**Chapter 1 – INTRODUCTION**

# Introduction

Back to the days wherein the availability of computers is still in scarcity, many people struggle to manage files, and to make things easier. When computers become available in the market, everything changed. It reduced human errors and processing time, thus it can be boost productivity and resulted into high quality of product produce. Computers made us discover more things around us. It helps us in different things and gives us necessary information.

The Information System (IS) is any combination of information technology and people’s activities using technology to support operations, management and decision-making. The term information system is frequently used to refer to the interaction between people, algorithms process, data and technology. Information systems help to control the performance of business processes. Transaction Processing System (TPS) automate the handling of data about business activities or transactions, which can be thought of as simple, discrete events in the life of an organization. The goal of TPS is to improve transaction processing by speeding it up, using fewer people, improving efficiency and accuracy, integrating it with other organizational information systems. One example of Transaction processing system is Enrollment System.

From the concepts of the said systems, the students came to propose a Billing and Profiling System for Cornerstone Learning Center, which is a good example of computer generated process that needed by every school. This is the process of entering and verifying data of student to register on a particular school. It can lessen the workload and provide accurate information needed of the school. As a result, it will not only benefit the student and guardians but the school administration as a whole.

1. **Rationale**

This system is primarily for the requirement of the System Analysis and Design subject.

The requirement must meet the scope of presenting a system proposal to one designated client in regards with the client’s needs and expectations. In this project, the students are encouraged to examine genuine documents and dialogs correlated from the inputs they received during their interview with their respective client. The students have conducted a business study in Cornerstone Learning Center and found out some problem on their transaction processing. The main offices of the Learning Center are still using manual transactions on paper. From these correlated inputs from their interview with the client, they decided on proposing a Billing and Profiling System for Cornerstone Learning Center, Inc. The students conducted the planning analysis, and design phases and agreed on using the Agile Development (changes will be made if necessary), using an agile methodology approach. Agile Development attempt to encapsulate a wider range of evaluation material into a functional system within a short span of time. Agile Development can be considered as principles for their background basis in implementing the system. It had appeared to be a relatively simple matter to demonstrate the superiority of principles and interface designs over Agile Development in system development and as well as user evaluations.

This business study would also include data diagrams, modelling, and user interface design. It starts from the view that it is possible to identify a common set of principles which underlie a wide range of interface models, from stand-alone applications to web sites, and that such principles stand in contrast to mere design guidelines. The students have decided to make a Billing and Profiling system web application that will help the faculty and the cashier of the school owned by the client. This said proposed system is the client’s need for her school business. The students also suggests things and functionalities that can make the system more efficient and added more aide for the system to be more usable by its end users. This will make use of the students own set of evaluation principles, drawn from a range of sources but in particular from their profound knowledge on their system application design lessons to an application of analysis to interface design. This system proposal would take approximately 30 days to complete with compelling school hours and outside normal class hours.

1. ***Existing System***

The client’s existing system is on manual operations. Their records are written on papers especially their financial records. The receipts certify that guardians have already paid the student’s balance are also written on papers which serves as their official receipts. They keep their records in shelves and arranged them alphabetically by their students’ surname. They also keep their students’ basic information and identification pictures through paper records and through DepEd’s centralized government database called L.I.S (Learning Information System).

1. ***Proposed System***

The proposed system to be made by the students is for the Cornerstone Incorporated’s Billing and Profiling System. This system is proposed through the help of their client who agreed on their requests to conduct a business study on her learning center and to propose a system which is needed and usable to meet the needs of her business with a goal of giving a specified automated system that can lessen the workload and payloads of the learning center’s employees.

The system includes a database that will hold the context data obtain from the future transactions in the billing services of the system and students basic information will also be pre-loaded in the system for the profiling contents. The system will have a billing system that will automate the cashier’s work. It will have a functionality that will record payments and will show the balance of the students. It will also require the minimum payment as instructed to us by the client. The profiling functionality of the system will show basic information of the students and their balance accounts that will be a suitable tool for the school administrator and faculty to check on the different status obtained by the students. The admin side which will just be accessible solely by the school admin and system developer will contain CRUD (create, read, update, delete) functionalities for the user management needed for the deployment and monitoring of the proposed billing and profiling system.

1. **Project Context**

Each school has a responsibility to maintain records from their students. Keeping records and the storing student’s information are important functions of both the administration and teaching staff of a school. Moreover, it is a task which requires time, and a lot of effort on both parts of the teachers and the administration. Although schools have their own methods of creating and keeping records, they should consider the most efficient and effective way of storing records and information, in other words, automated or electronic forms in addition to the security of the records they meticulously acquired thus, this Billing and Profiling System is highly taken into consideration. The Cornerstone Learning Center Inc., Billing and Profiling System (BPS) is designed for the use of school registrar, cashier, teachers, and the administration to help them with their task.

The proposed system that the students aim to implement is a billing and profiling system typically for a school setting. The functionality of the product should be well specified by the students, but with the guidance of their professor. They should be able to break it down to multiple sub-systems (e.g., front-end sub-system and back-end sub-system). Students also work in groups. Their team consists of three members, each working on a separate task, working collaboratively, yet as independently from each other as possible.

Their client owns the Cornerstone Incorporated that handles two branches of a Primary School, an institution which provides a learning center for kindergarten up to 3rd grade for the elementary pupils. From the data gathered during the student’s interview with the client they have learned that the learning center does not have a system for their cashiering and billing services but beforehand they first asked what their client would like them to make as a system for her business. Both parties agreed that the students would proposed a billing and profiling system for the Cornerstone learning center.

1. **Purpose, Description, and Significance**

This is an in-depth business study particularly for an application. There was a definite need for a genuine analysis to develop the system. The data gathering might get a little complicated in the reporting of data due to the complicated statistical procedures used. Overall, it was a very interesting, significant contribution to the business of our client. The design of the interface will cover up information gathered from different case studies that the researchers have conducted

In general, this system will make an improvement on the billing transactions and profiling of the students of Cornerstone Learning Center administered by the faculty and administration of the said learning center. Specifically, this study is helpful to the following:

* **Students and Guardians.** The functionality of the system may hopefully provide the guardians of Cornerstone Learning Center the ease of access on viewing the grades and billing accounts of their students. Also it is also beneficial to the parents because it will help them lessen the time it takes help them know the appropriate tuition fees of their children
* **Teachers.** This will lead the teachers to provide and upgrade the monitoring and record keeping strategies of the grades of the students. Through the use of the system, the teachers can easily inform the guardians of each students about their improving logical comprehension and make amends about the room for improvements in their student’s intellectual capacity to produce better and successful primary students in the future.
* **School Administrator.** This system will help the school administrator on monitoring their employees especially their cashier and registrar. It can also help the school admin on monitoring the profiles of the students and for profiling documentation for any requirements needed to be submitted by any circumstances.
* **Cashier.** The billing system will be a good help to the cashier in making faster transactions on payments and bookkeeping purposes.
* **Registar.** As the person liable in keeping the records of the students, the profiling management of this system can help the register in keeping the records of the students efficiently in a way that it can already be stored in a database for faster sorting if ever it is needed for any requirement compliance. . Once the system was implemented, it help reduces the work of the Registrar’s staff. All the students’ record will be stored in the systems database. Through the use of the system, acquiring information by the users will be served with fewer delays; even decisions could be made easily based on the latest input data.
* **Researchers.** This study serves as a guide to make a further and better research concerning on the billing and profiling system of CS students but also in the national and local CS professionals and students.

1. **Objectives**

**General Objectives**

The main objective of this proposal is to develop and implement a web based Profiling and Billing System for School Institution, that can eliminate human errors and processing time, thus it can boost productivity and can result into high quality of product produce. The system will also avoid the loss of files. The proposed system will automatically compute the tuition fee charges of the students and provide detailed statement of account of their transaction. The said system has secured billing and profiling process that will give appropriate report of every transaction made.

**Specific Objectives**

Specifically, this study ought to demonstrate the following:

* Generate a billing and profiling system for Cornerstone Learning Center for a faster transaction method.
* Develop a system that will avoid consuming a lot of time for searching student records in a filing cabinet.
* Automatically compute the charges and print detailed statement of account of the transaction of each enrollee.
* Build a database of profiling and billing process that will enable the students, parents and school administrators to see complete transactions faster and conveniently.
* Provide better security for the profiling file of every student.
* Develop a system that will lessen the production of inaccurate information when it comes to using manual calculation and documentation.

1. **Scope and Limitations**

The scope of the proposal involves the building of a Profiling and Billing System of Cornerstone Learning Center. This proposal involves the time and money spent, the tools or methodology and techniques used, the technology used, and the number of personnel needed for the proposal to be completed. Techniques involved choosing the correct development methodology and technology in order for the proposal to be fit according to the client’s need.

The application is only limited as a billing and profiling system that includes minimal features of a profiling system and billing system connected to a computer with a database that can keep records competently. The features of Cornerstone Billing and Profiling Systemincludes a billing system, and a profiling system which stores basic information of the students that are currently enrolled in the learning center, and this application will also serve as a record keeper that can directly view the gathered student information to some other users according to their user restrictions and to some established educational departments for any requirement compliance and analysis.

**F. Cost Benefit Analysis (Optional) -** IF **you** found out that your group needs to really justify your proposal.

**G. Review of Related Literatures/Systems**.

**Related Literature**

The literature and studies cited in this chapter tackle the different concept, understanding, and ideas, generalization or conclusions and different development related to study of the billing and profiling system from the past up to the present and which serves as the researchers guide in developing the project. Those that were also included in this chapter helps in familiarizing information that are relevant and similar to the present proposal.

**Local**

As said by Gonzaga (2011), “Lack of information system in schools can lead to chaos and troubles.” Guardians will be confused on what they should do to be able to know their students current billing status and to get important documents, that is why such systems is extremely useful in the way that it gives an ease on working on billing and document processes. A profiling system is very useful in retrieving vital information of the students. Without it can lead difficulty both for the administration of school and student in documentation processes Many countries today, especially the developing nations are challenged by the fast-technological changes. This has drastically changed the living and working styles of the entire society. This transformation has been driven partly by rapid technological innovation. While in the 20th century, people saw the rise of the industrial revolution with steam-powered machines intensifying and expanding human productive power, the 21st century was characterized by the birth of machine-powered flight and the emergence of broadcasting and computer technologies that extend the reach of human creativity even more and made new ways possible by which humans could live and work together (Tinio, 2002). As a citizen of the 21st century the students are challenged to proposed and create a computerized billing and profiling system that will solve the problem of the manual system. A system that will make the work faster and will be done with ease.

According to USEP Portal (2012), a school portal is a genius solution. Students will experience the convenience of knowing their current billing status and grade standing everywhere they wanted to view it. PRISMS is the all in one system of the University of Southeastern Philippines from Admission to Graduation of their students and now it is invading the world wide web. PRISMS Portal offers you a full convenient package for the teachers & students of University of Southeastern Philippines during enrollment period.

**Foreign**

According to Rowley (2005), information systems are a tool to support information management. Information systems are increasingly being used in organizations with the objective of providing competitive advantage. The information systems used by organizations can be grouped into different types such as transaction processing system, management information system, decision support system, executive information system, expert systems and office information system. Information Technology has heralded the advent of the information society. The information society may be a “virtual society‟. The concepts of the electronic classroom, the electronic office and electronic library have been explored. Information system poses a number of issues on society in general, including: changing employment patterns, archiving, and bibliographic control, security and data protection, intellectual property, marketplace issues and access.

A billing and profiling system is basically included in one of the classification of information system that is stated by the author, thus it serves a tool to support information management with regards to the student data, enrolment fees information and other with a connection to the enrolment process. Every school gain competitive advantage of having this system for they will have the capacity on handling important information at ease and with security.

**Related Systems**

**Local**

According to Solomon (2002) stated that the needs for computer are constantly growing, the need for a more timely information and data processing comes on demand keeping the record of any manual operations need the application, because handling it manually will only be conflicting this System was made to lessen the time and effort exerted by both student and school employees. It is also made to give accurate reports and keep records of every students and for easy and fast way of enrollment.

Developing a School Information System, to know how to read sign the data that is used to be kept the record files of students and also that, it could be mange more efficiently in computer with his project , This conducted system goes along the trend of computerization to be in the field of competitiveness and survive to the complicated works developed a program using database III which capable of retrieving, access in manipulating of data in easy way The study was conceived because of the need to update the current registration system of Cornerstone Learning Center, which is done manually.

According to Gevera(2010), Academic Institutions Management Systems is the system that will finally help academic institutions attain its goals in the most effective and efficient manner through planning, organizing, leading, and controlling organizational resources. Schools of learning should be in a constant state of metamorphosis to be able to meet the challenges of a highly evolving world. Classified information is key to its decision-making process. The school owners and administrators should plan on how to accomplish this goal. A system should be in place or developed to be able to set standards, answer queries about applicants', students' profiles among others. An organized system will necessarily bring about a sense of shared responsibility

**Foreign**

According to Gurewich (1999) that the database system makes the work faster for every institution. For the mere fact that instead of doing things manually, with the use of computer technology everything is done fasters. This system was used an SQL in database that give less time to the employee of the school that inputs a record or information about the client or what we called enrollees. In their database they are not displayed the whole table only the important entities are displayed when you run the program. They made this a guide to this system because of the functionality of their database.

**Chapter 2 – METHODOLOGY**

1. **Methodology Used**

To deliver the needs and requirements of the proposed project, the developers decided to use Agile Development as a development methodology. It is a software development methodology that uses minimal planning in favor of rapid prototyping. The agile approach is a software development approach that focus on the four values of communication, simplicity, feedback, and courage. Since the students have a little time of planning the application development they have agreed on choosing the said methodology. The agile model follows quick implementation methods and wherein features are exposed gradually and can changed immediately.

**Exploration:**

During exploration, the researchers have explored the client’s environment, they have asserted their perspective that the problem can and should be approached with agile development, assemble their team, and assess the skills of each team member. They also examined the technologies they can use to propose build the new system which is also a requirement for their other subject. The timeframe they have agreed on following is also made in this stage. In exploration, the students start to understand the real problem of the business of their client. Their point is to get a refine view of the client’s story which is enough so that they can competently estimate the amount of time it will take to build the solution into the system they are planning. This stage is all about adopting a playful and curious attitude toward the work environment, its problems, technologies, and people.

**Planning:**

During this initial stage, the students and the client came to a coarse agreement on the project scope and application requirements, so that future stages with prototyping can begin. They asked what the client truly needs in her learning center, the client which is also the school administrator of the said learning center told the students that she needs an automated system for the billing and profiling transactions of Cornerstone Learning Center. The students have suggested features so that the client can decide what kind of system will she wants the students to make for her learning center. Systems like monitoring system and billing system are presented to the client, the students also asked questions to the client for a better understanding on what kind of system will they be making on the client. After frequent meetings they have agreed that the students will make a Billing and Profiling System for Cornerstone Learning Center, Inc.

**Iterations to the first release:**

This step has not been properly observed by the students but in the long run one important point of this methodology has been used by the students which is the gaining of feedback from the client. The students have designed an initial low-fidelity design of the Profiling and Billing System and they put an emphasis on presenting it on the client and to gain her approval on their proposed design. Since user feedback is necessary and it requires comments and feedback from the user, they gathered the data with heavy emphasis to be able to use it in determining the system architecture. This allows the student to have a scheme on initial modeling and prototypes to be created. This step is repeated as often as necessary as the project evolves to update the current design of the system to a more relevant design in accordance to the user’s needs. Typically, these are iterations (cycles of testing, feedback, and change) of about three weeks in duration. The students will be pushing their selves to sketch out the entire architecture of the system, even though it is just in outline or skeletal form. One of their goal is to run ask for the customer approval for every functional test at the end of each iteration. During the gaining of user feedback, the students also asks question whether the client still needs improvement on the current iterations.

**Productionizing:**

Once basic user and system design has begun, the construction phase is where most of the actual application coding, testing, and integration takes place. Along with User Design, the swift construction phase is repeated as often as necessary, as new components are required or alterations are made to meet the needs of the project. In this phase, the feedback cycle speeds up so that rather than receiving feedback for some iteration every three weeks, software revisions are being turned around in one week. The students institute daily briefings, so everyone knows what everyone else is doing. In this phase the students already have a proposed system, but may be improved by adding other features suggested by their professor and client.

**Maintenance:**

The final transition stage allows the development team time to move components to a live production environment, where any necessary full-scale testing or team training can take place. Once the system has been released, it needs to be kept running smoothly. New features may be added, riskier customer suggestions may be considered, and team members may be rotated on or off the team. There are some issues which come up in the client environment. To fix those issues patches are released. Also, to enhance the product some better versions are released. Maintenance is done to deliver these changes in the customer environment.

Every system is like human, it gets tired, get logy and even give up when it is over use that is why a good maintenance for a system is needed. The proposed system has a weekly back up and support. It should be also a man friendly system that is the user will know how to use it.

1. **Technical Background and/or Conceptual Framework**
2. **Requirements Specification**

Billing and Profiling System of Cornerstone Learning Center, Inc. is a web-based application which can be used by the learning center to make faster transactions on their billing and profiling transactions.

They have used the following technologies to create the Billing and Profiling System:

* **PHP** - PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.
* **CSS** - CSS stands for Cascading Style Sheets.CSS describes how HTML elements are to be displayed on screen, paper, or in other media.CSS saves a lot of work. It can control the layout of multiple web pages all at once. External stylesheets are stored in CSS files.
* **JavaScript** - JavaScript is a cross-platform, object-oriented scripting language. It is a small and lightweight language. Inside a host environment (for example, a web browser), JavaScript can be connected to the objects of its environment to provide programmatic control over them.
* **XAMPP** - is the most popular PHP development environment. XAMPP is a completely free, easy to install Apache distribution containing MariaDB, PHP, and Perl. The XAMPP open source package has been set up to be incredibly easy to install and to use.
* **HTML** - (Hypertext Markup Language) is the set of markup symbols or codes inserted in a file intended for display on a World Wide Web browser page. end.
* **JQuery**
* **MySQL**

**b. Analysis (Project Context or other call it Level 0) – *Note: Use Kendal for reverences and Legend for us to be uniform.***

**1. DFD**

**2. ERD**

**3. Use Case**

**c. Design**

**d. Development**

**e. Testing**

**f. Work Plan** In addition to the process, the student should include a work plan for doing the research. It should include a Gantt chart and Weekly Progress report attached to the appendices.

**Chapter 3 – RESULTS AND DISCUSSION**

In this section, the results of the study are presented. The tables are provided to give clarification of the representation and discussion of the data. The findings are presented according to how far have the students meet the requirements of the client.

**a. Results - you may use** Figures and Tables as an evident

**b. Discussion**

The present state of the proposed Billing and Profiling System for Cornerstone Learning Center as perceived by the client was found to have minimally met the five requirements of quality software as directed by the Agile Methodology, namely: Data Reusability, Data Maintainability, security, usefulness and functionality, and evaluation on the system appeal only to a “moderate extent”. System Functionality of the proposed system was given a “low extent” rating.

1. With regards to the billing procedures and the keeping of records of students, the proposed system was given an overall rating of “fair” by the respondent.
2. To enhance the effectiveness and performance of the proposed system, it is proposed that features such as online student information system be incorporated.
3. The developed student information system was perceived to be effective to a “high extent” by the respondents along the characteristics of quality software namely: Data Reusability, Data Maintainability, security, usefulness and functionality, and evaluation on the system appeal. On the other hand, “moderately extent” rating was given to usability and efficiency.
4. The data generated by the study showed that the proposed billing and profiling system is superior when compared to the existing system along the characteristics of Data Reusability, Data Maintainability, security, usefulness and functionality, and evaluation on the system appeal.
5. The proposed billing and profiling system provided greater satisfaction to the users compared with the existing system with regards to the delivery of enrolment procedures and keeping of student information records.

**c. Recommendation**

From the study’s findings and conclusions, the researcher recommends the following:

1. It is recommended that the proposed Billing and Profiling System must be implemented in order to improve the delivery of billing procedures and record keeping of student information as well as to address the problems encountered with the existing system.
2. If the proposal will be implemented, the developed system should be given attention for further study and enhancement especially in terms of its usability and efficiency.
3. Additional measures to minimize the drawbacks of using the billing and profiling system should be studied and adopted, particularly if the online student information system will be realized.
4. A full time technically proficient system administrator should be appointed to handle system administration tasks to ensure sustainability of the system. To ensure this, training must be provided.
5. The registrar and cashier, as well as faculty members and students should be trained or at least be oriented on how to use the developed Student Information System.
6. The availability of key features such as faster billing inquires and as well as getting documents and information must be well executed to help the school personnel and the guardian to know the overall performance of a student.

**d. Conclusion**

Based on the findings, the following conclusions were drawn:

It is concluded that automation of existing student information system, such as the delivery of enrolment procedures and keeping the records of student information such as: keeping of admission requirements during enrolment, personal information, student subjects enrolled and class schedules, and knowing the overall performance of students will maximize the utilization of the full range of benefits of Information and Communications Technology. The performance of the proposed Billing and Profiling System is minimal, but it is more rapid and effective than the existing billing and record system of the Cornerstone Learning Center. With regards to the quality characteristics that were used to evaluate both the existing and the proposed system, it is also concluded that the proposed Billing and Profiling System is much better than the existing system which is on manual operations.

In a nutshell, the students, recommends to the school personnel such as the faculty members, students and the administrators that need for the developed Student Information System is greatly needed to meet their software expectations.

**References**

Roberts,K.F.(1998). “Profiling System for St. Mary’s Tagum”.

Retrieved from <http://prezi.uvm.edu/ppt/40hrenv/index.html>

Tinio, C. (2002) “Admission System and Online Examination for Benguet State University”. Undergraduate Project Study. Benguet State University, 2005.

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**Appendices**

**a. Curriculum Vitae**

**b. Certificate of Completion**

**c. Code Snippets**

**d. User’s Manual**

**e. Evaluation Tool**

**f. Oher relevant documents**

**Hardbound manuscript should observe the following specifications:**

**1. Font**

**a. Style : Times New Roman**

**b. Size : 12**

**2. Spacing**

**a. Between Sentences single space**

**b. Between Paragraphs single space**

**3. Indention: First sentence of every paragraph**

**4. Margins:**

**a. Top 1 inch b. Left 1.5 inch c. Bottom 1 inch d. Right 1 inch**