COMPUTERIZED LIBRARY SYSTEM FOR SAN ESTEBAN NATIONAL HIGH SCHOOL (SENHS)

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INTRODUCTION

Project Context

Library is regarded as the brain of many institutes. It is the place in which literary and artistic materials such as books, periodicals, newspapers, pamphlets, prints, records, and tapes are kept for reading, reference or lending. Library system project offers many flexible and convenient features, allowing librarians and library users to maximize time and efficiency. Library System gives all detailed information about students, staff and books. It will track on how many books are available in the library and books issued to the students. These changes in effect make man's life easier and more convenient. (Erickson, 2016)

One of the most important advantages of a computerized system is it saves time for businesses. Other advantages include automation, accuracy, cost-effectiveness and easy data access. In addition, computerized systems are secure, have high speed, and are scalable and reliable. Computerized systems involve making use of computer programs and software to record, store and analyze data. (Gentry, 2017)

Traditionally, library systems are implemented manually. Forms are given to Librarian and they fill them of using pens. Afterwards, the school administrators process them manually and complied on large bulky file cabinet. Indeed, the manual Library system is very costly, time consuming and tedious. The primary complaint of school administrators with this

system is the tiresome task of searching through records just to verify your query data. Manual systems are also slow to operate.

The Sta. Monica De Minalin Montessori School (Alcantara, 2011) developed a Computerized Library System to help the institute in book borrowing, returning, searching, adding, deleting of materials and generating reports. Retrieving and organizing of materials will improved, thus an accurate inventory control. Instead of using Daily Statistic Record, the system will provide the needed data. With the computerized system, data such as inventory can retrieve easily. Since all the materials are stored in the database it will be easy for the user to keep every item in control. The system will implement a close system. In this system, books are secured and monitored by the librarian properly. It will help, especially those who are not literate enough with the computers, to adopt the new system and communicate with it more easily. A systematic way of generating necessary reports, a database where the necessary information about the processing are organized, which is to be updated from time to time.

The relationship between the library and computer is constantly changing that the use of computer contributes to the way man learns and communicates. It easy in this world to strive for changes and since library is no different from any firm and institution, considering the use of computer to perform a given task will be efficient. Librarians have the responsibility not only to know about the ways in which libraries will be

managed using techniques of computerized, but also to be aware of the changes that computerized can bring to the library services in the near future. (Anderson, 2015)

San Esteban National High School is located at Villa Quirino, San Esteban, Ilocos Sur. The principal of the school is Dr. Josefina de Peralta, the head teacher of the school is Mrs. Gracia M. Tapaoan and the Part-Time Librarian of the school is Mrs. Loida L. Europa. The services offered in the school are junior high school and senior high school. The courses offered in senior high school are TVL (Technical Vocational Livelihood) and HUMSS (Humanities on Social Sciences).

The San Esteban National High School, uses only a manual process. Where in, students only write their name on the log book and they get the book they will borrow. After getting the book in the bookshelf, they will write again the title of the book and what number of the book they borrow on the log book. Then, they have only two weeks to borrow the book. When the students wants to return the book, they just informed the in-charge of the library, Mrs. Loida L. Europa, so that Mrs. Europa will marked "returned" on the log-book. And if the students lost or misplaced the book and they didn't returned it, they can't borrow any title of the book in the library.

For these reason, the researchers propose a Computerized Library System for San Esteban National High School to be easy for the user to keep every item in control and data such as inventory can retrieve easily.

Purpose and Description

The purpose of creating a Computerized Library System is to monitor the book being borrowed by the student and to track if the borrowed book is being returned or unreturned. This will help the following:

San Esteban National High School. The creation of this system offers great contribution for more easily to the library to monitor the books.

Students and other Library Clients. Through a computerized system, students could easily find the books that they are looking without doing the traditional way of searching the books and other library materials. Convenience is more visible for it is not time-consuming, resulting to a number of accomplished works.

Librarian. The computerized library system would improve the monitoring capacities of those who maintain the library. It would be easier for them to determine whether a particular book is on-shelf or not. In addition, they can easily identify when will the borrowed material be returned and if the borrower has failed to return the book on its due date. Furthermore, the librarian will be much guided when it comes to recognizing new inventory books, letting them arrange it promptly and accordingly.

Researchers. This served as a way for the developers to apply different principles in creating a computerized library system. Aside from enhancing

their skills about programming, it can also relate concepts involving their course.

Future Researchers. The result of the study serve as basis for other researchers in developing and conducting for better outputs and future reference for researchers who have the interest in the same related project.

Review of Literature

According to Margaret Rouse (2017), a Web site is a related collection of World Wide Web (WWW) files that includes a beginning file called a home page. A company or an individual tells you how to get to their Web site by giving you the address of their home page. From the home page, you can get to all the other pages on their site.

Since site implies a geographic place, a Web site can be confused with a Web server. A server is a computer that holds the files for one or more sites. A very large Web site may be spread over a number of servers in different geographic locations.

A synonym and less frequently used term for Web site is "Web presence." That term seems to better express the idea that a site is not tied to specific geographic location, but is "somewhere in cyberspace." However, "Web site" seems to be used much more frequently (Margaret Rouse, 2017)

Based from Web anywhere (2016), you can have multiple Web sites that cross-link to files on each other's sites or even share the same files. School website is very important for making a good first impression as it often is the first contact that people have with the school. Therefore, the school website affect the overall image and reputation of your school which can lead to increased admissions. Having a good school website is also very important for delivering a good user experience for its regular users including teachers, students, and parents. (Webanywhere, 2016)

According to Online Library Management System (OLMS, n.d.) OLMS provides power and productivity to small, medium and huge library centers. With this feature-rich Online LMS, there is never a need to worry on valuable data. All of your data, including archival data, remains instantly accessible all the time—with no system slowdown. Up-to-date information on books, members and status reports is just a click away. Broadcasting feature is added in the system to help not only the administrations but also the members in information dissemination. Security of data is never a question with multiple implementation procedures, from associating username to links the user is authorized to visit, access level rights, to recording of every transaction that the system is handling. LMS is user-friendly and valuable in giving much needed information, anytime, anywhere.

The features on library are first, ALL in ONE System. Administration, Cataloging, Circulation, Online Public Access Catalog (OPAC), Online Students Status Query (OSTQ), Bulletin Board, and Feedback System, all integrated in one system. An OPAC is designed to give the user bibliographic details of holdings in the collection of a particular library. Many OPACs also let the users search the OPACs of a number of other libraries simultaneously, using the Z39.50 protocol. Z39.50 is an international standard for communication between computer systems, primarily library-and information-related systems. Second, Online Student's Status Query (OSSQ). Allows students to check his/her

borrowing status such as what book(s) are issued to him/her, overdue books, due dates, and updated fines. Third, Bulletin Board. A page which serves as bulletin or announcement board allowing the administrator and library staff to post announcements or reminders visible to librarians only, to students, or everybody using the system. Fourth, Feedback System. Let everybody (whether member or nonmember) post comments about the system, and also recommend books which the user deemed important to be made available in the library. (Online Library Management System, n.d.)

According to Miller (2015), the rules of the library are Readers are requested not to bring their belongings in the library. Storage facility is provided at the entrance of the library to keep their belongings. Silence and Discipline must be maintained in the Library Premises. Use of eatables in the library is strictly prohibited. Utmost care shall be taken by all to keep the library clean. Students are required to handle the books and reading materials very carefully. Marking library books with pencil or ink, tearing the pages or spoiling the same is strictly prohibited. Newspaper and Magazines will not issued and can only be consulted for reading within the library premises. Reference material will not be issued for any reason. Maximum of 2 books will be issued to one reader for ten days only. Every student must possess his/her library card or ID while making use of the library facilities. Users have to take care of their belongings. The library is not responsible for the loss or misplacement of their personal belongings.

Users are requested not to be displaced the sitting arrangement. (Miller, 2015)

Objectives of the Study

This study aimed to develop a Computerized Library System for San Esteban National High School that would store the students' basic information, book records, and list of borrowers, returned books, borrowed books, and prescriptions of the librarian. Specifically, it sought to:

1. Identify the current library system of San Esteban National High School.
2. Develop a Computerized Library System for San Esteban National High School.
3. Test the usability of the proposed system in terms of:
    a. Attractiveness,
    b. Controllability,
    c. Helpfulness,
    d. Efficiency, and
    e. Learnability

Scope and Limitation of the Study

This study was conducted during the second semester of the Academic Year 2017-2018 at Ilocos Sur Polytechnic State College, Sta. Maria campus.

The coverage of the study was directed to design and develop a Computerized Library System for San Esteban National High School. The system is online and it provides the Administrator account to provide security and management of records. The system can determine who borrowed a certain book or who returned the book. It can searched name of students, subject/s, and the title of the book and the authors of the book being entered by the librarian. It is also capable in editing name of students and books especially when the librarian entered a wrong name or title of the book and deleting name of students when the student didn't continue his / her studies. The system also have users which is subdivided into two, the librarian and the students. The librarian has an admin and a user.

However, the system is not capable of determining penalties for late returning of books and id doesn't print reports.

Chapter II

METHODOLOGY

Rapid Application Development Model

RAD (Rapid Application Development) is a concept that products can be developed faster and of higher quality through: gathering requirements using workshops of focus groups prototyping and early, reiterative user testing of design. The re-use of software components are rigidly paced scheduled that differs design improvements to the next product version. Less formality in reviews and other team communication. Some companies offer products that provide some or all of the tools for RAD (Rapid Application Development) software developer.

Rapid Application Development (RAD) also is both a general term used to refer to alternatives to the conventional waterfall model of software development as well as the name for James Martin's approach to rapid development. In general, RAD approaches to software development put less emphasis on planning tasks and more emphasis on development. In contrast to the waterfall model, which emphasizes rigorous specification and planning, RAD approaches emphasize the necessity of adjusting requirements and reaction to knowledge gained as the project progresses. This causes RAD to used prototypes in addition to or even sometimes in place of design specification. RAD approaches also emphasize a flexible process that can adapt as the project evolves rather than rigorously defining specification and plans correctly from the start. In addition to

James Martin's RAD methodology, other approaches to rapid development include agile methods and the spiral model. RAD especially well suited developing software that is driven by user interface requirements. Graphical user interface builders are often called rapid application development tools.

All units developed in the previous phase are integrated into system. This system will be using HTML, Bootstrap, JavaScript, and PHP Programming Language; and MYSQL for the database.

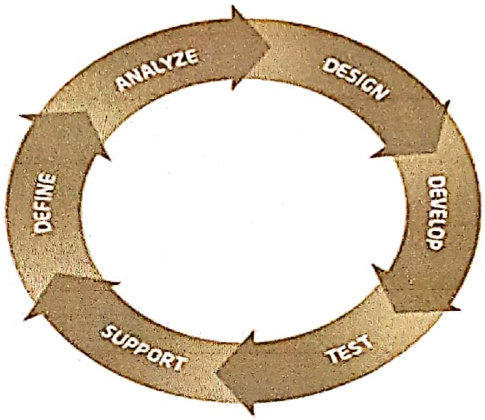

Figure 1. RAD Model

Define. The researchers in this phase identified the current situation of the library in San Esteban National High School by interviewing the school librarian and analyzing relevant documents.

Analyze. The researchers carefully analyzed the gathered information in order to find out how the system operates and be broken down into modules.

Design. The researchers worked on a detailed and complete design of the system. This phase looked at how the software would be built and how the system will operate and what hardware devices will be needed.

Develop. The researchers in this phase, constructed the actual physical application, and creating of functional and non-functional requirement of the system.

Test. The system was executed for testing and debugging purpose. The developed system was also tested by the intended users/ clients to determine its functionality and usability. The researchers tested the system against the identified system requirements during the Design phase.

Support. The future researchers would enhance the system for a better version.

Project Plan

Capstone Project Timeline

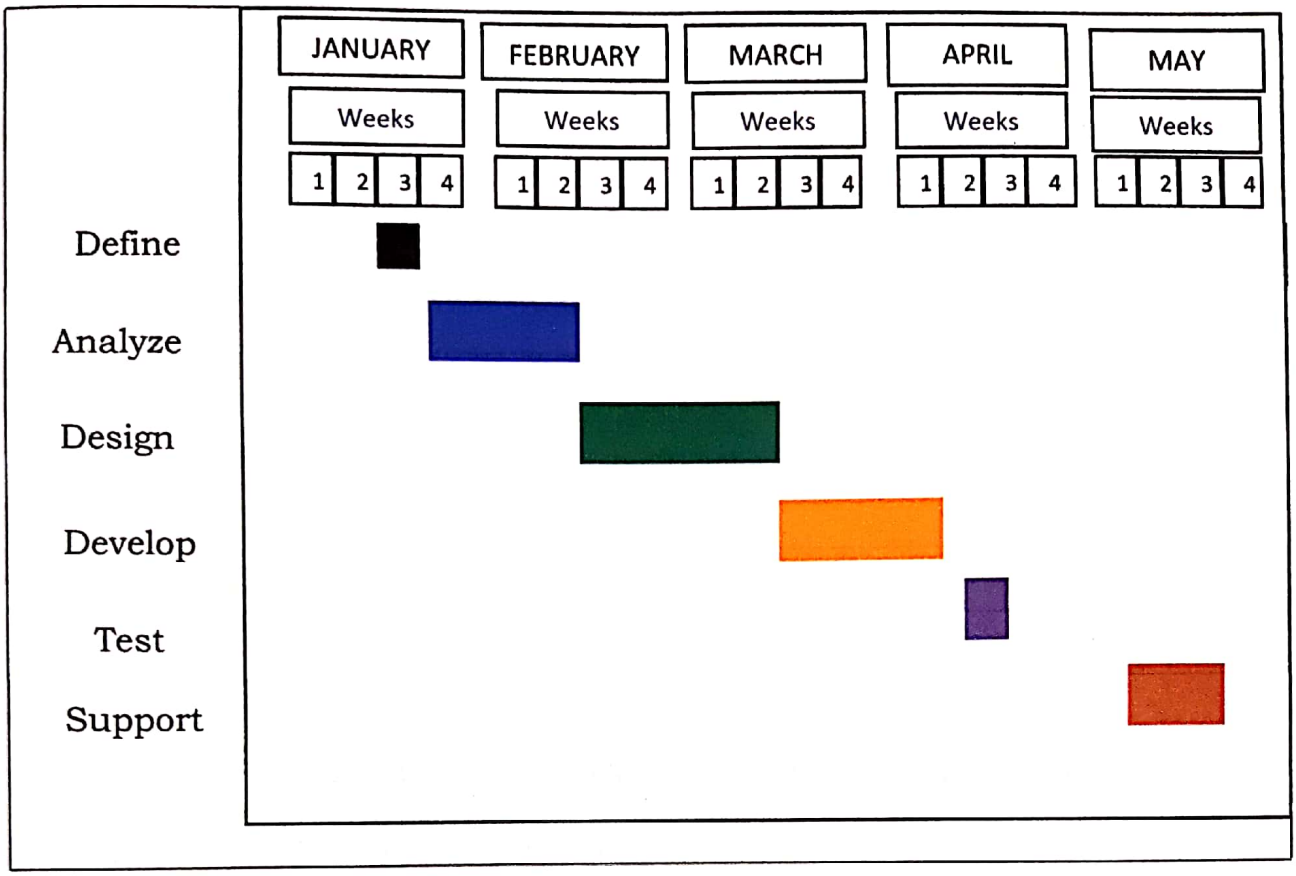

Figure 2. Gantt Chart of the Project Plan

Figure 2 presents the project plan and schedule. The researchers started the project third week of January. Analyze, Design and Develop takes the longest weeks because in analyze phase, the researchers prepare the capstone proposal, presentation of the project and gathered and analyze requirements. Next is the design phase wherein the researchers design the prototype based on the requirements identified.

Table 1. Role Requirements and Responsibility

ROLE	Assignments	Lead Persons
Project Leader/ Developer	Created and developed the system.	Glaiza E. Apolonio
Documentation	Recorded all of the activities, methods, techniques, steps, and procedures done during the conduct of the study.	Angelou Celine C. Ibarreta Dharene P. Madrid Glaiza E. Apolonio Jovelle A. Adviento
System Analysts	Checked the system and suggested developments in it. Checked the manuscript and noted the result of every test and validations applied in it.	Dharene P. Madrid and Jovelle A. Adviento Angelou Celine C. Ibarreta

The table above shows the respective assignments of each member of the group. Each of them was designated as system analyst, developer and documenter. Each member would be working closely as a team for the completion of the project. The system analyst and developer would be working with the development of the system while documenter will be responsible in taking notes of the progress of the project and will be the one responsible in the write up of the manuscript.

Data Gathering Procedures

Internet Research. The researchers used the internet as a tool to acquire for relevant information for the study as well as new technologies that could be used in the development and implementation of the system.

Interview. The researchers conducted an interview. The researchers uses a standardized or an open-ended interview, wherein the researchers ask questions freely and this approach facilitates faster interviews that can be more easily analyzed. Mrs. Loida L. Europa, the Part Time Librarian of San Esteban National High School was the one interviewed. This technique was use to gather important information for the development of the project.

Survey. The researchers used the Website Analysis and Measurement Inventory questionnaire which is a standard questionnaire to determine the usability of a web application.

The WAMMI measures user experience status of a website and provides clearer understanding of the types of visitors that come to the site, why they visit it and how they think it can be improved. When used during usability testing activities, WAMMI is a good predictor of how the site will perform once launched. WAMMI can also assist comparative analysis of competitive sites, which is often done as part of usability testing. WAMMI is measure in terms of five key scales: Attractiveness, Controllability, Efficiency, Helpfulness, and Learnability. The WAMMI questionnaire consist of 20 items. (Eriksson, 2016)

The system was tested by five IT Experts and two teachers from San Esteban National High School.

Statistical Range and Descriptive Rating

Table 2. Data Categorization

Scale	Statistical Range	Descriptive Rating
5	4.21 - 5.00	Strongly Agree
4	3.41 – 4.20	Moderately Agree
3	2.61 – 3.40	Undecided
2	1.81 – 2.60	Moderately Disagree
1	1.00 – 1.80	Strongly Disagree

A mean value ranging from 1.00 to 1.80 is interpreted as Strongly Disagree, indicating that the system is not helpful for the user as compared to the manual library system. A mean value ranging from 1.81 to 2.60 is interpreted as Moderately Disagree, indicating that the system is neither good nor bad. A mean ranging from 2.61 to 3.40 would indicate Undecided, indicating that the validator cannot come up with a final decision regarding the system. A mean ranging from 3.41 to 4.20 is interpreted as Moderately Agree, indicating that the system is somewhat helpful. Lastly, a mean ranging from 4.21 to 5.00 is interpreted as Strongly Agree, indicating that the system is very helpful for the user as compared to the manual library system.

Source of Data. During the conduct of interview only the main personnel was interviewed for accurate firsthand information which included Mrs. Loida L. Europa, the Part Time Librarian of San Esteban National High School who was in-charge of the library. An interview questionnaire was used by the researchers as guide during the interview.

Document Analysis. This method involves the inspection and evaluation of existing documents use in the school to identify the input and output requirements of the current projects and how the information are processed and stored.

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