMIN**

Input Data Flow	: Account Status : Announcement/Event Details : Class Details : Faculty Details : Login Details : Password Reset : School Fees : Section Details : Subject Details : Treasurer Details
Output Data Flow	: Account Info : Announcement/Event Info : Class Info : Faculty Info : Logs : Reports : Student Statement of Account : Student Payment Transaction : Subject : Users info

#### **FACULTY**

Input Data Flow	: Announcement Details : Class Schedule Details : Login Details : Grades : Notes Details : Parent Details : Student Attendance : Student Details
Output Data Flow	: Account Info : Class Info : Enrolled Students : Reports : Student Grades

#### **TREASURER**

Input Data Flow	: Breakdown of Fees : Login Details : Student Payments
Output Data Flow:	: Account Info : Announcement/Events : Reports : Student Payment Transaction : Student Statement of Accounts

#### **STUDENT**

Input Data Flow	: Login Details
Output Data Flow	: Account Info

- : Announcements/Events
- : Attendance Record
- : Class Info
- : Grades Info
- : Notes
- : Personal Info
- : Statement of Accounts

PARENT

Input Data Flow	: Login Details
Output Data Flow	: Account Info
	: Announcements/Events
	: Child Attendance Record
	: Child Class Schedule
	: Child Grades
	: Child Statement of Accounts

--A--

ADMIN = NAME + EMPLOYEE ID + {ACCOUNT INFO}  
 ACCOUNT INFO = {ACCOUNT DETAILS}  
 ACCOUNT DETAILS = ACCOUNT ID + USERNAME + PASSWORD +  
 ACCOUNT STATUS + ACCOUNT TYPE + (EMPLOYEE ID)  
 ACCOUNT ID = INTEGER  
 ACCOUNT STATUS = [DEACTIVATED | ACTIVATED]  
 ACCOUNT TYPE = [ADMIN | TREASURER | FACULTY]  
 ACCOUNT INFO = NAME + ACCOUNT TYPE  
 ATTENDANCE RECORD = [PRESENT | LATE | ABSENT | EXCUSED]  
 ANNOUNCEMENT = STRING + CHAR  
 AMOUNT PAID = CHAR + [INTEGER | DOUBLE]  
 AGE = INTEGER  
 ADDRESS = [HOUSE NUMBER | BUILDING NUMBER] + STREET +  
 BARANGAY + [CITY | MUNICIPALITY] + (COUNTRY) + (ZIP CODE)

--B--

BARANGAY = STRING + INTEGER + CHAR  
 BIRTH DATE = MONTH + DAY + YEAR  
 BALANCE = CHAR + [INTEGER | DOUBLE]  
 BREAKDOWN OF FEES = SCHOOL FEES  
 BUILDING NUMBER = (CHAR) + INTEGER + (STRING)

--C--

CITY = STRING  
 CHAR = [!, @, #, \$, %, ^, &, (,), \_, -, +, \*, , , , :, ;, "`, ~, =]  
 COUNTRY = STRING  
 CHILD ATTENDANCE RECORD = {ATTENDANCE RECORD}  
 CHILD STATEMENT OF ACCOUNTS = {STATEMENT OF ACCOUNTS}  
 CLASS SCHEDULE = DAY + TIME  
 CLASS INFO = FACULTY + GRADE LEVEL + CLASS SCHEDULE + SECTION  
 CLASS DETAILS = SUBJECT + {CLASS SCHEDULE}

--D--

DEPARTMENT = [MATH | ENGLISH | SCIENCE | FILIPINO | TLE &  
VALUES | AP | MAPEH]

--E--

EMPLOYEE ID = INTEGER

ENROLLED STUDENTS = {STUDENT DETAILS} + {STUDENT STATUS}

--F--

FACULTY = {FACULTY DETAILS}

FACULTY DETAILS = NAME + EMPLOYEE ID

FIRST NAME = STRING

--G--

GRADES = [INTEGER | DOUBLE]

GRADE LEVEL = INTEGER

--H--

HOUSE NUMBER = INTEGER + (STRING) + (CHAR)

--I--

INTEGER = [0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9]

--L--

LRN = INTEGER

LOGIN DETAILS = USERNAME + PASSWORD

LOGS = STRING + CHAR

LAST NAME = STRING

--M--

MUNICIPALITY = STRING

MIDDLE NAME = STRING

MIDDLE INITIAL = STRING

MONTH = [JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE |  
JULY | AUGUST | SEPTEMBER | OCTOBER | NOVEMBER | DECEMBER]

--N--

NAME = (PREFIX) + FIRST NAME + (MIDDLE NAME | MIDDLE INITIAL) +  
LAST NAME + (SUFFIX) + CHAR + STRING + INTEGER

NOTES = ATTACHMENT

--P--

PREFIX = STRING + (CHAR)

PASSWORD = INTEGER + STRING + CHAR

PAYMENT STATUS = [FULLY PAID | PARTIALLY PAID]

--R--

REPORTS = STRING

--S--

SUFFIX = STRING + (CHAR) + (INTEGER)

STRING = [“a … z” | “A … Z”]

SCHOOL FEES = DOUBLE

STATEMENT OF ACCOUNTS = SCHOOL FEE + AMOUNT PAID + BALANCE

+ PAYMENT STATUS

SUBJECT = STRING + {DEPARTMENT} + CLASS SCHEDULE

SUBJECT DETAILS = SUBJECT + CLASS SCHEDULE

STUDENT STATUS = [OLD STUDENT | NEW STUDENT] + [OFFICIALLY ENROLLED | TEMPORARILY ENROLLED]

STUDENT DETAILS = NAME + AGE + BIRTH DATE + ADDRESS + GRADE LEVEL + LRN + SEX

STREET = STRING + CHAR + INTEGER

--T--

TIME = INTEGER

TREASURER DETAILS = NAME

TREASURER = {TREASURER DETAILS}

--U--

UPDATED STATEMENT OF ACCOUNTS = {STATEMENT OF ACCOUNTS}

USERNAME = STRING

--Y--

YEAR = INTEGER

--Z--

ZIP CODE = INTEGER

### **3.4 System Development**

#### **3.4.1 Tools for System Development**

Mock-ups and Prototypes have been created for the initial design of the system. Table 5 discusses the different tools that will be used for the development of the system and as more interviews are conducted, more clarifications from the client are taken into consideration so changes and improvements in the design are made until the requirements of the projects are met and the client is satisfied.

Category	Description
<b>Text Editor</b>	<ul style="list-style-type: none"><li>Sublime Text - Sublime have different useful features to maximize user's productivity. There are different packages that can suit a user's need, which can be installed by using package control. Each package contains different features to help the user program faster and more efficient.</li></ul>

<b>Framework and Libraries</b>	<ul style="list-style-type: none"> <li>• jQuery - From jQuery's company jquery is a “write less, do more” javascript library. jQuery will be utilized in the front-end website functionalities such as the buttons, effects (animations if there is one), and other functions.</li> <li>• jQuery UI - jQuery UI is developed for a more interactive function. jQuery UI contains a collection of graphical user interface widget and animated visual effects. jQuery UI is also developed using jQuery.</li> </ul>
<b>Icon set and toolkit</b>	<ul style="list-style-type: none"> <li>• Font Awesome - Font Awesome is the most popular icon set and toolkit it is widely used by different companies since it has over 6,000+ icons to choose from, Font Awesome is free to use but is limited to only 1,500 icons.</li> </ul>
<b>Database</b>	<ul style="list-style-type: none"> <li>• MySQL - Hostgator uses a mySQL database. The database is accessible through their cPanel upon login, it is manageable using the phpMyAdmin. mySQL will be utilized in the project to be our database for different data such as student's information, user login information and financial statements.</li> </ul>
<b>Hosting</b>	<ul style="list-style-type: none"> <li>• HostGator - Hostgator is one of the best web hosting service, it provides different features for each plan. This project will utilize the Hatching plan which composes of a single domain, with unmetered bandwidth and free ssl certificate. Each user has access to different features using their user-friendly panel.</li> <li>• Filezilla Client - Filezilla is an FTP tool which will be utilized in the development phase, this tool will be used in transferring/updating and deleting different files in the host.</li> </ul>
<b>Mockup / Prototype</b>	<ul style="list-style-type: none"> <li>• Mockplus - Mockplus offers a great projection of how the interface of every system would look like without the need for code or technical expertise. It is easy to learn with fast design as well as collaborate with the team when it comes to designing the system.</li> </ul>
<b>Web server solution stack package</b>	<ul style="list-style-type: none"> <li>• XAMPP - XAMPP is one of the best web server solution stack packages, this software will be used in developing the web application locally before hosting it.</li> </ul>

*Table 5. Software Development Tools*

### **3.5. System Testing and Deployment**

As shown in Figure x, it shows the deployment plan of the system including the testing of the system. Figure x shows a time frame allotted for each task such as gathering of system requirements, initial deployment, system testing and final deployment.

### 3.5.1 Testing tools for the System

<b>WAVE</b>	<ul style="list-style-type: none"> <li>Is a testing tool in which it evaluates the contents of the website. The key features of this tool are that it shows here the errors, features, structural elements, and alerts of the website. In addition, the website is used for free.</li> </ul>
<b>Selenium</b>	<ul style="list-style-type: none"> <li>It is a portable software-testing framework which is suitable for web applications. Selenium provides a playback or recording tool for the authoring tests without the need to learn a test scripting language known as the Selenium Integrated Development Environment (IDE).</li> </ul>
<b>TestComplete</b>	<ul style="list-style-type: none"> <li>Is a functional testing tool for an automated desktop application, mobile application and web application. There are more features that are available like, GUI testing, Test visualizer and Scripting Language.</li> </ul>
<b>Watir</b>	<ul style="list-style-type: none"> <li>Is a web-based testing tool. The features in here is that, it tests any languages on a web application, cross-browser testing and test the web pages, button, links and other responses requested.</li> </ul>

Table 6. Software Testing Tools

### 3.5.2 Deployment Plan

In this section, discussion on gathering of system requirements, the actual deployment of the project, post-deployment testing and system improvement will be elaborately tackled. As for gathering of device requirements, the minimum hardware requirements for the end-users will be listed so that the system would run on their device smoothly without slowing their task down; next is the actual deployment of the project, all of the files will be uploaded on the server with the usage of file transfer protocol (FTP) and the database will also be imported into the server using phpMyAdmin. After deploying the system, there will be a post-deployment testing to verify that the web application is successfully deployed without any errors and bugs. Improving the system would be next after identifying all the bugs and errors of the system, this is to finalize the system so that it will run according to the stakeholder's requirement and to assure that it would run smoothly for a long period of time.

#### Minimum Requirements (Computer and Mobile)

RAM	2GB
Internet Speed	1 Mbps
Operating System	<ul style="list-style-type: none"> <li>Windows Vista, 7, 8 and 10</li> <li>Mac OS 10.6 and above</li> <li>Android OS 4 and above</li> </ul>
Web Browsers	<ul style="list-style-type: none"> <li>Chrome (Any Stable Versions)</li> <li>Firefox (Any Stable Versions)</li> <li>Internet Explorer (IE 11 and above)</li> </ul>

	<ul style="list-style-type: none"> <li>• Safari (Safari 5 and above)</li> <li>• Samsung Internet (Any Versions)</li> </ul>
--	--

Table 7. Minimum Requirements for Computer and Mobile.

### **3.5.2.1 Proposed Enrollment Process**

Figure 19. shows the proposed enrollment process for Bakakeng National High School. To start the enrollment, the admin will login to the website and add faculty, section, classes, and miscellaneous fee. The faculty will then start the enrollment by validating the requirements submitted by the students. If the submitted requirements are incomplete, the student needs to process his/her papers to comply with the requirements. For new students who did not yet submitted their Form 137, a request to the previous school attended by the student will be made and the Form 137 will be submitted to the faculty-in-charge of enrollment. Once the student complies and completed their requirements, the student will proceed to their enrollment. Faculty-in-charge of enrollment will login to the website and change status of old student to Officially Enrolled while for new student, the faculty will enroll the student then create account for the student and his/her parent/guardian. After the students has enrolled, the faculty will print assessment. In the printed assessment, new students can see the Breakdown of Fees with the total that serves as the Miscellaneous Fee together with their default username and password, but for the old students, account information is not included. After the enrollment, students can already pay their Miscellaneous Fee. The Treasurer will then record the student payments in the system.

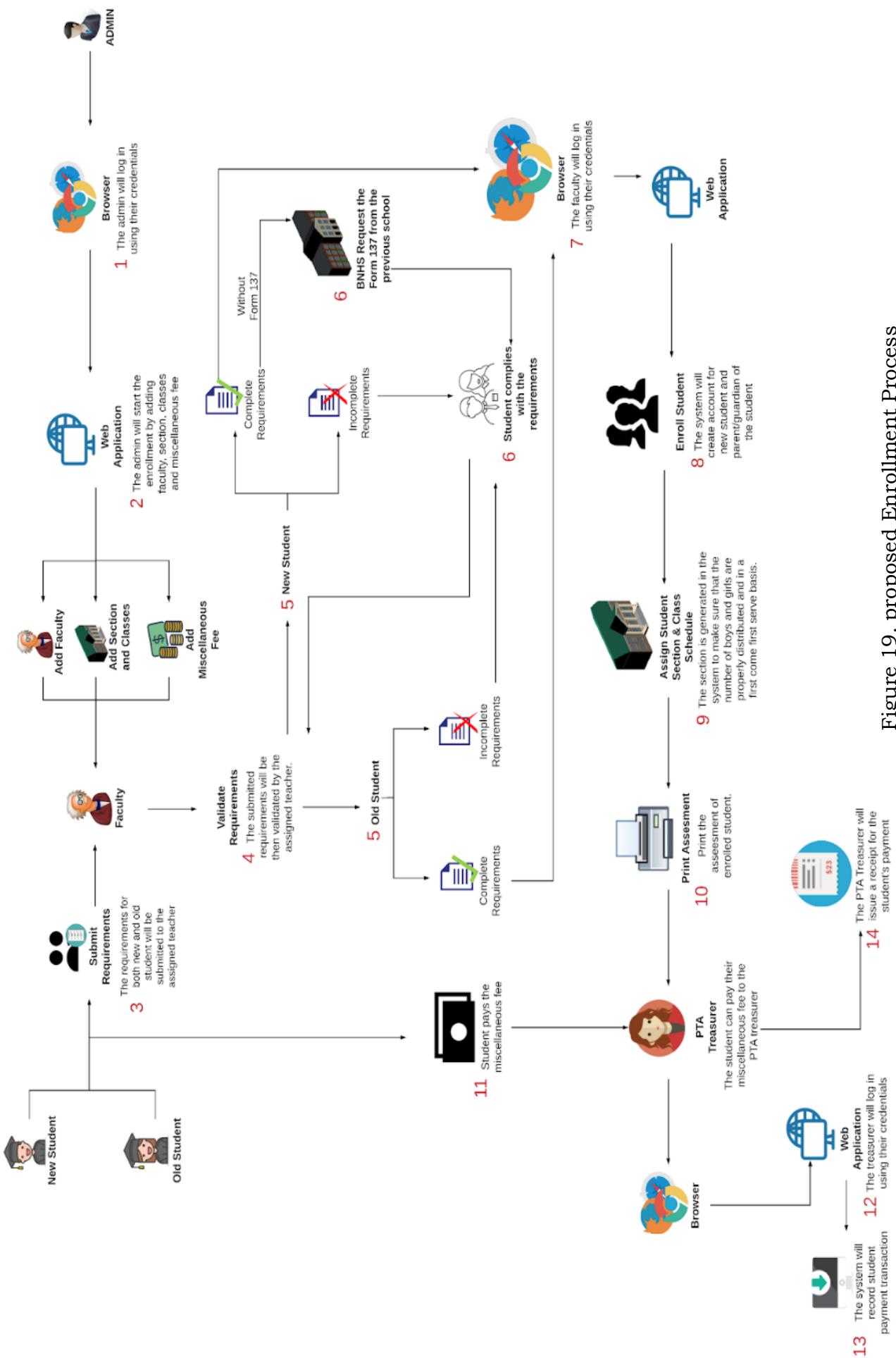


Figure 19. proposed Enrollment Process

### 3.6 Mockups

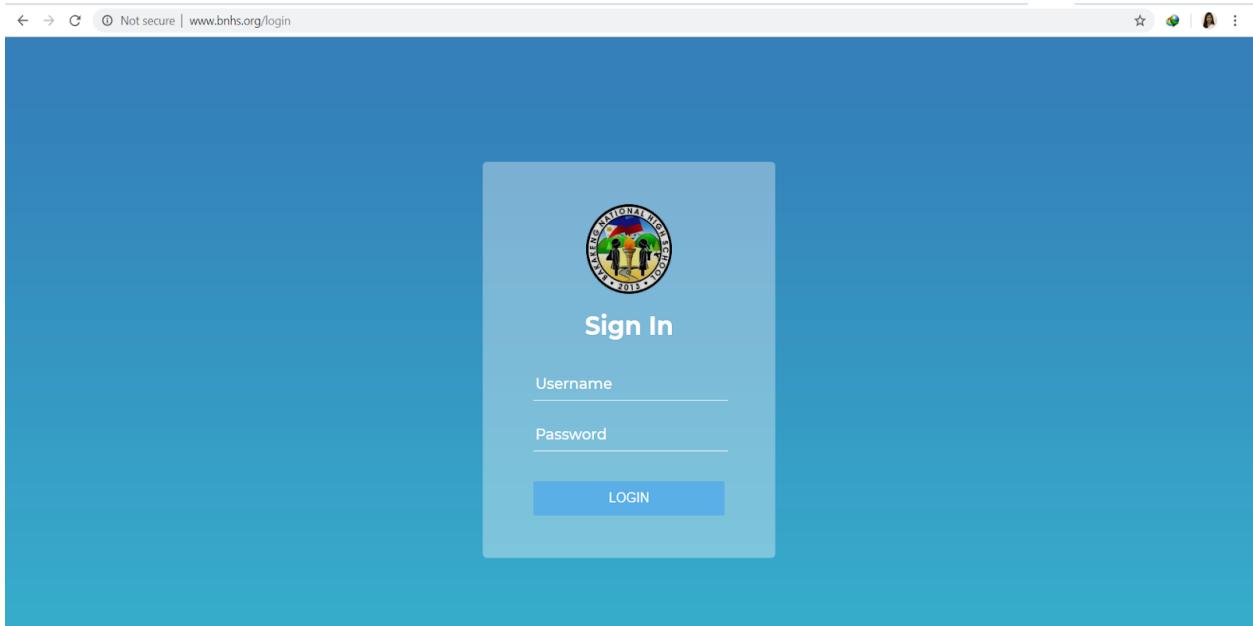


Figure 20. Login Page

As illustrated in Figure 20, the user will input credentials in order to perform all the functionalities of the system.

#### 3.6.1 Admin Module

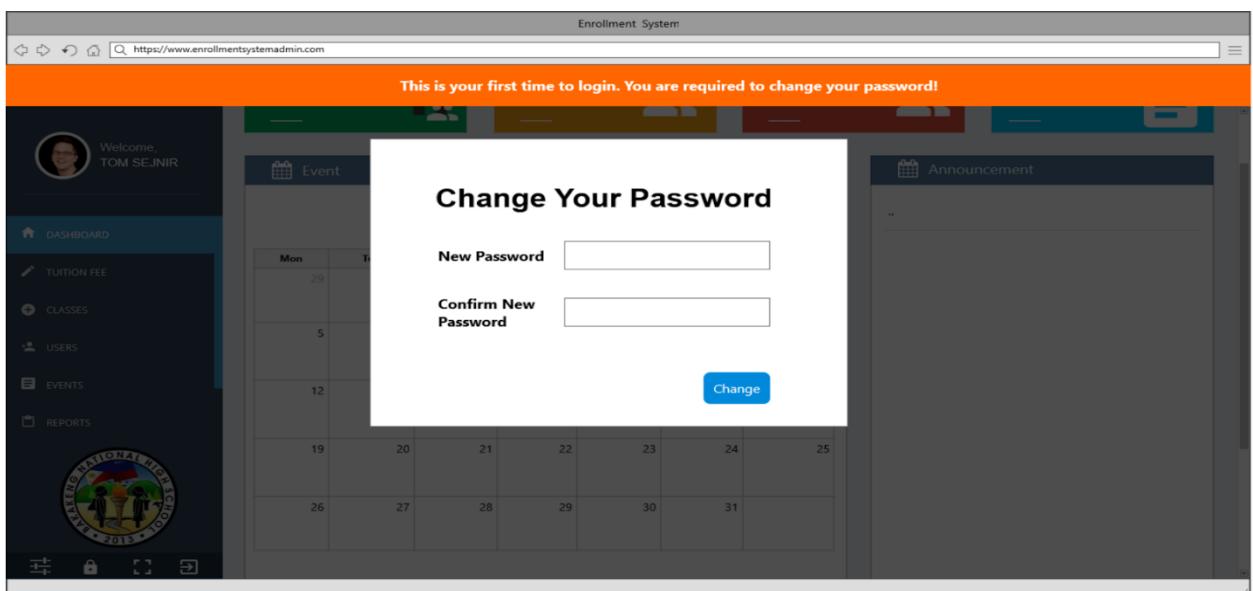
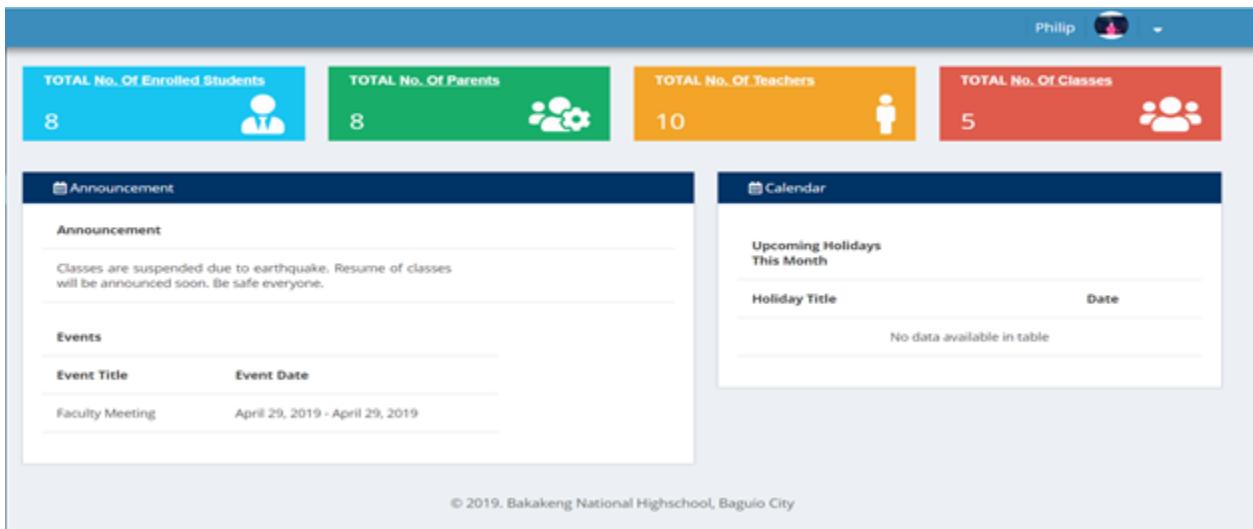


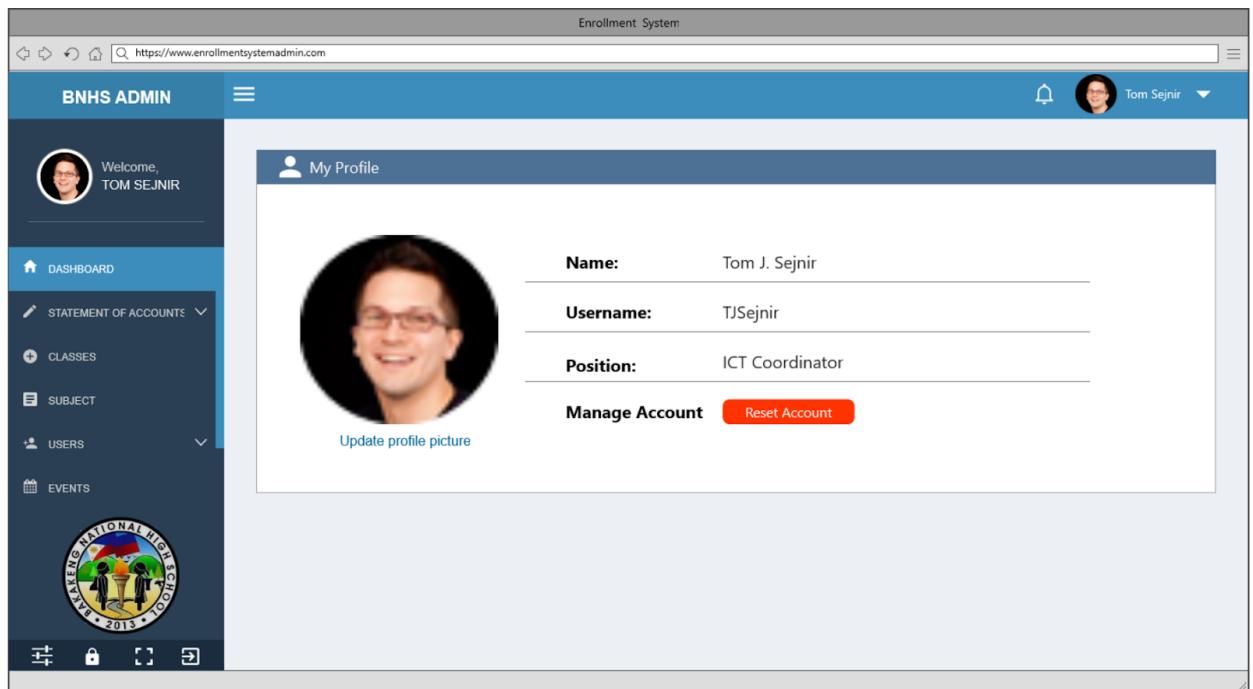
Figure 21. Window Prompt for Changing Password

As illustrated in Figure 21, the admin is forced to change his/her password on first-time login by immediately expire an account's password. In here, the admin cannot click away from the page without changing password. It will ask the admin to enter the new password and retype it again to confirm the newly created password.



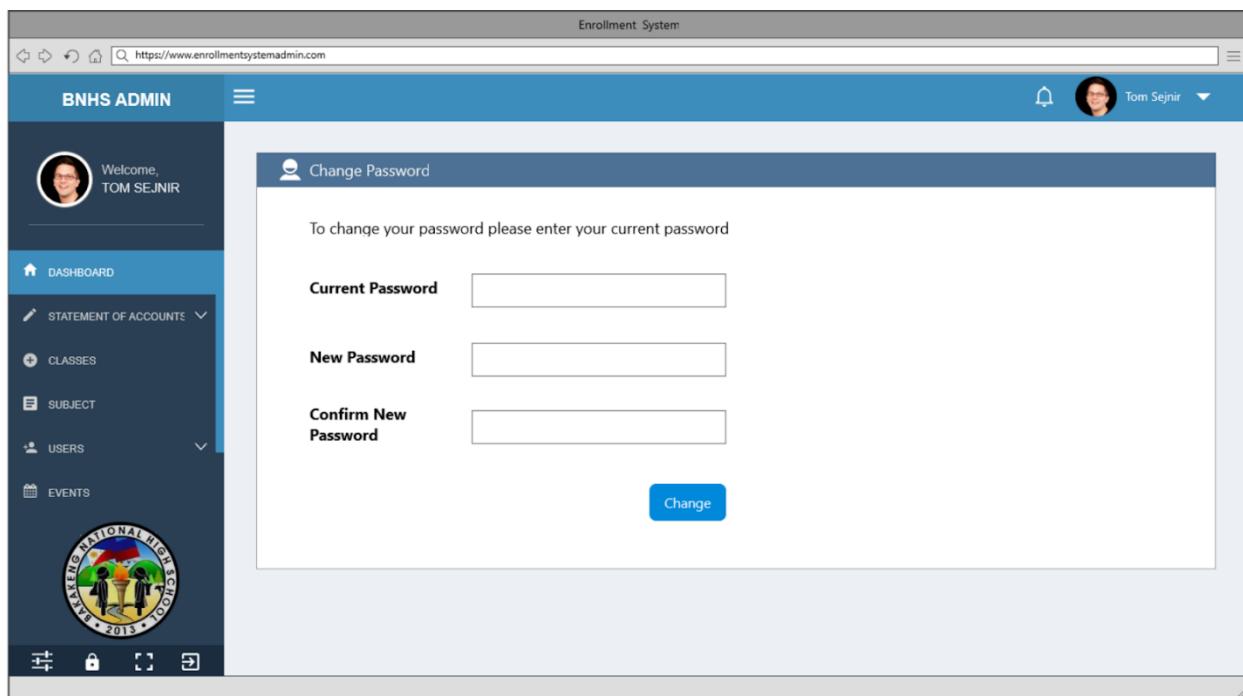
*Figure 22. Admin Dashboard*

As illustrated in Figure 22, the admin dashboard displays the website's summary of content such as the total number of students, parents, teachers, and classes. And also, the dashboard contains the events and announcements. The admin has the feature to add an announcement/event, therefore he/she can also view what he has posted.



*Figure 23. Profile Section*

As illustrated in Figure 23, the admin can view his/her profile with the following personal information such as the name, username, position. The admin can also update his/her profile picture. Once there will be a new admin, a "Reset Account" button will reset the admins' user credential then the new admin can login with the default username and password.



*Figure 24. Change Password Section*

As illustrated in Figure 24, the admin can change his/her password by entering the current password, new password then the confirmation of the new password. Once the admin has already accomplished filling in the form then he/she can “Save Changes” to successfully change his/her password.

Fee Type	Total Amount	Action
PTA Fund	₱300.00	<input type="checkbox"/> <input type="checkbox"/>
Utility	₱300.00	<input type="checkbox"/> <input type="checkbox"/>
Internet for Students	₱250.00	<input type="checkbox"/> <input type="checkbox"/>
School Paper	₱150.00	<input type="checkbox"/> <input type="checkbox"/>
Organizations Fee	₱150.00	<input type="checkbox"/> <input type="checkbox"/>
TLE Fee	₱75.00	<input type="checkbox"/> <input type="checkbox"/>
SSG Fee	₱75.00	<input type="checkbox"/> <input type="checkbox"/>
Science Fee	₱50.00	<input type="checkbox"/> <input type="checkbox"/>
<b>TOTAL AMOUNT:</b>	<b>₱ 1,350.00</b>	

*Figure 25. Statement of Accounts*

As illustrated in Figure 25, this section displays the breakdown of miscellaneous fees. The admin can either update or delete a fee type.

## Create new Fee type



Fee Type:

Total Amount:

Enter less than 45 characters and Alphabets only

Save

Figure 26. Adding Fee Type

As illustrated in Figure 26, the admin is responsible for adding a miscellaneous fee by filling in the fee type and the amount. Once the admin has completed filling in the forms there is an “Add fee type” button to save the data.

The screenshot shows a table titled "List of Student Payment Status" with the following data:

LRN	Name	Grade Level	Section	Amount Paid	Remaining Balance	Balance Status
10011001	John Mark Dela Cruz	9	Dignity	865.00	485.00	Not Cleared
10011003	Adrian Basangan	10	Independence	0.00	1,350.00	Not Cleared
10011004	Cassie Mondragon	10	Independence	0.00	1,350.00	Not Cleared
10011005	Jennie Dela Cruz	10	Independence	450.00	900.00	Not Cleared
1231231231231	Mitch Ainslie Galatcha	8	Wisdom	0.00	1,350.00	Not Cleared
1234567890123	Benjie Ulep	8	Love	0.00	1,350.00	Not Cleared
3423423423111	Aba Brand	8	Wisdom	0.00	1,350.00	Not Cleared

Figure 27. Payment History

As illustrated in figure 27, there is a payment history of the students wherein the admin can view the remaining balance of the students, the balance status displays either cleared or not cleared. The admin can also filter the results such that he/she can select a particular grade level/section, and filter by date. There is a “filter” button to display the results.

Section Name	Grade Level	Action
Dignity	9	
Hope	7	
Independence	10	
Love	8	
Wisdom	8	

Showing 1 to 5 of 5 entries

Previous **1** Next

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*Figure 28. Classes Section*

As illustrated in Figure 28, this section displays the class that is handled by an adviser. The admin can view the Employee ID, the name of the employee, the handled section of the adviser, the grade level and class capacity. There is an update and delete operation that the admin can perform.

Add Class

Choose Adviser

Choose Adviser

Section Name:

Select Section Name

This is a required field

Save

*Figure 29. Adding a new class*

As illustrated in Figure 29, once the admin has clicked on the “add class” button there are some forms that the admin must fill in to add a class. The admin must select an adviser from the list of employees and section name.

Update class data

**Employee ID**

**Adviser Name**

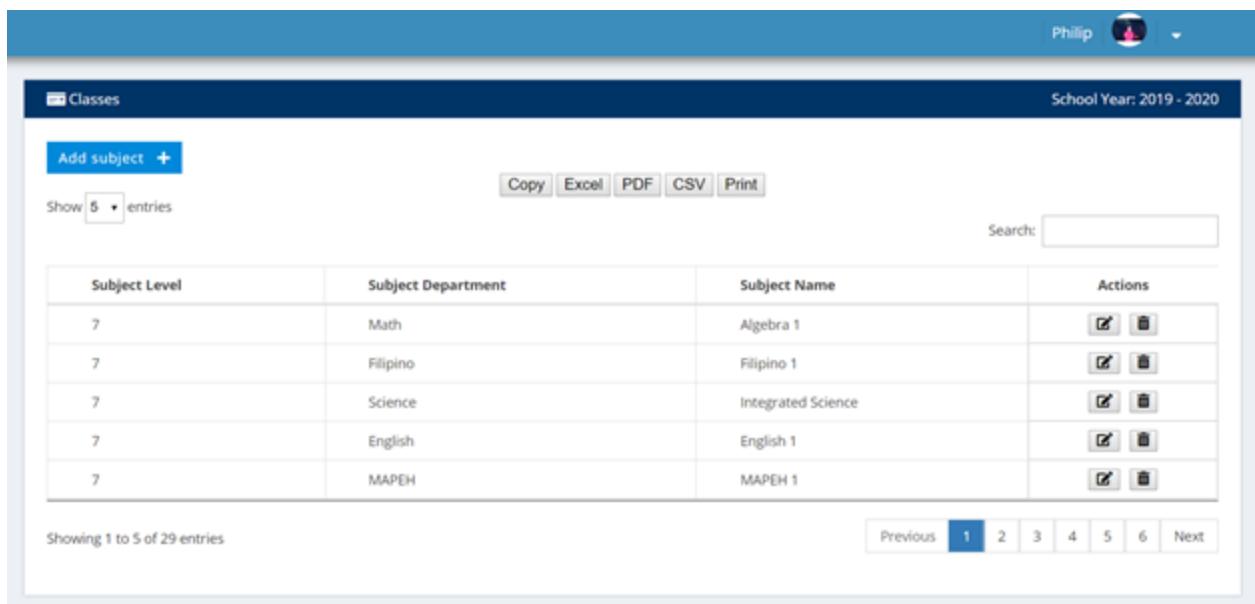
**Section Name**

**Grade Level:**

**Update** 

Figure 30. Updating a class

As illustrated in Figure 30, there will be an “edit” operation for the admin to modify if something is incorrect on the information of the adviser’s section. This action is also useful when updating the section handled by the adviser.



**Classes**

School Year: 2019 - 2020

Add subject +

Show 5 entries

Copy Excel PDF CSV Print

Search:

Subject Level	Subject Department	Subject Name	Actions
7	Math	Algebra 1	 
7	Filipino	Filipino 1	 
7	Science	Integrated Science	 
7	English	English 1	 
7	MAPEH	MAPEH 1	 

Showing 1 to 5 of 29 entries

Previous **1** 2 3 4 5 6 Next

Figure 31. Viewing of Subjects

As illustrated in figure 31, this section displays the different subjects that admin has created, together with the subject code, and the teacher of a subject. There is a delete and update operation that the admin can perform.

Add Class

**Subject Level:**

Select Subject Level

**Subject Department:**

Select Department

**Subject Name:**

Subject Name

This is a required field

Save 

Figure 32. Adding of Subject

As illustrated in Figure 32, the admin can add a new subject by filling in the subject level, subject department, and selecting the subject teacher from the list of faculty members.

Student List										School Year: 2019 - 2020
										<a href="#">Copy</a> <a href="#">Excel</a> <a href="#">PDF</a> <a href="#">CSV</a> <a href="#">Print</a>
										Search: <input type="text"/>
LRN No.	Student Name	Username	Gender	Year Level	Address	Birth Day	Mother's Name	Father's		
10011001	John Mark Pagar Dela Cruz	johnmarkdelacruz03	Male	9	Bakakeng Norte Baguio City	2007-04-06	Josephine P. Dela Cruz	Jasper A. Di		
10011002	Katherine Cruz Manzano	valeriepe06	Female	9	Bakakeng Norte Baguio City	2006-08-19	Luzviminda C. Manzano	Mario B. Mi		
10011003	Adrian Jutie Basangan	adrianbasangan07	Male	10	Bakakeng Norte Baguio City	2005-12-17	Magdalena J. Basangan	Ireneo C. Bi		
10011004	Cassie Bautista Mondragon	cassiemondragon08	Female	10	Bakakeng Norte Baguio City	2004-10-02	Rominda B. Mondragon	Robert D. N		
10011005	Jennie Pagar Dela Cruz	jenniedelacruz11	Female	10	Bakakeng Norte Baguio City	2002-04-05	Josephine P. Dela Cruz	Jasper A. Di		

Figure 33. Student List

As illustrated in Figure 33, the admin can view the different list of students together with their Learner Reference Number (LRN), student name, gender, grade level, section, and the status whether enrolled or temporarily enrolled. The admin can filter the results by selecting the grade level and the section. The admin can perform change status operation.

The screenshot shows a table titled "Faculty List" with the following data:

Employee ID	Name	Department	Username	Adviser	Status	Can Edit Section	Action
1	Gloria Valencia Rosario	Math	gloriarosario02	Yes	Active	No	
2	Teresita Galvez Morante	Science	teresitamorante12	Yes	Active	Yes	
3	Gladys Culati Narciso	MAPEH	gladysnarciso13	Yes	Active	No	
4	Alexander Adamo Patacsil	English	alexanderpatacsil14	Yes	Active	No	
5	Teodoro Jura Gibo	Filipino	teodorogibo291	Yes	Active	No	

Showing 1 to 5 of 10 entries

Figure 34. Faculty List

As illustrated in Figure 34 the admin can view the different list of faculties with their Employee ID, Name, Major, and Department. The admin can perform different operations such as delete, update an account and change status for section editing privilege

**Create new faculty account**

**Employee ID:**  
Employee ID

**First name:**  
First name

**Middle Name:**  
Middle name

**Last name:**  
Last name

**Department**  
Select Department

**Adviser**  
Adviser

Enter less than 15 characters and Alphaneumerics only

Save

Figure 35. Adding a new faculty account

As illustrated in Figure 35, the admin has the capability to add a new faculty account by filling in the name, department, and if he/she is an adviser. The username and password are auto-generated by the system.

**Update faculty data**

**Employee ID**  
1

**First name:**  
Gloria

**Middle Name:**  
Valencia

**Last name:**  
Rosario

**Department**  
Math

**Adviser**  
Yes

**Can edit section:**  
No

**Update**

Figure 36. Update Information

As illustrated in Figure 36, there will be an “edit” operation for the admin to modify if something is incorrect on the information of the user.

**Parent List** School Year: 2019 - 2020

Show 5 entries

Copy Excel PDF CSV Print

Search:

Parent Name	Mobile Number	Telephone Number	Child Name	Username	Status	Action
Adel F Meneses	09954336998		Aba Brand	Meneses134	Active	
Alice A Ulep	09174058901		Benjie Ulep	Ulep136	Active	
Josephine Pagar Dela Cruz	09123456789		John Mark Dela Cruz	josephinedelacruz04	Active	
Josephine Pagar Dela Cruz	09123456789		Jennie Dela Cruz	josephinedelacruz04	Active	
Luzviminda Cruz Manzano	09502361478		Katherine Manzano	luzvimindamanzano09	Active	

Showing 1 to 5 of 8 entries

Previous **1** 2 Next

Figure 37. Parent List

As illustrated in Figure 37, the admin can filter the result such that it will display the grade level and section of the student together with their parent’s name. The admin can also perform the delete and update operation.

**Event**

Add event +

Show 5 entries

Copy Excel PDF CSV Print

Search:

Title	Date Start	Date End	Users who can view	Actions
All Saints Day	November 1, 2019	November 1, 2019	All	<input checked="" type="checkbox"/> <input type="checkbox"/>
All Souls Day	November 2, 2019	November 2, 2019	All	<input checked="" type="checkbox"/> <input type="checkbox"/>
Black Saturday	April 20, 2019	April 20, 2019	All	<input checked="" type="checkbox"/> <input type="checkbox"/>
Bonifacio Day	November 30, 2019	November 30, 2019	All	<input checked="" type="checkbox"/> <input type="checkbox"/>
Chinese Lunar New Year	February 5, 2019	February 5, 2019	All	<input checked="" type="checkbox"/> <input type="checkbox"/>

Showing 1 to 5 of 25 entries

Previous 1 2 3 4 5 Next

Figure 38. Adding of Announcement/Event

As illustrated in Figure 38, once the admin has clicked on a day, this section will be displayed. Once a day has been selected, the start date will be auto-generated by the system. The admin must fill in the start time, end date, end time, title and description. The admin must choose whether it is an event or an announcement, the admin must also choose the type of user who can view the announcement, and the admin can also attach a file for the announcement.

**Student's Payment Transactions**

Miscellaneous Fee: ₱ 1,350.00

Grade Level and Section: All

Show 10 entries

Copy Excel CSV PDF Print

Search:

LRN	Name	Grade Level	Section Name	OR Number	Latest Payment Timestamp	Amount Paid	Payment History
10011001	John Mark Pagar Dela Cruz	9	Dignity	QWE123HYV5	April 10 2019 - 00:00:00	50.00	
10011005	Jennie Pagar Dela Cruz	10	Independence	FJLDF4389F	April 26 2019 - 00:00:00	50.00	

Showing 1 to 2 of 2 entries

Previous 1 Next

Figure 39. Account balances report

As illustrated in Figure 39, it displays the account balances report of every student. The admin can filter the record according to grade level and section.

**Admin History of Logs**

Log Event: All

Show 10 entries

Search:

User Name	Log Event	Log Description	Log Timestamp
Philip Vasquez Salvador	Insert	Added announcement with a Title: Lorem ipsum Dolor Seti	April 27 2019 - 23:24:21
Philip Vasquez Salvador	Update	Updated announcement with the following details(Title: Lorem ipsum Dolor Seti, Date Start: 2019-04-28, Date End: 2019-04-30)	April 27 2019 - 23:25:09
Philip Vasquez Salvador	Update	Updated announcement with the following details( Announcement: Please be safe everyone! 6.2 Magnitude , Date Start: 2019-04-27, Date End: 2019-04-30, Attachment: )	April 28 2019 - 00:47:59
Philip Vasquez Salvador	Insert	Added announcement: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse at aliquam ante. Mauris convallis urna eget felis pretium, id scelerisque arcu eleifend. Vestibulum rutrum dictum mi, eleifend sodales libero tincidunt at. Curabitur eu nisl leo. Cras commodo semper pretium. Viv	April 28 2019 - 12:11:19
Philip Vasquez Salvador	Update	Updated announcement with the following details( Announcement: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse at aliquam ante. Mauris convallis urna eget felis pretium, id scelerisque arcu eleifend. Vestibulum rutrum dictum mi, eleifend sodales libero tincidunt at. Curabitur eu nisl leo. Cras commodo semper pretium. Viv	April 28 2019 - 12:19:53
Philip Vasquez Salvador	Insert	Added announcement with a Title: sibero sapien sit amet maximus tortosadasds	April 28 2019 - 12:45:17
Philip Vasquez Salvador	Delete	Deleted announcement , Description: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse at aliquam ante. Mauris convallis urna eget felis pretium, id scelerisque arcu eleifend. Vestibulum rutrum dictum mi, eleifend sodales libero tincidunt at. Curabitur eu nisl leo. Cras commodo sem	April 28 2019 - 12:59:21

Figure 40. Logs

This section displays the activities that the admin has performed such as the miscellaneous fee history, user's history, adding/updating of classes history, and adding/updating of subject's history.

The screenshot shows the 'SUPERADMIN' dashboard. On the left, there is a sidebar with a profile picture of 'Welcome, MARCUS LETSI', a 'USERS' button, and the school logo 'BAKALENG NATIONAL HIGH SCHOOL • 2013'. The main content area is titled 'Users' and displays a table with one record:

Employee ID	Name	Position	Status	Actions
032	Tom Sejir	Admin	Active	<button>Reset Account</button>

Below the table, it says 'Showing 1 to 1 of 1 entry'. At the bottom right, there are buttons for 'Previous', '1', and 'Next'.

Figure 41. Super Admin reset password

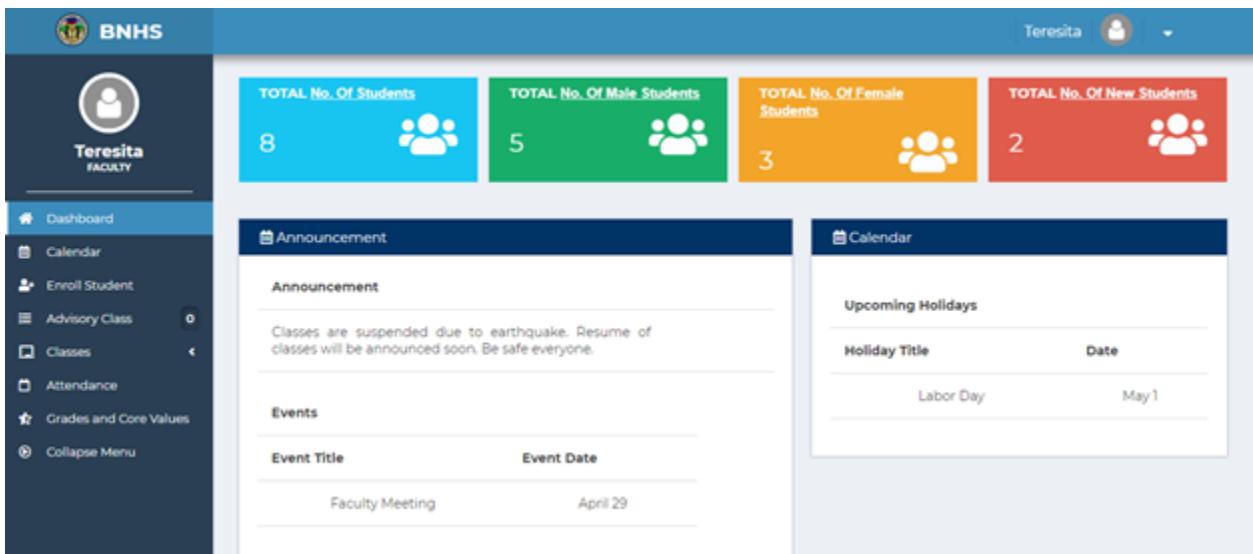
As illustrated in Figure 42, the super admin will be notified once the admin is requesting to reset his/her password. This section displays the employee ID, name, position, and status. To confirm resetting the admin's password there will be a prompt message.

### 3.6.2 Faculty Module

The screenshot shows the 'Enrollment System' faculty window. On the left, there is a sidebar with a profile picture of 'Welcome, Arnold N. Gel ADVISER', a 'DASHBOARD' button, and other navigation options like 'ENROLL STUDENTS', 'SECTIONS', 'SCHEDULE', and 'EDIT SCHEDULE'. The main content area has an orange banner at the top that says 'This is your first time to login. You are required to change your password!'. Below the banner, there is a 'Enrollees' section showing 'Total number of Students' (319) and a 'GRADE LEVEL' section showing 'GRADE 8', 'GRADE 9', and 'GRADE 10'. In the center, there is a 'Change Your Password' form with two input fields: 'New Password' and 'Confirm New Password', and a 'Change' button. On the right, there is a 'New Students' section showing '210' and '129'.

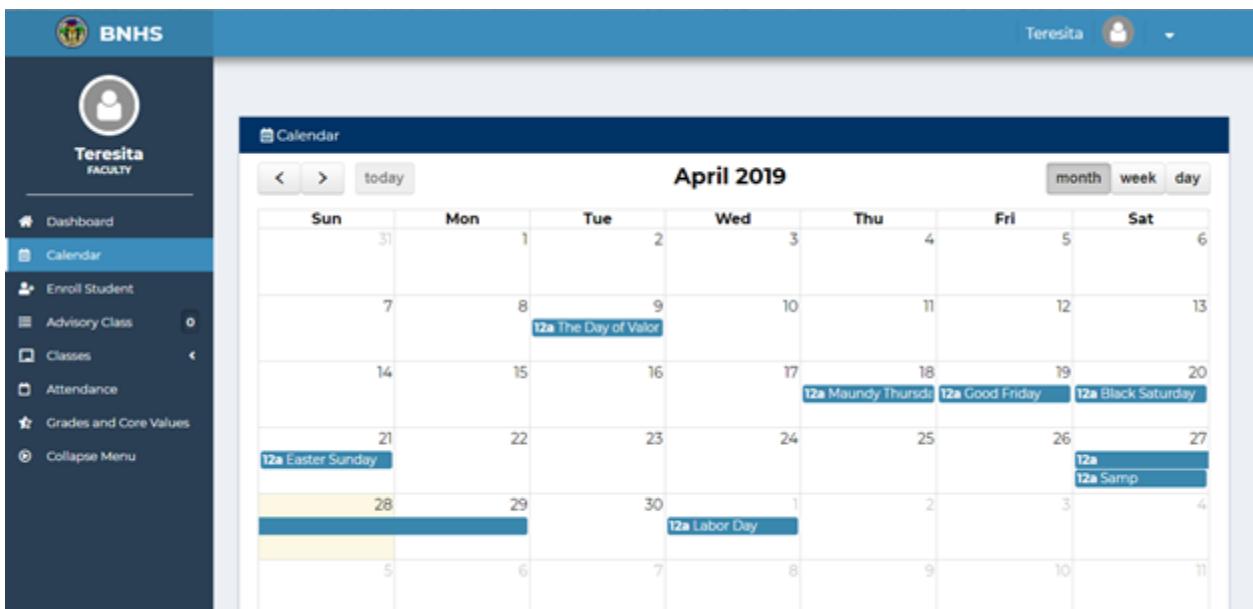
Figure 43. Faculty Window Prompt for Changing Password

As illustrated in Figure 44, it is a prompt when it is the first time to login by the faculty, the faculty is required to change his/her password. It will ask the faculty to enter the new password and retype it again to confirm the newly created password. Once it is done entering the password, click the "Save changes" button to confirm it.



*Figure 45. Dashboard of the Faculty side*

As illustrated in Figure 40, the faculty can see here the overview of the School Year, the Enrollees, and the Grade Level. On the left side of the page the tab will be serve as a guide to where page you are in with your name and description of what is your position on the school. In addition, the school logo is also included below the tab page.



*Figure 46. Faculty Calendar*

As illustrated in the Figure 46, the user can be able to view the event or holidays in the calendar.

Figure 47. Enrollment for old students

As illustrated in Figure 47, there are two tabs in which the first tab shows here the form for enrolling new students as “*Enroll New Student*” tab, as the user gets to input or fill up the information of the student, the user also gets to fill up the information of their address, parent and guardian. If the parent/guardian has two or more children, the user can click on the **Existing** button to be able to select the guardian they want to choose once they have selected already their guardian all they have to do is click on the **Submit** button. As for this is almost finish, they can also check the Status of the students if “*Officially Enrolled*” or “*Temporarily Enrolled*”. In addition, there is information here that must be filled up first to be able to press the **Submit** button.

The screenshot shows a user interface for enrolling old students. At the top, there are two tabs: "Enroll old student" (selected) and "Enroll new student". Below the tabs are filters: "Grade Level: All" and "Show Transferred Students: No". There are also buttons for "Show 10 entries" and "Search". A table displays one student entry:

LRN(Learner Reference No.)	Name	Status	Options
10011001	John Mark Pagar Dela Cruz	Not Enrolled	<b>STATUS</b>

At the bottom, it says "Showing 1 to 1 of 1 entries" and has navigation buttons for "Previous", "1", and "Next".

Figure 48. Faculty Enroll old student.

As illustrated in the figure 48, next tab would be the “Enroll Old Student”, the user can see here the old students per grading in which, they can also select if these students are transferred students or not. If their students that are listed in the old student, then the user can be able to update the status of the student by clicking on the **Status** button, once the user has updated the status of the student, the user can click on the **Change** button to save the information.

The screenshot shows a user interface for managing advisory classes. On the left is a sidebar with a user profile for "Teresita FACULTY" and links for Dashboard, Calendar, Enroll Student, Advisory Class (selected), Classes, Attendance, Grades and Core Values, and Collapse Menu. The main area is titled "Student List" and shows "Advisory Class" and "Requests" tabs. The "Advisory Class" tab is selected, showing "SECTION: Grade 8 - Wisdom". It has filters for "Show 5 entries" and "Search". A table lists student requests:

LRN(Learner Reference No.)	Name	Options
1231231231231	Mitch Ainslie Valencia Galatcha	<b>Cancel</b> <b>Details</b>
3423423423111	Aba Boo Brand	<b>Transfer</b> <b>Details</b>

At the bottom, it says "Showing 1 to 2 of 2 entries" and has navigation buttons for "Previous", "1", and "Next".

Figure 49. Faculty Advisory class

As shown in the figure 49, there are two tabs in which the first tab is the “Advisory class” of the user and the second tab is the “Request”, this simply means that if the user wants to transfer a student in their advisory class then the user can just click on **Transfer** button and then there will be a request that will sent to the other Advisory teacher, from that another account will be directed to the “Request” tab for them to **Accept** the request with a button or **Reject** button for the transferring of students. In addition, if they have transferred a student there will be a notification in which, the user will be aware that there has been a transfer of students.

Figure 50. Faculty Classes Handled

As shown in the figure 50, the user can be able to view their schedule for other classes and their schedule handling their advisory class. In addition, the user can also post announcements by clicking on the **Post Announcements** button in which, the user can write the description, can also select to what class they want to post their announcements, and also select a file, after the user is finish selecting what to post they can just click the **Submit** button.

Figure 51. Faculty Edit classes

As shown in the figure 51, the user can either view or edit the class this depends if the user is an adviser. Only the adviser has the privilege to edit the class and assign faculty to a certain subject. In addition, this will be filtered by the Grade Level and Section.

Days	Time	Section	Options
Monday to Friday	08:40 AM - 09:40 AM	Grade 8 - Wisdom	
Monday to Friday	01:00 PM - 02:00 PM	Grade 10 - Independence	

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Figure 52. Faculty Attendance

As shown in the figure 52, the user can see here there handled classes and with this the user can update the attendance of the students that they are handling. To update the attendance of the students all they need to do is click on the **Edit** button.

Student Name	Attendance
Brand, Aba Boo	
Galatcha, Mitch Ainslie Valencia	

**SAVE**

Figure 53. Faculty update attendance

As shown in the figure 53, they can be able to update the attendance of the students by toggling the Present, Late, Absent. In addition, you can also select the date of when you are going to update the attendance of the student, once the user is done, the user can save the updated attendance.

Days	Time	Section	Options
Monday to Friday	08:40 AM - 09:40 AM	Grade 8 - Wisdom	
Monday to Friday	01:00 PM - 02:00 PM	Grade 10 - Independence	

Figure 54. Confirmation prompt on printing the file.

As illustrated in Figure 54, the faculty will have to confirm if they want to print the file or not on the specific student enrolled.

Student Name	1st Grading	2nd Grading	3rd Grading	4th Grading	Input grades for
Brand, Aba Boo					78
Galatcha, Mitch Ainslie Valencia					
Ulep, Benjie Alonzo					

**SAVE**

*Figure 55. Faculty update student grade*

As shown in the figure 55, the user will be able to input the grades of their students by clicking on the **Edit** button, and once the user has finished with the grades, the user can click on the **Save** button, to save the changes.

Student Name	Makatao	Makadiyos	Makakalikasan
Brand, Aba Boo	Always observed	Always observed	Always observed
Galatcha, Mitch Ainslie Valencia	Always observed	Always observed	Always observed
Ulep, Benjie Alonzo	Always observed	Always observed	Always observed

**SAVE**

*Figure 56. Faculty update core values of student*

As shown in the figure 56, the user will be able to update the core values of their students by clicking on the **Edit** button, and once the user has finished updating the core values, the user can click on the **Save** button, to save the changes.

### 3.6.3 Treasurer Module

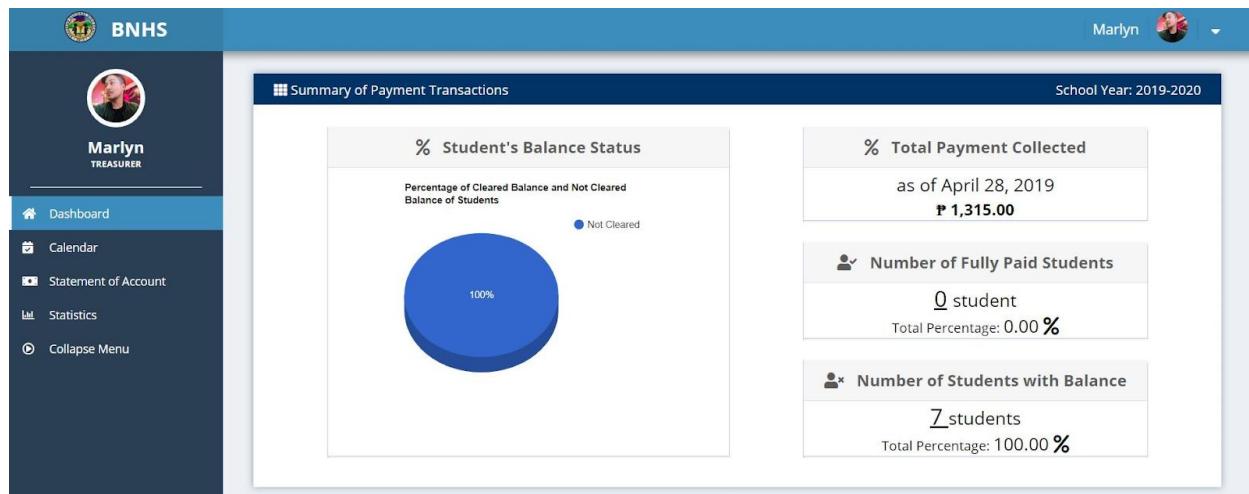


Figure 57. Treasurer Dashboard

As illustrated in figure 57, it will show the summary of payment transaction every school year containing the percentage of cleared and not cleared balance of all the students. In addition, he/she can view the total payment collected every day and be able to monitor all the number of students with fully paid or with balance on their accounts. As for the announcement section, the treasurer can view all the announcement of the school.

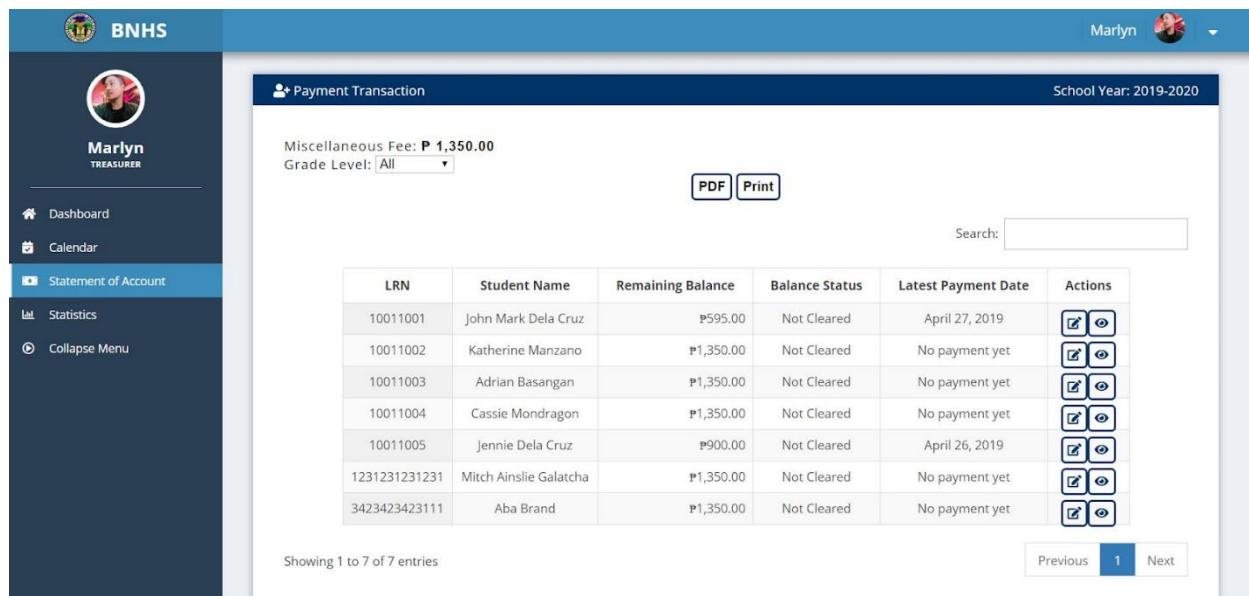


Figure 58. Statement of Account - Payment Transaction

Breakdown of Fees	
Breakdown	Amount
PTA Fund	300.00
Utility	300.00
Internet for Students	250.00
School Paper	150.00
Organizations Fee	150.00
TLE Fee	75.00
SSG Fee	75.00
Science Fee	50.00
<b>TOTAL AMOUNT:</b>	<b>₱1,350.00</b>

Total Accumulated Fee per Fund Type	
Breakdown	Amount
PTA Fund	600.00
Utility	150.00
Internet for Students	65.00
School Paper	225.00
Organizations Fee	45.00
TLE Fee	65.00
SSG Fee	65.00
Science Fee	100.00
<b>TOTAL AMOUNT:</b>	<b>₱1,315.00</b>

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Figure 58. Statement of Account - Breakdown of Fees

As illustrated in figure 58, it will show the payment transaction within the current school year, breakdown of fees, and the total accumulated fee per fund type. As for the payment transaction, the treasurer can view all the details of the students' who have paid such as their LRN number, student name, remaining balance, balance status, and latest payment date. Together with the details section, there is an action tab provided wherein the treasurer can add a payment and view payment history.

Add Payment		
<b>Student Information</b> <b>Name:</b> John Mark Dela Cruz <b>Balance:</b> ₱595.00		
<b>Balance Details</b> <b>PTA Fund</b> ₱ 0.00 <b>Utility</b> ₱150.00 <b>Internet for Students</b> ₱200.00 <b>School Paper</b> ₱50.00 <b>Organizations Fee</b> ₱125.00 <b>TLE Fee</b> ₱60.00 <b>SSG Fee</b> ₱10.00 <b>Science Fee</b> ₱ 0.00		
Select payment date: <input type="text" value="2019-04-10"/> OR Number: <input type="text" value="Enter Official Receipt No"/>		
<b>Breakdown of Fees</b> PTA Fund      Utility      Internet for Students <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid #ccc; padding: 5px;">Cleared</div> <div style="border: 1px solid #ccc; padding: 5px;">0</div> <div style="border: 1px solid #ccc; padding: 5px;">15</div> </div> School Paper      Organizations Fee      TLE Fee <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid #ccc; padding: 5px;">25</div> <div style="border: 1px solid #ccc; padding: 5px;">20</div> <div style="border: 1px solid #ccc; padding: 5px;">50</div> </div> SSG Fee      Science Fee <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid #ccc; padding: 5px;">0</div> <div style="border: 1px solid #ccc; padding: 5px;">Cleared</div> </div>		
<input type="button" value="Update"/>		

Figure 59. Add Payment

As illustrated in figure 59. the PTA treasurer will be the one who disseminate or manage the collected fee, or the student can also say where their payment will be allocated

The screenshot shows the BNHS Treasurer application interface. On the left, there's a sidebar with a profile picture of Marilyn, labeled 'Treasurer'. The main area is titled 'Payment Transaction' and shows a table of payment records. A modal window in the center displays a green checkmark icon and the message 'Success! Added payment for John Mark Dela Cruz'. Below the modal, there's a table with columns: LRN, Status, Latest Payment Date, and Actions. The table contains several rows of payment records. At the bottom of the page, there are navigation links for 'Previous', '1', and 'Next'.

*Figure 60. Success Prompt*

As illustrated in figure 60. Once the treasurer has finished and press the update button the successful prompt will display

The screenshot shows the BNHS Treasurer application interface. On the left, there's a sidebar with a profile picture of Marilyn, labeled 'Treasurer'. The main area is titled '\$ Total Amount Collected' and shows a table of fees with their respective amounts. Below this, there's a section titled 'Statistics' with a chart titled 'Payment Collected per Breakdown'. The chart is a horizontal bar chart showing the total amount collected for various budget categories. The categories and their approximate values are: Internet for Students (₱65.00), Organizations Fee (₱45.00), PTA Fund (₱600.00), SSG Fee (₱65.00), School Paper (₱225.00), Science Fee (₱100.00), TLE Fee (₱65.00), and Utility (₱150.00). The x-axis is labeled 'Total Payment Collected' and ranges from 0 to 600. A legend indicates that blue bars represent 'Total Collected Payment'.

*Figure 61. Statistics*

As illustrated in figure 61, it will show the total amount collected for the miscellaneous fee per grade level with the use of graph. The miscellaneous fees are properly allocated depending on the miscellaneous fee type.

### 3.6.4 Student Module

The screenshot shows the Bakakeng National High School Student Portal dashboard. The top header includes the school logo and name, and a user profile for 'Jennie STUDENT'. The left sidebar has a dark blue background with white text and icons. The main content area is divided into several sections: 'Announcement' (with a message about an earthquake), 'Student Status' (showing enrollment details), and a 'Calendar' section which is currently empty.

Figure 62. Dashboard

As illustrated in Figure 62, once the student has logged in into the website, this will be the presentation of their dashboard containing the announcements of their teacher per subject, current student status, and academic performance.

The screenshot shows the event calendar for April 2019. The calendar grid highlights specific dates with blue boxes and labels. Notable events include '12a Easter Sunday' (April 21), '12a The Day of Valc' (April 8), '12a Maundy Thursd' (April 18), '12a Good Friday' (April 19), '12a Black Saturday' (April 20), '12a Samp' (April 27), and '12a Labor Day' (April 30).

Figure 63. Event Calendar

As illustrated in Figure 63, it will show all the events per month in the calendar.

**Statement of Accounts**

Balance: ₱ 900.00 as of April 29, 2019

**History of Payment**

Year of Payment: 2019 ▾

Show 10 entries Search: [ ]

Date	Amount
April 26, 2019	450.00
<b>Total</b>	<b>₱ 450.00</b>

Showing 1 to 1 of 1 entries Previous 1 Next

**Breakdown**

Description	Amount
PTA Fund	300.00
Utility	300.00
Internet for Students	250.00
School Paper	150.00
Organizations Fee	150.00
TLE Fee	75.00
SSG Fee	75.00
Science Fee	50.00
<b>Total</b>	<b>₱ 1,350.00</b>

Figure 64. Statement of Accounts

As illustrated in Figure 64, the student can also view his/her history of payment, and breakdown of fee in case there are clarifications that needs to be addressed.

**Attendance**

No absences! Keep it up!

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Figure 65. Attendance

As illustrated in Figure 65, the student can also view their attendance in a subject containing the date when they were absent and tardy/absent.

Figure 66. Grades

As illustrated in Figure 66, the grade section will display all the remarks, details, and grades per subject every grading and be able to compute the final grade automatically. List of Legend for grades.

Figure 67. Core Values

As illustrated in Figure 67, the core values will display about the value per every grading and have a list of legend for core values.

Time/Day	Monday-Friday
07:40 AM - 08:40 AM	Unassigned
08:40 AM - 09:40 AM	Unassigned
09:40 AM - 10:00 AM	RECESS
10:00 AM - 11:00 AM	Unassigned
11:00 AM - 12:00 PM	Unassigned
12:00 PM - 01:00 PM	LUNCH
01:00 PM - 02:00 PM	Unassigned
02:00 PM - 03:00 PM	Unassigned
03:00 PM - 04:00 PM	Unassigned

Figure 68. Student Schedule

As illustrated in Figure 68, the student will be able to view their entire class schedule every school year.

General Information	
Gender:	Female
Birthday:	April 5
Ethnicity:	Panggalatok
Nationality:	Filipino
Blood Type:	O
Medication:	
Contact Information	
Address:	Bakakeng Norte Baguio City
Father Name:	Jasper A. Dela Cruz
Mother Name:	Josephine P. Dela Cruz
Guardian:	Josephine Pagar Dela Cruz

Figure 69. Student Personal Information

As illustrated in Figure 69, the student can also view their student information such as their sex, birthday, ethnicity, nationality and their contact information.

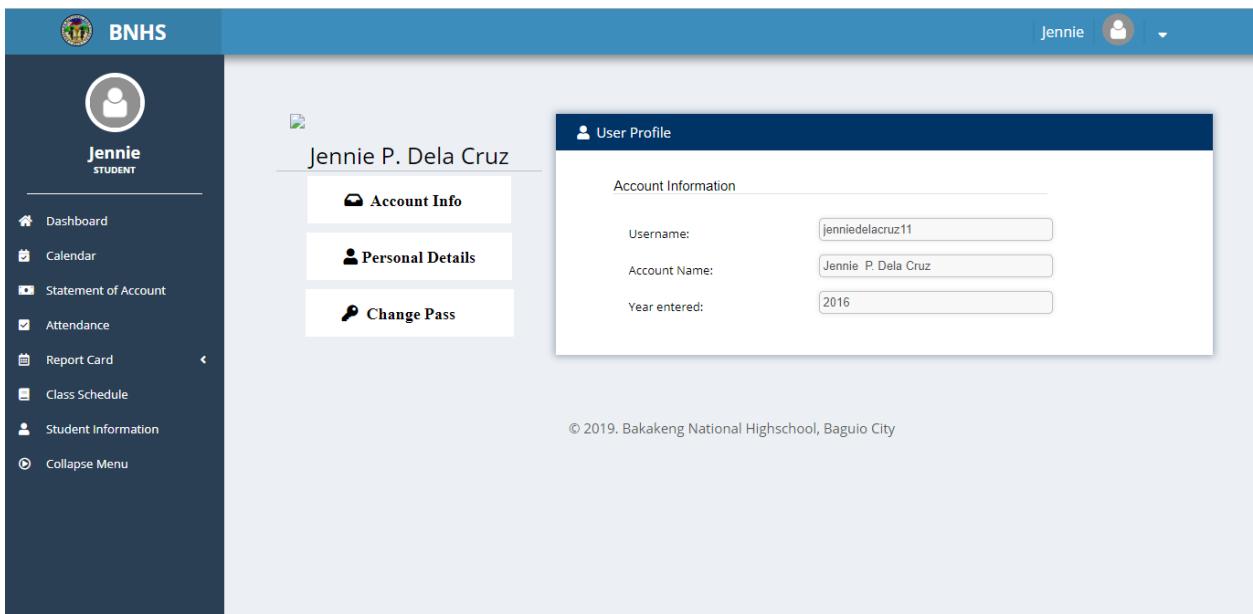


Figure 70. Account Info

As illustrated in Figure 70, the student can view their username, account name and year entered.

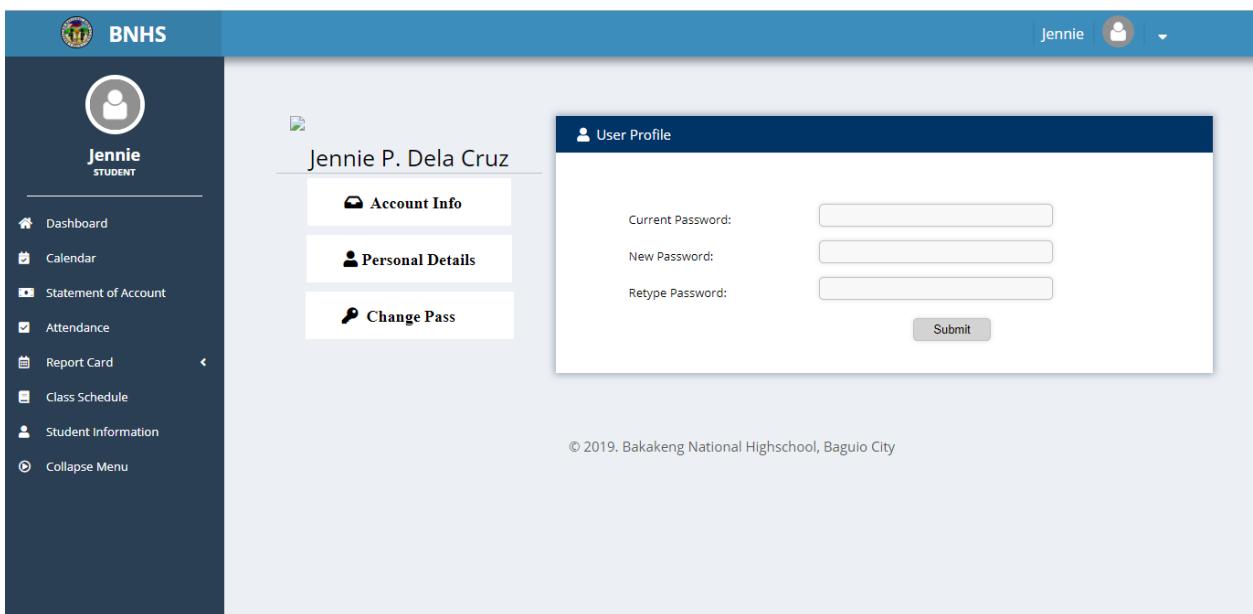


Figure 71. Change password

As illustrated in Figure 71, the student can change their password every now and then for security purposes but is always not recommended, since some may forget their recent passwords.

### 3.6.5 Parent Module

The screenshot shows the BNHS Parent Dashboard. On the left, a sidebar menu includes: Dashboard, Calendar, Statement of Account (selected), Attendance Report, Report Card, Class Schedule, and Collapse Menu. The main area has two tabs: 'Announcement' and 'Calendar'. The 'Announcement' tab displays a message about an earthquake suspension. The 'Calendar' tab shows an empty table for 'Upcoming Holidays'.

Figure 72. Parent Dashboard

As shown in Figure 72, the parent/guardian will be able to view all the school events, holidays and other important announcements which are posted by the administrator of the school.

The screenshot shows the BNHS Parent Calendar for April 2019. The sidebar menu is identical to Figure 72. The calendar grid highlights several dates with blue boxes labeled '12a' followed by event names: 'The Day of Valor' (April 8), 'Maundy Thursday' (April 18), 'Good Friday' (April 19), 'Black Saturday' (April 20), 'Easter Sunday' (April 21), 'Quiz' (April 27), 'Samp' (April 27), and 'Labor Day' (April 30).

Figure 73. Parent Calendar

As shown in Figure 73, the parent will be able to view all the announcements such as school meetings or no classes/suspended due to heavy rain/storm, school events, and holidays.

The screenshot shows the BNHS Statement of Account. The sidebar menu includes: Dashboard, Calendar, Statement of Account (selected), Attendance Report, Report Card, Class Schedule, and Collapse Menu. The main area has two tabs: 'History of Payment' and 'Breakdown of Fees'. The 'History of Payment' tab shows a table of payments from April 27, 2019, and August 16, 2018, totaling ₱ 755.00. The 'Breakdown of Fees' tab shows a table of fees with a total amount of ₱ 1,350.00.

Figure 74. Statement of Account

As shown in Figure 74 the parent/guardian of the student will be able to view all the necessary information about the history of payments or the transactional data of his/her child's miscellaneous fee. In the history of payments section, the payment date and amount paid will be displayed in order for the parent/guardian to be informed every now and then. Also, on the right side of this section, the breakdown of miscellaneous fees will also be shown as a guide.

Date	Subject	Remarks
April 26, 2019	Algebra 1	Absent
April 30, 2019	Integrated Science	Late
July 5, 2019	Algebra 1	Late

**Number of Days Late**  
**Number of Days Absent**

Figure 75. Attendance Report

As shown in Figure 75, this section is very crucial for the parent/guardian so that they will be able to monitor or track their child's attendance and will be automatically updated exact date and the particular subject where his/her child has been absent/late. In addition, it will also automatically compute the total of the number of days late and absent.

Core Values	1st Grading	2nd Grading	3rd Grading	4th Grading
Makatao	AO			
Makadiyos	SO			
Makakalikasan	SO			
Makabansa	NO			

**LEGEND FOR CORE VALUES**  
Non-numerical Rating Marking  
Always Observed **AO**  
Sometimes Observed **SO**  
Rarely Observed **RO**  
Not Observed **NO**

Figure 76. Report Card - Core Values

As shown in the Core Values section, the parent/guardian will be able to see the following behavior of his/her child in every grading such as *Makadiyos*, *Makatao*, *Makakalikasan*, and *Makabansa*. In this section, a particular student will be graded according to the criteria given which are Always Observed (AO), Sometimes Observes (SO), Rarely Observed (RO), and Not Observed (NO).

**Child Grades**

Child Name: John Mark Pagar Dela Cruz - Grade 7-Hope

Note: If your child doesn't have a grade in a particular subject or grading, please consult your child's adviser/teacher.

Subject	1st Grading	2nd Grading	3rd Grading	4th Grading	Final Grade	Remarks	Details
Algebra 1	80						
Filipino 1							
Integrated Science	89						
English 1	75						
MAPEH 1	91						
Phillipine History							
TLE 1							

Figure 76. Report Card - Child Grades

As shown in the Child Grades section, this is very essential for the parent/guardian in order for them to monitor the standing of their child and be able to pay attention when his/her child doesn't have a grade in particular subject. There will be a condition that, if your child doesn't have a grade in fourth grading, his/her adviser will adjust or give them comments such as incomplete requirements, etc.

Note: If your child doesn't have grade on the fourth grading, it means that you child needs to accomplish some requirements that is given by his/her teacher in a particular subject in order for your child to pass the subject.

**Class Schedule**

Child Name: John Mark Pagar Dela Cruz - Grade 7-Hope

Time/Day	Monday	Tuesday	Wednesday	Thursday	Friday
07:40 AM - 08:40 AM			Algebra 1 Teacher: Teodoro Jura. Gibo		
08:40 AM - 09:40 AM			Integrated Science Teacher: John Augusto. Dela Cruz		
09:40 AM - 10:00 AM			<b>RECESS</b> Teacher: Maria Oplay. Losita		
10:00 AM - 11:00 AM			MAPEH 1 Teacher: Gloria Valencia. Rosario		
11:00 AM - 12:00 PM			English 1 Teacher: Teresita Galvez. Morante		
12:00 PM - 01:00 PM			<b>LUNCH</b>		
01:00 PM - 02:00 PM			Unassigned		
02:00 PM - 03:00 PM			Unassigned		
03:00 PM - 04:00 PM			Unassigned		

Figure 77. Class Schedule

As shown in Figure 77, the parent/guardian will be able to see the actual schedule of his/her child from 7:40 AM until 4:00 PM. Also, they'll be able to see the teacher who handled every subject that your child has.

Note: If your child schedule has an "Unassigned" schedule, this means that there is no subject or adviser that is assigned to that specific time

## **Chapter 4** **CONCLUSION AND RECOMMENDATIONS**

The developers have developed a Web-based Student Information System for Bakakeng National High School in Bakakeng Norte, Baguio City. The system was developed to help the school reduce their old manual and paper-based processes, although there are still concerns to be addressed.

The system was developed to achieve the functional and non-functional requirements that were determined by the developers on the start of the project. These requirements are important for the developers to determine the features and properties that the system should possess and what must the modules of the system do.

The developers used and followed the Modified Waterfall process model with the following phases: Requirements Analysis, System Design, Implementation, Testing, Deployment respectively. Although Maintenance is part of the said process model, the developers did not include it as it is not a part of the scope of the project.

Through the Requirements Analysis, the requirements are gathered through conducting interviews with the ICT Coordinator of the school, observations, and form analyses. The problems and the current manual processes are addressed clearly by the respondent. With the requirements specified, the developers were able to determine the modules and the features needed for the developed system. These modules are the Admin module, Faculty module, Student module, Parent module, and Treasurer module.

The design of the system was based on the design models utilized in this project such as the Entity-Relationship Diagram (ERD), Relational Database Schema, Data Flow Diagram (DFD), and Use Case Diagrams. The specified design models were used to build the specified modules and features and to initiate consistent understanding on how the system should be developed.

Moreover, the developers used different tools and technologies in developing the system. Mockplus is used in creating Mockups and Prototypes. Technologies such as HTML and CSS3 are used for the structure and design of the system, PHP used as scripting language for the server-side, and other technologies such as JQuery, JQuery UI for frameworks and libraries, and MySQL used for the database. In addition, XAMPP is the web server used in developing the system locally before hosting it.

### **Recommendations and Future Directions**

1. The use of Asynchronous Javascript (AJAX) in implementing most algorithms in the system is commendable as it is much easier to fetch data and objects in database and to increase the system's performance.
2. It is recommended for users to undergo the required training to understand more how to effectively use the system.
3. The student information system is directed to the juniors of the respective school but can be applicable also to elementary students of Bakakeng National High School.

## References

### a. Journals

Automated Enrollment System of Palompon Institute of Technology. (n.d.). Retrieved

November 11, 2018 from  
[http://www.academia.edu/12645313/AUTOMATED\\_ENROLMENT\\_SYSTEM\\_OF\\_PALOMPON\\_INSTITUTE\\_OF TECHNOLOGY-TABANGO\\_CAMPUS\\_MRVNPC\\_TABANGOLEYTE](http://www.academia.edu/12645313/AUTOMATED_ENROLMENT_SYSTEM_OF_PALOMPON_INSTITUTE_OF TECHNOLOGY-TABANGO_CAMPUS_MRVNPC_TABANGOLEYTE)

Landicho, G. Web based Enrollment and Billing System Chapter I final Revision.

Retrieved November 11, 2018 from  
[https://www.academia.edu/20047753/Web\\_based\\_Enrollment\\_and\\_Billing\\_System\\_Chapter\\_I\\_final\\_Revision](https://www.academia.edu/20047753/Web_based_Enrollment_and_Billing_System_Chapter_I_final_Revision)

Hur, J. (2018, January 04). HostGator Review. Retrieved November 11, 2018, from  
<https://bebusinessed.com/reviews/hostgator-review/>

### b. Websites

8 Features That Make PHP Laravel Framework Best. (2018, August 20). Retrieved

November 11, 2018, from  
<https://www.pixelcrayons.com/blog/web/8-top-feature-s-stats-facts-about-php-laravel-framework/>

10 Lucidchart Features to Productivity. (n.d.). Retrieved November 11, 2018 from

<https://www.lucidchart.com/blog/10-lucidchart-features-to-increase-productivity>

A sophisticated text editor for code, markup and prose. (n.d.). Retrieved November 11,

2018, from <https://www.sublimetext.com/>  
Advantages Of Enrollment System. (2017, June 15). Retrieved October 21, 2018, from

<https://essaybasics.com/advantages-of-enrollment-system-essay-sample/>

Er Parag Verma. (2015, May 25). Retrieved October 11, 2018, from  
<https://er.yuvayana.org/sdlc-incremental-model-design-phase-applications-advantages-and-disadvantages/>

Features. (2013, June 03). Retrieved November 11, 2018 from  
<https://creately.com/tour>

FileZilla. (n.d.). Retrieved November 11, 2018, from [https://filezilla-project.org/client\\_features.php](https://filezilla-project.org/client_features.php)

Ghahrai, A. (2017, July 02). Incremental Model - Advantages and Disadvantages.

Retrieved October 11, 2018, from  
<https://www.testingexcellence.com/incremental-model/Modified Waterfall Model>.

Rayo, L. (2015, January 30). Modified Waterfall Model. Retrieved November 11, 2018

from <https://prezi.com/ne8i4-bsjeyf/modified-waterfall-model/>

Student Information Systems. (2009). Retrieved November 11, 2018 from  
<https://www.techlearning.com/news/student-information-systems>

Then, P. (2006). Online student enrollment system. Retrieved November 11, 2018 from

[https://www.researchgate.net/publication/221467985\\_Online\\_student\\_enrollment\\_system](https://www.researchgate.net/publication/221467985_Online_student_enrollment_system)

Baca, T. (2013). Benefits of Web Based Applications - Flapps. Retrieved from <http://www.flapps.com/benefits-of-web-based-applications/>

About jQuery UI. Retrieved from <https://jqueryui.com/about/>

Font Awesome. Retrieved from <https://fontawesome.com/>

## APPENDICES

### Appendix A: BNHS Enrollment Form

 <b>BASIC EDUCATION ENROLLMENT FORM</b> THIS FORM IS NOT FOR SALE.	<b>ANNEX 2</b>
<p><i>Check the appropriate box only:</i></p> <p>School Year: <input type="text"/> - <input type="text"/> <input type="checkbox"/> No LRN <input type="checkbox"/> With LRN <input type="checkbox"/> Returning (Balik-Aral)</p>	
<p><b>INSTRUCTIONS:</b> Print legibly all information required in CAPITAL letters. Submit accomplished form to the Person-in-Charge/Registrar/Class Adviser. Use black or blue pen only.</p>	
<b>STUDENT INFORMATION</b>	
PSA Birth Certificate No. <input type="text"/>	
Learner Reference No. (LRN) <input type="text"/>	
LAST NAME	<input type="text"/>
FIRST NAME	<input type="text"/>
MIDDLE NAME	<input type="text"/>
EXTENSION NAME e.g. Jr., III (if applicable) <input type="text"/>	
DATE OF BIRTH (Month/Day/Year)	<input type="text"/> / <input type="text"/> / <input type="text"/> <input type="text"/> <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE AGE <input type="text"/>
Belonging to any Indigenous Peoples (IP) <input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, please specify: <input type="text"/>	
Mother Tongue <input type="text"/>	
<b>ADDRESS</b>	
House Number and Street <input type="text"/>	
Barangay <input type="text"/>	
City/Municipality/Province/Country <input type="text"/> Zip Code <input type="text"/>	
<b>PARENT'S/GUARDIAN'S INFORMATION</b>	
Father's Name (Last Name, First Name, Middle Name) <input type="text"/>	
Mother's Maiden Name (Last Name, First Name, Middle Name) <input type="text"/>	
Guardian's Name (Last Name, First Name, Middle Name) <input type="text"/>	
Telephone No. <input type="text"/> Cellphone No. <input type="text"/>	

Figure 78. Enrollment Form 1

<b>PARENT'S/GUARDIAN'S INFORMATION</b>	
Father's Name (Last Name, First Name, Middle Name)	Mother's Maiden Name (Last Name, First Name, Middle Name)
Guardian's Name (Last Name, First Name, Middle Name)	
Telephone No. _____ Cellphone No. _____	
<b>For Returning Learners (Balik-Aral) and Those Who Shall Transfer/Move In</b>	
Last Grade Level Completed	Last School Year Completed
School Name	School ID
School Address	
<b>For Learners in Senior High School</b>	
Semester	<input type="checkbox"/> 1st Sem <input type="checkbox"/> 2nd Sem
Track	Strand (if any)
I hereby certify that the above information given are true and correct to the best of my knowledge and I allow the Department of Education to use my child's details to create and/or update his/her learner profile in the Learner Information System. The information herein shall be treated as confidential in compliance with the Data Privacy Act of 2012.	
_____ Signature Over Printed Name of Parent/Guardian	
_____ Date	
----- For use of DepEd Personnel Only. To be filled up by the Class Adviser.	
DATE OF FIRST ATTENDANCE (Month/Day/Year)	<input type="text"/> / <input type="text"/> / <input type="text"/>
Grade Level	Track (for SHS)

Figure 79. Enrollment Form 2

## Appendix B: BNHS Clearance Form

	Republic of the Philippines Department of Education <i>Cordillera Administrative Region</i> Division of Baguio <b>Bakakeng National High School</b> Bakakeng Norte, Baguio City Telefax 422 9012				
<b>Student's Clearance</b>					
Subjects	Name of Subject Teacher	Signature	Written Work Scores	Performance Scores	
Math					
English					
Science					
Filipino					
TLE					
MAPEH					
AP					
EP					
School Support Staff	Signature	Remarks			
Librarian					
PTA Treasurer					
SSG					
_____ <b>Class Adviser</b>					
_____ <b>School Head</b>					

Figure 80. Clearance Form

## **Appendix C: Transcript of Interview with BNHS ICTR Coordinator**

**Respondent:** Mr. Adoniram Dougash Basingan  
ICT Coordinator  
BNHS

**Interviewer:** Benjie A. Ulep, Denrich G. Villanos, Chari Anne B. Parayno

I: Good afternoon sir. First of all, sir, we would like to know how to enroll in BNHS?

R: Enrollment takes place every last week of May. A student must present all the requirements in order to enroll. For incoming grade 7 students or transferees, the student needs to fill out an enrollment form (see Appendix A), present his PSA birth certificate, Good Moral Character (GMC) if he is from a private school upon enrollment, form 137 which is requested by BNHS from the previous school of the student through the learner's information system we are currently using. We should have the form 137 of the student within 11 months or else the student will be sent back from his previous school, lastly the students need to work which is mandatory (brigada). The student or the parent of the student needs to work in the school for 4 hours (minimum) or 8 hours (maximum) or they can donate money which is not mandatory. For old students, they only need to present their clearance and grade upon enrollment. The clearance looks like this (see Appendix B), all fields must be signed by the all of the student's teacher.

I: Sir, What is the maximum number of students that a class can accommodate?

R: The school is following the DepEd's standard number of students per classroom which is forty (40) as the minimum and seventy-nine (79) as the maximum. We have two sections per year level here in BNHS but ever since we became a national high school in the year 2013 we do not meet the maximum number of students per classroom.

I: What if BNHS reaches the maximum number of students per classroom?

R: We really stick to two section per year level. If that will happen, we will not open another section. We do not decline the students since we are a public high school but we can not do anything to accommodate the student. The student needs to find another school in that case.

I: Okay, sir. How does the faculty determine the students' section?

R: The section of the students is based on first come, first serve basis. They also see to it the distribution of girls and boys per section but there are some advisers who want to separate the lovers and/or friends which is also taken into consideration.

I: How do you determine the advisers of each section?

R: The faculty discusses on who will be the adviser of each section before the school year starts.

I: How about the schedule of each section sir?

R: The schedule of each section is arranged by the math teacher. Scheduling is based on the teachers load for the school year. Usually, the first subject is the advisers subject. So for example, the teacher is a science teacher the first subject of that class is science. Another criteria is, math should not be followed by science or vice versa.

I: Okay sir, who handles the financial information of the students?

R: The PTA Treasurer can is the one responsible for that. He is the one responsible for collecting the payment of the students. PTA Treasurer is part of the PTA Officers, elected every school year. I as the admin and the advisers also have access to the students statement of account.

I: Sir, what features of the system you want for the enrollment system?

R: The enrollment system should be a web-based application, so we can access it anywhere and anytime. Currently, during the enrollment system period the advisers bring home the enrollee's forms and arranges them at their houses.

## Appendix D: Timeframe

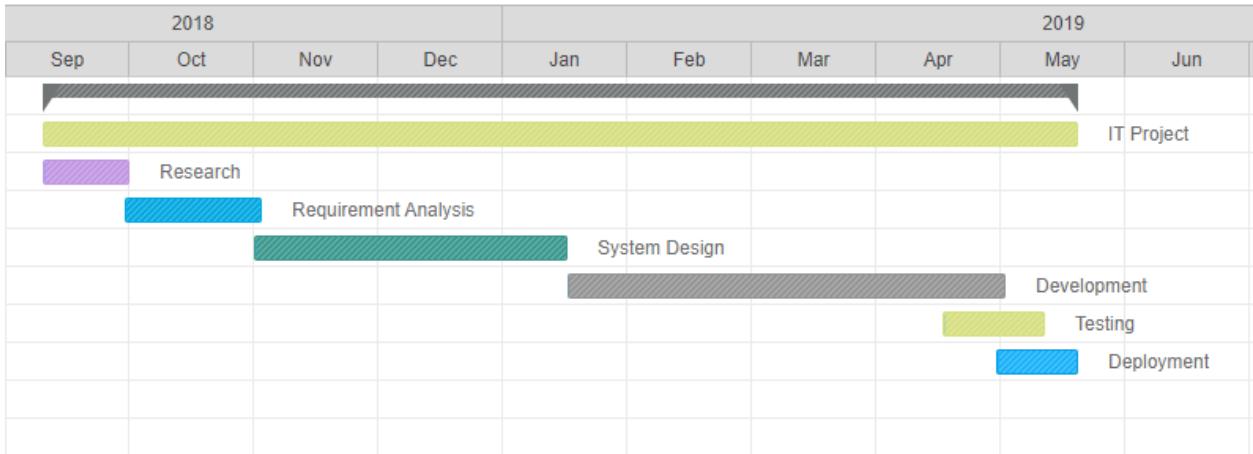


Figure 81. Timeframe for the entire implementation of the system

## Appendix E: Breakdown of Miscellaneous Fee

Handwritten breakdown of Miscellaneous Fee:

(cont...)	
- 300	PTA
- 300	Utility
- 150	School Paper
- 150	Org. Fee
- 75	Techno (TLE)
- 50	Sci. Fee (Science)
- 75	SSG (Supreme Student Government)
- 250	Internet for Students
Total - 1,350	

Figure 82. Breakdown of Miscellaneous Fee