**CHAPTER II  
  
CONCEPTUAL FRAMEWORK**

This chapter presents the review of related literature and review of related studies. It also includes the conceptual model of the study and the operational definition of terms.  
  
**Review of Related Literature**

**Records Management System**

According to techopedia.com, a Record Management System is the management of records for an organization throughout the records-life cycle. The activities in this management include the systematic and efficient control of the creation, maintenance, and destruction of the records along with the business transactions associated with them.

Techopedia also explains the activities involved in records management. These are identifying first the information that is needed to be captured; this follows up the information planning and enforcement of policies and practices regarding creation, maintenance, and disposal of records. Next is the classification, identification, and storing the records. The last activity mentioned is the coordination of providing internal and external access to the records without forfeiting the data privacy and business and data confidentiality of the organization.

Furthermore, ricohdocs.com explained that the records management is basically the process of creating, maintaining, using, and disposing records in an organized way. This helps achieve transparent, accountable, and efficient governance. The records should be managed following the records management program of an organization that is governed by a certain policy.  
  
 In addition to this, wikipedia.org clarifies that the ISO 15489-1: 2001 standard (“ISO 15489-1: 2001”) defines record management as “the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records, including the processes for capturing and maintaining evidence of and information about business activities and transaction in the form of records.”

**Maternity Clinic**

Wikipedia.org defines the maternity clinic as a clinic that specializes in maternal care. It is responsible of caring for women during and after pregnancy. It also provides care for newborn infants, facilities for childbirth, maternity checkups, and family planning. It may also act as centers for clinical training in midwifery and obstetrics.

**Midwifery**

According to Wikipedia.org, Midwifery, as known as obstetrics, is a health science and health profession that deals with pregnancy, childbirth, newborn care, reproductive health and postpartum period.

Midwifery in the Philippines as a profession was relatively unknown until Dr. Jose Fabella founded the first school of midwifery in May 1992 – the Maternity and Children’s Hospital (now called Dr. Jose Fabella Memorial Hospital). According to the Integrated Midwives’ Association of the Philippines (IMAP, Inc.), Dr. Fabella led the midwifery to utilize in the Philippines by training the young women in midwifery to gradually supplant the unlicensed midwives. Midwifery was became a course and continuously expanding in the country. Thereafter, the midwifery profession has reached a high standard and its activities have increased in a scope. This result into recognition that a dynamic midwives association must be created to serve, train, educate, and provide health service in the country. Integrated Midwives Association of the Philippines was created through this recognition on March 17, 1976.

**Inventory Management**  
 Inventory Management is the practice of supervising and controlling the non-capitalized assets and stock items in an organization. Inventory Management supervises the flow of the assets from manufacturers to warehouses and to the point of sales. Inventory Management’s main function is to keep records of the flow of the organization’s assets.

In addition, an article in investopedia.com discussed the inventory management as the practice overseeing and controlling of the ordering, storage, and use of components that a company uses in the production of the item it sells. It is also the practice of overseeing and controlling of quantities of finished products for sale.

**WAMP**

WAMP is an acronym for Windows, Apache, MySQL, and PHP. According to their website, wampserver.com, WAMPServer is a Windows web development environment. It allows the user to create web application with Apache2, PHP, and MySQL database. PhpMyAdmin is also included to manage the database easily.

**Windows Operating System** An article written by The Editors of Encyclopedia Britannica in britannica.com discussed the Windows OS. Windows was created by Microsoft Corporation to run on Personal Computers (PC). It features the first Graphical User Interface (GUI) for IBM-compatible PCs. Through the years since 1985, Microsoft’s Windows dominated in the market and approximately 90 percent of PCs run a version of Windows. Up until today, Windows expands its product creating more possibilities and innovation to its customers.

**Apache HTTP Server**

Apache HTTP Server is free and open-source cross-platform web server software. According to their website, httpd.apache.org, Apache HTTP Server Project aimed at creating a robust, commercial-grade, full of feature, and freely-available source code implementation of an HTTP (Web) Server.

**PHP**  
 An article in Wikipedia.org about scripting language discusses about PHP. PHP is a server-side scripting language that is designed primarily for web development; PHP also extends its usability in general-purpose programming language. It is originally created by Rasmus Lerdorf in 1994 and it stands for the recursive acronym for PHP: Hypertext Preprocessor. An addition from the article, a PHP code may be embedded into HTML or HTML5 markup, web frameworks, web content management systems, and web template systems.

**MySQL**

MySQL is an open-source relational database management system. It is created by a Swedish company named MySQL AB and founded by David Axmark, Allan Larsson and Michael “Monty” Widenius. MySQL’s name is a combination from Michael Widenius’ daughter “My”, and the abbreviation for Structured Query Language, “SQL”. MySQL’s first internal release was on May 23, 1995 and a Windows version was released on January 8, 1998. Continuous versions were released every year and in 2008, Sun Microsystems acquired MySQL AB. Shortly after 2 years, Oracle Corporation acquired Sun Microsystems in January 27, 2010.

**Cascading Style Sheet**

As stated in www.w3.org, CSS is responsible on insulating the script body to its display. This is specially made to give the author/creator a control outside of structure, particularly the text alignment, object position on the page, audio and speech output, font characteristics and tables. In addition, by using style sheets your project can be more accessible than usual.

In expanding the idea to the subject matter, CSS can be your reference by offering some features that can give a precise control on your project such as control on spacing, alignment and positioning. Authors/creators can avoid unexpected use of such tags. Relevance to the subject of issue about tags, the style sheet itself can also avoid and help on reduce image misuse.

Using style sheets can allow you to access the basic fundamentals of HTML like font size, color and style and also it can support automatically generated numbers, markers and other content that can help the authors to stay oriented within their document.

**Dataflow Diagram**

According to lucidchart.com, DFD maps out the flow of information for any process or system. DFD uses symbols like rectangles, circles, and arrows. It also uses short text labels to show data inputs, outputs, storage points and the routes between each destination.

**CodeIgniter**

In a discussion presented by lynda.com, CodeIgniter is defined as an open-source PHP Web Application Framework that has rapid development, provides logical structure and reusable interface. CI also features a lightweight framework, fast performance, and a little configuration.

**AJAX**

AJAX is defined in segeutech.com as a client-side script that communicates to and fro a server/database asynchronously. AJAX stands for Asynchronous JavaScript and XML.

**jQuery**

According to technopedia.com, jQuery is a concise and fast JavaScript library thatn can be used to simplify handling. Techterms.com also defined jQuery as a JavaScript library that allows Web Developer to add extra functionality to their websites.

**ISO 9126**

International Organization for Standardization 9126 is about evaluation of software. ISO 9126 is divided into 4 major parts: quality model, external metrics, internal metrics and quality in use metrics.

ISO 9126 also have 6 main quality characteristics, stated as the following: functionality, reliability, usability, efficiency, maintainability and portability.

Functionality defines the purpose of any product or service. It also stated that the more functions the software has the more it is become complicated.

For example, in creating structure design for a business, as usual, you listed all the things that are needed in order to create such a design. These listed things are the functions. Functions in functionality are expressed as totality of essential functions that the software product provides. The author stated that it is important to note that the presence or absence of these functions in software product are either define as existing or not same idea as yes or no.

Reliability means the capability of the system to maintain its operation under some pressures for example, if an existing system goes down for 20 seconds then comes back the system should be able to recover and continue functioning. This defines that reliability in a system must give a quality of performance with or without issues.

Usability is existing with regards to the functionality. Usability defines the usefulness of a system, the usefulness of its function to be particular. For example, ATM machine should dispense cash as requested, if the user request to withdraw i.e. $5000, the ATM should release $5000. This where the usability works with regards with functionality. If the system didn't work as expected therefore the usability does not exist.

Efficiency also works with functionality, but this one is different because it is concern with the system resources. With relevance to software product, efficiency is indicated by the amount of disk space, memory and network.

Maintainability in a sense of fixing the errors and maintaining its operation. The developers for example, in order to maintain their system's functions, they protected it by the means of code readability or complexity as well as modularization. Any concern that helps identifying the cause and fixing the errors is the main definition of maintainability in system product.

Portability this characteristic defines as how the software can adapt to its environment.

**Short Message Service**

According to www.lifewire.com, it's a way to send short, text-only messages from one phone to another. You can send a message by using cellular data network provided by your network provider. The length of a SMS messages are usually 160 characters and space is counted.

**Short Message Service Gateway**

As defined by www.techopedia.com that Short Message Service Gateway serves as a gate for where the messages are sent and received. It is also concern with the data traffic whenever the text messages are sent late.

**Object Oriented Programming**

In reference to searchmicroservices.techtarget.com OOP defines organization around objects rather than functions and it prefer data rather than logic. In history, each program displayed as a logical structure and proceeds with inserting data process it inside the program and produces an output data.

**Database**

The usual definition of database based on my experience is that it is consist of data rows and columns with regards to the data inserted. It is also a collection of information that is organized so it means that it can easily accessed, managed and updated.

Database definition according to www.searchsqlserver.techtarget.com, that data is well-organized inside into rows, columns and tables. As stated, you can insert, update and edit each data table. Whenever a new data is added, the database or database table expanded as well as updated.

**Operating System**

"The operating system (OS) is the most important program that runs on a computer. Every general-purpose computer must have an operating system to run other programs and applications" - http://www.webopedia.com/TERM/O/operating\_system.html

Operating system is the tree of each branches because you cannot use your computer as you are using it normally without a user-friendly OS. Also, you cannot run a software without a supporting Operating System because the system knows the compatibility of it. For a larger system, Computer Operating System does have more responsibilities that usual because of its different usability and functionality.

**Microsoft Office**

Microsoft office is consisting of Word, Excel, PowerPoint, Access, Publisher and Outlook. Each program has different purpose; it depends on the user on what program is needed. If you are creating some documents or resume to be particular, you have to use Microsoft Word. If you are a Financial Assistant, you can use Microsoft Excel because it has a function that can actually help with regards to computing. If you want to create a presentation, you can use Microsoft PowerPoint. If you are inspiring to create a program with inserting, updating and deleting data, you can use Microsoft Access as your database. You can create some designs with the help of Microsoft Publisher. Inside the office, the emails should be protected and private, you can use Microsoft Outlook as your program for sending email exclusively.

**Adobe Photoshop**

Photoshop is a software where you create some designs for your project, also it is use in editing photos. It is the most predominant photo editing software in the market because of its features that can actually help your project to become professionally-looked. Digital painting is also possible to create using Photoshop.

**Related Studies**

**Mitrais Medical System Hospital Information System**

The focused of the system have 6 major modules and these are the following: Patient Administration System, Clinical Information System, Accounting System, Pharmacy Information System, Ancillary Modules and Executive Information System. The system's area of work is to improve patient care and operational efficiency of the hospital. With a wide work of operational-based kind of system, it can be a way to dramatically improve the services particularly on patient's information system, technically, patient's profile will become more secure and safe with the help of system's major module.

According to the author itself, MMS is designed around best practice in patient care and supporting clinical and non-clinical services and automate all core hospital processes. By establishing electronic medical records and providing diagnostic supports with computerized physician order entry, MMS enables a hospital to quickly implement an effective solution to problems associated with proper patient identification, accuracy of diagnosis, drug management and pharmacy processes that support patient safety.

**Tata Memorial Hospital**

The Tata Merorial Hospital was initially commissioned by the Sir Dorabji Tata as a center with enduring value and a mission for concern for sick people. In line with recent advances in Information Technology, the Tata Memorial Centre has established a comprehensive computerization of Medical Records, Material Management and Administration and also improved communication by widening of the Electronic mail and Internet facilities.

The said studies prove that making Information Management will result more efficient and effective system within the Hospital. All information has been gathered through research, facts, and findings components. Some problems occurred such as human errors in recording and calculating different task or activites that will cost delay in the flow of work. TMH helps to evaluated our project with the certain simililarities such as speeding up the daily activities and increse productivity of the stuffs.

**Conceptual Model of the Study**

On the basis of the foregoing concepts, theories and findings or related literature, studies presented and insights taken from them, the conceptual model of the study was developed as shown below.

OUTPUT

Web-based Maternity Clinic Management System

PROCESS

System Design

System Development

System Testing

INPUT

Knowledge Requirements

* Maternity Clinic
* Patient Record Management System
* Inventory System
* Billing System
* Database Management System
* Dataflow Diagram
* Entity Relationship Diagram
* ISO 9126
* PHP
* HTML
* CSS

Software Requirements

* WAMP
* Photoshop
* Sublime Text

Hardware Requirements

* Computer Unit
  + 2GB RAM
  + 500GB Hard Disk
  + Intel® Atom ™CPU N2600

EVALUATION

**Figure 1.** Conceptual Model of the Study.

Figure 1 is consists of Input, Process, and Output. The Input block is composed of knowledge, software, and hardware requirements that are needed for the completion of the system. The Process block is composed of System Design, System Development, and System Testing. On completion of these tasks, Output block represents the ‘Web-based Maternity Clinic Management System’ for Jewel’s First Maternity Clinic. **INPUT**

The input part of the IPO model comprises of three parts: Knowledge, Software and Hardware Requirements. In the development of the study, the following knowledge requirements were necessary: Maternity Clinic; Patient Record Management System; Clinic Item Monitoring; Billing System; Database Management System; Dataflow Diagram; ISO 9126; PHP; HTML; and CSS. The software requirements of the system are necessary: Sublime Text; MySQL; Adobe Photoshop; and WAMP. The minimum hardware requirement that is needed for the system are as follow: 2GB RAM; 400GB Hard Disk; Intel® Atom ™CPU N2600.

**PROCESS**

The process part consists of the System Design, System Development, and System Testing. The first phase in the development of the study is the Project Design where it is compose of planning, gathering data, and analyzing the data gathered. Next phase will be the Project Development where the writing of codes for the system will be written. The third phase for the development of this study will be the System Testing. This is the actual testing and debugging of the system. The last phase is the Evaluation; it is the phase where the system will be evaluated in different categories by selected assessors to improve the quality of the system

**OUTPUT**

The final output of the study is the Maternity Clinic Management System for Jewel’s First Maternity Clinic.

**Operation and Definition of Terms**

**Maternity Clinic**

It is defined as an entity that provides maternal care and services to pregnant patients and newborn infants. It offers prenatal and postnatal checkup, childbirth, laboratory, family planning, and infant care.

**BMI**

A value derived from the mass and height of an individual. It is calculated by dividing the weight in kilogram to height in meters squared.

BMI = weight (kg) / (height^2)(m^2)

**Newborn Screening**

Is a practice of testing a blood sample from a newborn infant to find out if the newborn infant has a Congenital Metabolic Disorder. It is done after 24 hours after birth.