

PEDIATRIC VACCINATION SYSTEM

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PEDIATRIC VACCINATION SYSTEM (I-VACCI)

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for the award of the degree of
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JUNE 2012

SUPERVISOR'S DECLARATION

“I hereby declare that I have checked this thesis and in my opinion this thesis is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science (Computer Systems & Networking).”

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“I hereby declare that the work in this thesis entitled “Pediatric Vaccination System” is the result of my own research except for quotations as cited in references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.”

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Abstract

Web based pediatrics vaccination system (I-VACCI) is a web based system that is developed to assist health care professional and public health administrator in managing the vaccination for pediatrics. The web based system, I-VACCI, will record vaccination records for Malaysian's pediatrics. The concept of a web-based pediatrics vaccination system is, it stores, records and maintains data of vaccination record for Malaysian pediatrics. I-VACCI helps health care professional to manage better vaccination data such as the types of vaccination given to the pediatrics according to the schedule, generate factual data on the progress of immunization in the country and manage better its operation and optimize its cost. I-VACCI is developed by using *Hypertext Preprocessor* (PHP) and MySQL as the database. PHP is used because it is widely used and powerful language. I-VACCI will be accessed via Internet. Finally, we can conclude that the web based pediatrics vaccination system (I-VACCI) will be an advantage to manage the vaccination that given to the pediatrics and it benefits to various parties.

Abstrak

Sistem Vaksinasi Pediatrik (I-VACCI) adalah satu sistem berasaskan web yang dibangunkan untuk membantu profesional dan pentadbir awam dalam menguruskan vaksinasi untuk pediatrik. I-VACCI akan mencatat rekod vaksinasi untuk pediatrik Malaysia. Konsep sistem berasaskan web vaksinasi pediatrik ini adalah untuk menyimpan rekod dan mengekalkan data rekod vaksinasi untuk pediatrik Malaysia. I-VACCI membantu penjagaan kesihatan profesional untuk menguruskan data vaksinasi yang lebih baik seperti jenis vaksin yang diberikan kepada pediatrik mengikut jadual, menjana fakta mengenai kemajuan imunisasi di negara ini dan menguruskan operasi dengan lebih baik dan mengoptimumkan kos. I-VACCI dibangunkan dengan menggunakan Hypertext Preprocessor (PHP) dan MySQL sebagai pangkalan data. PHP digunakan kerana ia digunakan secara meluas dan merupakan bahasa yang mudah difahami. I-VACCI akan diakses melalui Internet. Akhir sekali, kita boleh menyimpulkan bahawa pediatrik vaksinasi sistem(I-VACCI) berasaskan web akan menjadi satu kelebihan untuk menguruskan vaksinasi yang diberikan kepada pediatrik dan ia memanfaatkan untuk pelbagai pihak.

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CHAPTER 1

INTRODUCTION

This chapter briefly discuss on the overview of this research. It contains five sections. The first section is introduction; followed by the problem statement. Next are the objectives where the project's goal is determined. After that are the scopes of the system and lastly is the thesis organization which briefly describes the structure of this thesis.

1.1 Background

Prevention of disease is the key to public health. There is a general saying that “prevention is always better than cure”. Vaccines protect people from catching specific diseases. Vaccines also help preventing the spread of infectious diseases in a country. Such diseases include polio, whooping cough, diphtheria, measles, rubella (German measles), mumps, Haemophilus influenza type b (Hib) and tetanus [1]. Parents are constantly concerned about the health and safety of their children. Therefore, they take many steps in order to prevent their children from catching a disease. One of the options is vaccination. Vaccine works to protect infants, children and even adults from illnesses and death caused by many infectious diseases. Vaccination has its own time, period and schedule. The dosage of vaccination remains the same among babies but may be different for adults [1].

Jacobson et al. found that the success of the pharmaceutical industry in developing new pediatric vaccines has resulted in a crowded recommended immunization schedule requiring several clinic visits over the first 12 years of life [13]. The science and practice of immunization has become among the fastest growing and changing fields in medicine. Despite growing knowledge and access to new and better vaccines, young children are not being immunized on time, largely due to missed opportunities to immunize them while they are in the doctor's office [3]. Experts have hailed vaccination as one of ten great twentieth century achievements in public health in the United States. Pediatric vaccines have dramatically reduced infectious disease and childhood mortality [6]. The administration of vaccines to infants and children has had an extraordinarily beneficial impact on public health by reducing morbidity, mortality and the social and economic burden associated with a number of common infectious diseases [2].

Pediatric Vaccination System (I-VACCI) is a web-based system which is designed to assist the physician and other staffs in the clinic with pediatrics vaccination record. Child health care providers often find that clinical information system have limited usefulness for pediatric vaccination record. The major important for the child are vaccination management, growth tracking, medication dosing, data norms, and privacy in special pediatric populations. It is more important in providing pediatric care than adult care. Therefore Pediatric Vaccination System (I-VACCI) will be used to record health information of vaccination for pediatrics. It can easily access by authorized users only. Provision of knowledge and decision-support is the tools that enhance the quality, safety and efficiency of pediatric care.

Immunization is among the most effective and gratifying ways we can protect our patients from disease. The understanding of vaccine science and practices is evolving along with rapid development of new vaccines. The pediatric and adolescent practitioner needs to stay current with these developments, to provide optimal protection for patients. Therefore this I-VACCI should be developed to help the pediatrician in managing vaccination system. A health examination system with a clinical decision system can greatly reduce the burden on clinical workers and markedly improve the quality and efficiency of health examination task. Besides, all the patient detail and report will remain confidential in the system. The usage of paper works can also be reduced.

1.2 Problem Statement

Ria Child Specialist is a leading and famous clinic in the area of Kedah. Currently they are still using manual method in handling pediatrics vaccination details. There is no online system to handle pediatrics vaccination data and all the data seems to be lost easily. Moreover, when the pediatrics wants to fix appointment with the doctor for the next vaccination, staffs need to calculate manually the date for the next visit. Besides, staffs are facing difficulties to retrieve any pediatrics data for record or reference. It consumes time for the staff to find the record of the pediatric one by one.

1.3 Objectives

The aims of Pediatrics Vaccination System (I-VACCI) are as below:

- i. To design and develop an easy and suitable web based vaccination system for pediatrics and to ease the work of the staff in the clinic.
- ii. To record all the pediatrics vaccination information for future reference and enhancement, and also to update and search pediatric vaccination record.
- iii. Provide security for the data or information about the pediatric details, vaccination record and drug prescription that kept in the database.

1.4 Scopes

Scope of Pediatrics Vaccination System (I-VACCI) is as below:

- i. I-VACCI is only used to record the pediatrics vaccination data.
- ii. I-VACCI is only used to fix appointment for the next vaccination.
- iii. I-VACCI is only used by Ria child specialist clinic staff and doctors.

1.5 Thesis Organization

This thesis consists of four (4) chapters. Chapter 1: Introduction is a brief explanation to readers on the project that has been developed. This chapter shows the basic concept of the system, problem statements of the system, objectives, scopes, and how the report is organized. Chapter 2: Literature Review depicts the manual systems and the existing systems as the case studies of the project. This chapter also reviews the technique, method, equipment, and technology that had been used in the case studies. Chapter 3: Methodology discusses about the overall workflow in the development of the project. This chapter also discusses the method, technique or approach that has been used while designing and implementing the project. Chapter 4: Conclusion briefly summarizes the project

CHAPTER 2

LITERATURE REVIEW

This chapter explains about the reviews for the chosen project. This chapter is divided into two sub reviews that require students to study to get complete information about the project.

2.1 Existing System Review

This section is to review the current system and the existing system that related to vaccination field.

2.1.1 The Immunization Registry Information System (IRIS)

The Immunization Registry Information System (IRIS) is Iowa's answer to an immunization registry. In general, immunization registries are confidential, computerized state or community based information systems. The Iowa department of public health (IDPH) has developed IRIS to enable public and private providers to consolidate and maintain a computerized immunization record for each person that receives vaccination in Iowa. IRIS is a user-friendly application that all staff members can use. Iris able to store private and confidential immunization records of residents of all ages, print the official IDPH certificate of immunization that is required for all the patients. it also able to produce reminder letters and keep patients from getting unnecessary doses of vaccine. Besides that, IRIS can manage the vaccine inventory and find immunization records of patients that are stored in the program. Produce a variety of other reports that are available on the applications is also a function of this system.

2.1.2 The Kansas Immunization Registry

The Kansas Immunization Registry, also referred to as KSWebIZ, is the statewide immunization registry. It is a web based centralized birth to death database that maintains complete, accurate and secure immunization records for all Kansas residents. The purpose of KSWebIZ is to consolidate immunization information among health care professionals, assure adequate immunization levels, and avoid unnecessary immunizations. The goal of KSWebIZ is to serve as a repository for immunization records that are accurate, up-to- date, and complete. This web-based system enables end users to accurately assess a patient's immunization status. Registry data is used by healthcare professionals to monitor the immunization status of children and adults, assure compliance with state statutes on immunization requirements for individuals, identify geographic areas at high risk due to low immunization rates and document/assess vaccination coverage during disease outbreaks.

2.1.3 PING Immunization Application

The PING immunization application is a web-based, patient-controlled electronic medical record system based on the Personal Internetworked Notary and Guardian (PING) project. Its-goal is to increase immunization coverage by improving shared decision making with patients surrounding immunization issues. The PING immunization application assists patients in managing pediatric immunization records. It leverages PING's nomadic computing support to allow patients to share immunization records with providers, school nurses, WIC offices, and other agencies. The PING immunization application is fundamentally different from immunization registries efforts. Typically, they are governmental entities that record and assess immunization coverage for an entire geographic area. We will also utilize PING's security features to give patients tight control over access privileges to their records.

2.1.4 Comparison between Three Existing Systems

Below are the comparisons of three existing systems.

Table 2.1 Comparison of three existing systems

Features	Immunization Registry Information System (IRIS)	Kansas Immunization Registry (KSWebIZ)	PING Immunization Application
Purpose	Developed IRIS to enable public and private providers to consolidate and maintain a computerized immunization record for each person that receives vaccination in Iowa.	This application is to consolidate immunization information among health care professionals, assure adequate immunization levels, and avoid unnecessary immunizations.	PING immunization application assists patients in managing pediatric immunization records.
Technique used	Web based system	Web based system	Web based system
Devices	Wireless Personal Digital Assistants	RFID readers and tags, motion sensors, and a wireless sensor mote	No devices
Security	It has been implemented with a multilayered security infrastructure to ensure secure access to healthcare processes and sensitive patient data	No security implemented	There is security features to give patients tight control over access privileges to their records.

2.2 Security

This section will review on types of security applied in web based system. Example of security applied is password encryption.

2.2.1 MD5 Encryption

With the increasing popularity of computers and the Internet in the past two decades, people have paid more attention on information and network security which results in a number of Encryption algorithms coming into being. MD5 algorithm is currently the mainstream for the cryptographic check and file check. In the databases of many sites, even in the UNIX and LINUX operating systems, users log in passwords to preserve by taking the check form of MD5 . MD5 was developed from MD, MD2, MD3 and MD4. It can compress any length of data into an information digest of 128bits while this segment message digest often claims to be a digital fingerprint of the data. This algorithm makes use of a series of non-linear algorithm to do the circular operation, so that crackers cannot restore the original data. In cryptography, it is said that such algorithm as an irreversible algorithm, can effectively prevent data leakage caused by inverse operation. Both the theory and practice have well security, because the use of MD5 algorithm does not require the payment of any royalties, time, and cost less which make it be widely used in the general non-top-secret applications.[25]

2.2.2 SHA-1 Algorithm

In cryptography, SHA-1 is a cryptographic hash function designed by the United States National Security Agency and published by the United States NIST as a U.S. Federal Information Processing Standard. SHA stands for "secure hash algorithm". The three SHA algorithms are structured differently and are distinguished as SHA-0, SHA-1, and SHA-2. SHA-1 is very similar to SHA-0, but corrects an error in the original SHA hash specification that led to significant weaknesses. The SHA-0 algorithm was not adopted by many applications. SHA-2 on the other hand significantly differs from the SHA-1 hash

function. SHA-1 is the most widely used of the existing SHA hash functions, and is employed in several widely used applications and protocols. SHA-1 produces a 160-bit message digest based on principles similar to those used by Ronald L. Rivest of MIT in the design of the MD4 and MD5 message digest algorithms, but has a more conservative design. The original specification of the algorithm was published in 1993 as the Secure Hash Standard, FIPS PUB 180, by US government standards agency NIST (National Institute of Standards and Technology). This version is now often referred to as SHA-0. It was withdrawn by NSA shortly after publication and was superseded by the revised version, published in 1995 in FIPS PUB 180-1 and commonly referred to as SHA-1.[6]

2.2.3 Comparison between SHA-1 and MD5

MD5 and SHA-1 are two algorithms used for hashing passwords. MD5 and SHA-1 strengthens web password authentication. By this comparison we can conclude that SHA-1 is slower than MD5 but the larger message digest makes it more secure against brute-force collision and dictionary attacks.

Type of File	Size	Time consumed by MD5	Time consumed by SHA1
eac7.exe	18.0MB	180.2592msec	210.3024msec
Foxitreader.msi	3.65MB	20.0288msec	40.0756msec
Synopsis.doc	58KB	10.0144msec	10.0144msec
Test.txt	14.4KB	0.01msec	0.01msec

Table 2.2: Comparison of algorithm with respect to time and size

Two hashing algorithms MD5 and SHA1 are used to compute hashes of files with different extensions. We can also conclude that algorithms take more time in calculating hashes of the files with large sizes. When we observe the time consumed by SHA1 we found that SHA1 is slow and takes more time because it takes fewer rounds in calculating hash as

compared to MD5 which completes its hashing process in four rounds. It is found that SHA-1 is more secure but slow in execution as SHA-1 includes more rounds than MD5 in calculating hashes.[18]

2.3 Scripting Languages

There are many tools can be used to create dynamic and interactive web pages. PHP and ASP.NET is the most popular programming tools for develop web pages.

2.3.1 Hypertext Preprocessor (PHP)

PHP is a widely used and powerful language. It is a scripting language that was originally designed for web development which is to produce dynamic web pages. Whether included in a web server as a module or executed as a separate Common Gateway Interface (CGI) binary, it is able to access files, execute commands and open network connections on the server. PHP is designed specifically to be a more secure language for writing CGI programs than Perl or C. It can be deployed on most web servers and on almost every operating systems and platforms for free of charge. PHP succeeds an older product, named PHP/FI. PHP/FI was created by Rasmus Lerdorf in 1995, initially as a simple set of Perl scripts for tracking accesses to his online resume. He named this set of scripts 'Personal Home Page Tools'. As more functionality was required, Rasmus wrote a much larger C implementation, which was able to communicate with databases, and enabled users to develop simple dynamic web applications.[9]

Table 2.3: Advantage and Disadvantage of PHP.

Advantages	Disadvantages
<ul style="list-style-type: none"> • Open Source, readily available and dual-licensed. • Very Easy to understand the syntax. • Interfaces very easy with Apache or MySQL. • Platform agnostic. Can run on Windows Linux or Mac servers. Also very scalable. • Lots of hosting services have it ready to use, does not need special configuration. • Easy to access other web-based tools through PHP (i.e. Google maps, etc.). 	<ul style="list-style-type: none"> • Need to add JavaScript, java or other client-side language in your output. • Need to manage variables coming in and going out and between pages due to different types of browser. • Web programming (regardless of language) is open to security flaws due to unknown vulnerabilities.

2.3.2 Active Server Pages (ASP.net)

Active Server Pages are a Microsoft technology that allows developers proficient with either Visual Basic or VBScript to easily adapt their skills and knowledge to the web with very little effort at all. Asp uses ActiveX Data Object (ADO) to connect to several popular database management systems including Microsoft Access and SQL Server, Oracle, dBase and Visual Fox Pro. We can also talk to Mysql databases using ODBC through ASP. The Mysql database can either be on the same server, or on the other side of the world; running Windows, Linux, Solaris, FreeBSD, MacOS X, or any other one of the several operating systems that Mysql supports. There are two different ways to connect to a Mysql database using the MyODBC driver: via a DSN, and via a connection string. MyODBC is the Open Database Connectivity (ODBC) compliant driver that we can use to connect to a

Mysql database. Connection strings allow us to connect to a database using an ADO connection [4].

Table 2.4: Advantage and Disadvantage of ASP.Net.

Advantages	Disadvantages
<ul style="list-style-type: none"> • ASP.NET makes development simpler and easier to maintain with an event-driven, server-side programming model • ASP.NET pages are easy to write and maintain because the source code and HTML are together. • The source code is compiled the first time the page is requested. Execution is fast as the Web Server compiles the page the first time it is requested. The server saves the compiled version of the page for use next time the page is requested • Have good security features. • Easily works with ADO .NET using data-binding and page formatting features 	<ul style="list-style-type: none"> • ASP.NET applications can only run on Windows platform. • The framework tends not to support automatic unit testing with tools like NUnit very well, which makes test-driven development difficult. • View state can get really large or have negative effects on performance. This is especially true for some of the more complex server controls. • ASP.NET does not fit the general architecture of internet and web based applications.

2.4 Operating Systems

Operating systems serve as executing platforms and resource managers for applications. Operating system that communicates directly with hardware is known as the host operating system, whereas virtual operating systems have all the features of a real operating system but they run inside the host operating system. Windows, Mac and Linux are the most popular operating systems in computer field.

2.4.1 Linux

Along with the increasing concern on the safety of operating system, Linux has become popular in the domestic market with its security and efficiency [14]. Linux over the past few years has gained in popularity as the operating system for embedded networking equipment. Its reliability, low cost and undisputed networking capabilities made it one of the most popular choices for the networking devices. As Linux clusters have matured as platforms for low-cost, high-performance parallel computing, software packages to provide many key services have emerged, especially in areas such as message passing and networking [10].

2.4.2 Windows

Microsoft Windows 1 is arguably the most successful commercial software in history. Since the first release of Windows NT 3.1 in July, 1993, there have been 700 million Windows users in the world. Window system offer many benefits to users, such as being able to work on multiple tasks concurrently or working with a number of windows each connected to different remote machines or applications. Unless these windows are managed efficiently, users can easily become overwhelmed by the number of windows. Windows has changed the way people work, communicate, entertain and live [24].

2.4.3 Comparison between Linux and Windows Operating System

Table 2.5: Comparison between Linux and Windows [15]

Characteristics	Linux	Windows
Price	The majority of Linux variants are available for free or at a much lower price than Microsoft Windows	Microsoft Windows can run between \$50.00 - \$150.00 US dollars per each license copy.
Ease	Although the majority Linux variants have improved dramatically in ease of use, Windows is still much easier to use for new computer users.	Microsoft has made several advancements and changes that have made it a much easier to use operating system, and although arguably it may not be the easiest operating system, it is still Easier than Linux.
Reliability	The majority of Linux variants and versions are notoriously reliable and can often run for months and years without needing to be rebooted.	Although Microsoft Windows has made great improvements in reliability over the last few versions of Windows, it still cannot match the reliability of Linux.
Software	Linux has a large variety of available software programs, utilities, and games. However, Windows has a much larger selection of available software	Because of the large amount of Microsoft Windows users, there is a much larger selection of available software programs, utilities, and games for Windows.
Hardware	Linux companies and hardware manufacturers have made great advancements in hardware support for Linux and today Linux	Because of the amount of Microsoft Windows users and the broader driver support, Windows has a much larger support for

	<p>will support most hardware devices. However, many companies still do not offer drivers or support for their hardware in Linux.</p>	<p>hardware devices and a good majority of hardware manufacturers will support their products in Microsoft Windows.</p>
Security	<p>Linux is and has always been a very secure operating system. Although it still can be attacked when compared to Windows, it much more secured.</p>	<p>Although Microsoft has made great improvements over the years with security on their operating system, their operating system continues to be the most vulnerable to viruses and other attacks.</p>
Open Source	<p>Many of the Linux variants and many Linux programs are open source and enable users to customize or modify the code however they wish to.</p>	<p>Microsoft Windows is not open source and the majority of Windows programs are not open source.</p>
Support	<p>Although it may be more difficult to find users familiar with all Linux variants, there are vast amounts of available online documentation and help, available books, and support available for Linux.</p>	<p>Microsoft Windows includes its own help section, has vast amount of available online documentation and help, as well as books on each of the versions of Windows.</p>

2.5 Web Browser

Web applications can only be accessed through dedicated client systems called Web browsers. Most current Web browsers offer many tools or facilities for Web page revisiting, including the back and forward buttons, refresh, favorites, link menu and history lists etc. We can receive large information from various web sites using the Internet. The Web sites are important means to collect the required information in researching, learning, and even in commerce activities. Importance of Web browsers grows increasingly as Web sites increase. Web browsers are powerful tools to refer to Web sites.

2.5.1 Google Chrome

Google Chrome aims to be secure, fast, simple and stable. There are extensive differences from its peers in Chrome's minimalistic user interface, which is a typical of modern web browsers. Chrome's strength is its application performance and JavaScript processing speed, both of which were independently verified by multiple websites to be the swiftest among the major browsers of its time.

2.5.2 Mozilla Firefox

Mozilla Firefox is a free and open source web browser descended from the Mozilla Application Suite and managed by Mozilla Corporation. As of September 2011, Firefox is the second most widely used browser, with approximately 25% of worldwide usage share of web browsers. The browser has had particular success in Germany and Poland, where it is the most popular browser with 51% usage and 46% respectively. Firefox runs on various operating systems including Microsoft Windows, Linux, Mac OS, Free BSD and many other platforms. Its current stable release is version 7.01, released on September 29, 2011. [23]

2.5.3 Internet Explorer

Windows Internet Explorer which is formerly known as Microsoft Internet Explorer, commonly abbreviated IE or MSIE. is a series of graphical web browsers developed by Microsoft and included as part of the Microsoft Windows line of operating systems, starting in 1995. The latest stable release is Internet Explorer 9 which is available as a free update for Windows 7, Windows Vista SP2, Windows Server 2008, and Windows Server 2008 R2. Internet Explorer was to be omitted from Windows 7 and Windows Server 2008 R2 in Europe, but Microsoft ultimately included it, with a browser option screen allowing users to select any of several web browsers (including Internet Explorer) [20].

2.5.4 Comparison between Web Browsers

Table 2.6 Comparison between web browsers [11]

Aspects	Google Chrome	Mozilla Firefox	Internet Explorer
Year	2008-current	2004-current	1995-current
Java script speed	542.3ms	1230.6ms	6305.5ms
CPU usage	3.0%	7.6%	13.1%
Page load time	1.45s	1.34s	1.61s
Browser cache performance	0.72s	0.75s	0.87s
Overall performance	first	second	Forth after opera

2.6 Database Language

Database language is a class of languages used for defining and accessing databases. A particular database language will be associated with a particular database management system.

2.6.1 My SQL

Structured query languages (SQL) are indispensable and powerful tools for many kinds of users, e.g., advanced searchers, database administrators, and SQL programmers. However, it is hard and tedious for inexperienced users to pose structured queries that satisfy their query intent, since the users are required to be proficient in writing the query languages and have a thorough understanding of the schema. On the other hand, they may encounter comprehension difficulties, formulation problems, and unclear error messages while using SQL. They have to refer to manuals and repeatedly try different SQL queries to obtain expected results. To address these problems, many assistant tools have been developed to help users formulate structured queries. For example, SQL assistant is a well-known system which can suggest table names, attribute names, preserved words in SQL syntax. However, these tools still have some limitations and therefore the SQL Assistant users should be skillful in writing SQL queries based on their information needs [12].

2.6.2 Microsoft SQL Server

Microsoft SQL Server is an application used to create computer databases for the Microsoft Windows family of server operating systems. It provides an environment used to generate databases that can be accessed from workstations, the web, or other media such as a personal digital assistant (PDA) [7]. Its primary query language is Transact-SQL. Transact-SQL is an implementation of the ANSI/ISO standard Structured Query Language (SQL) used by both Microsoft and Sybase. The latest release by Microsoft is MS SQL Server 2008 on August 6, 2008. MS SQL Server 2008 provides a scalable business intelligence platform optimized for data integration, reporting, and analysis, enabling organizations to deliver intelligence where users want it, provide dramatic cost savings while enhancing a company's agility. It also reduces hardware and maintenance costs by providing a flexible server consolidation solution with enterprise-class manageability and performance, enables organizations to integrate data into the data warehouse faster, scale and manage growing volumes of data and users, while delivering insights to all users and enables user to access and manipulate business-critical data from a variety of diverse devices, platforms, and data.

2.6.3 Differences between MySQL and MS SQL Server

Table 2.7: Difference between MySQL and MS SQL Server [8]

	MySQL	Microsoft SQL Server
Developer	MySQL AB	Microsoft Corp.
Open-source vs. Proprietary	MySQL is an extensible, open storage database engine, offering multiple variations such as Berkeley DB, InnoDB, Heap and MyISAM.	Limited to a Sybase-derived engine. SQL Server is known to work better with other Microsoft products.
Licensing	MySQL is an open-source system under the GNU General Public License, developers can use it at no cost as long as the associated projects are also open-source.	The best way to obtain a developer's license is to buy a license for the Microsoft Developer or Microsoft Visual Studio suite
Technical Differences	Doesn't offer full support for foreign keys.	Considered a complete relational database.
Performance	Uses little disk space, memory and CPU. Therefore, it gives a good performance.	Complexity and the hogging of resources in the way of storage and memory, which leads to poorer performance.
Security	MySQL uses security based on Access Control Lists (ACLs) for all connections, queries, and other operations that users can attempt to perform.	Has adequate security mechanisms by default bearing user to follow the directions and keep the software updated with security patches.

2.7 Web Server

Web server can refer to either the hardware (the computer) or the software (the computer application) that helps to deliver content that can be accessed through the Internet. The primary function of a web server is to deliver web pages on the request to clients. This means delivery of HTML documents and any additional content that may be included by a document, such as images, style sheets and scripts.

2.7.1 Apache

The Apache HTTP Server, commonly referred to as Apache is web server software notable for playing a key role in the initial growth of the World Wide Web. Apache is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation. The application is available for a wide variety of operating systems [22].

2.7.2 XAMPP

XAMPP is a free and open source cross-platform web server solution stack package, consisting mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP requires only one zip, tar, 7z, or exe file to be downloaded and run, and little or no configuration of the various components that make up the web server is required. [21]

2.8 Summary

From the beginning of this chapter there is a discussion about existing system, techniques that will be used, tools to create an interactive webpage, database languages and type of web servers. Under techniques, there are many subtopics such as type of web browsers and type of operating systems. There are also comparisons for each aspect. This case study will help to better understand my project and proceed with the following chapter.

CHAPTER 3

METHODOLOGY

This chapter describes method and techniques that has been used to develop the Web Based Pediatrics Vaccination System. There are designs of the system and hardware and software specification of the system.

3.1 Rapid Application Development (RAD).

The methodology that will be used in developing Web based Pediatrics Vaccination System is Rapid Application Development (RAD). Rapid Application Development is a software development methodology that involves iterative development and the construction of prototypes. It combines various structured techniques, especially data driven Information Engineering with prototyping techniques to accelerate software systems development. RAD calls for the interactive use of structured techniques and prototyping to define user's requirements and design the final system. RAD approaches enable rapid development. RAD model is chosen in developing this system because RAD focuses on building applications rapidly in a very short amount of time and it is suitable for small projects [5]. RAD approaches may entail compromises in functionality and performance in exchange for enabling faster development and facilitating application maintenance [17].

3.2 The Justification of Rapid Application Development (RAD)

The challenges facing software development organizations can be summarized as more better and faster. The RAD development path attacks these challenges head on by providing a means for developing systems faster, while reducing cost and increasing quality. Fundamentals of the RAD methodology thus include [8]:

- i. Combining the best available techniques and specifying the sequence of tasks that will make those techniques most effective.
- ii. Using evolutionary prototypes that are eventually turned into the final product.
- iii. Using workshops, instead of interviews to gather information and review design.
- iv. Selecting a set of CASE, tools to support modelling, prototyping, code reusability and automating many of the combination techniques.
- v. Implementing time boxed development that allows development teams to quickly build the core of the system and implement refinements in subsequent releases.
- vi. Providing guidelines for success and describing pitfalls to avoid.

Active user involvement throughout the RAD lifecycle ensures that business requirements and user expectations are clearly understood. RAD takes advantage of powerful application development tools to develop high quality applications rapidly.

Prototyping is used to help users visualize and request changes to the system as it is being built, allowing applications to evolve iteratively. RAD techniques are also very successful when faced with unstable business requirements or when developing non-traditional systems.

3.3 Implementation of Rapid Application Development in Web Based Pediatrics Vaccination System development

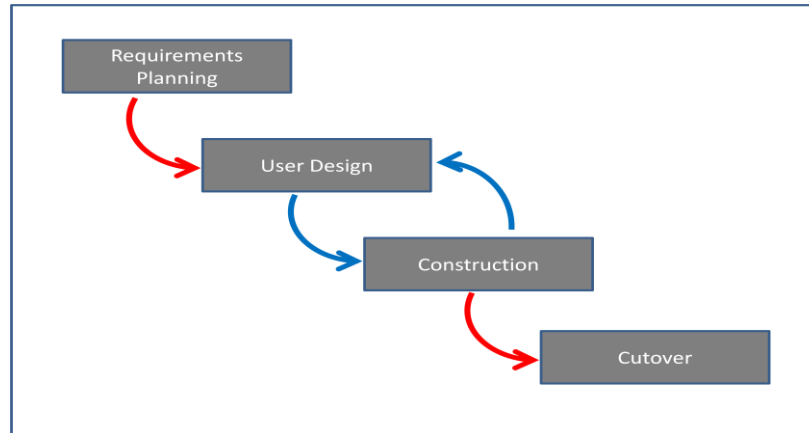


Figure 3.1 Rapid Application Development Lifecycle

RAD consists of five different phases which is Requirement planning, User design, Construction, and cutover. Descriptions of each phase are as follows:

3.3.1 Requirement Planning

The planning phase gathers the requirements of the system, independent of how these requirements will be accomplished. This phase defines the problem that is to be solved. The deliverable result at the end of this phase is a requirement list. The planning phase is also the part of the project where overall direction of the project will be identified.

3.3.1.1 Research On Current Situation

Immunization is among the most effective and gratifying ways we can protect our patients from disease. The understanding of vaccine science and practices is evolving along with rapid development of new vaccines. The paediatric and adolescent practitioner needs to stay current with these developments, to provide optimal protection for patients. Therefore this I-VACCI should be developed to help the paediatrician in managing vaccination system. A health examination system with a clinical decision system can greatly reduce the burden on clinical workers and markedly improve the quality and efficiency of health examination task. Besides, all the patient detail and report will remain confidential in the system. The usage of paper works can also be reduced [9].

3.3.1.2 Analyze and Finalize Requirement

In this phase the system analysis and finalize requirement that is user requirement is discussed.

3.3.1.2.1 Analysis

The analysis phase gathers the requirements of the system, independent of how these requirements will be accomplished. This phase defines the problem that is to be solved. The deliverable result at the end of this phase is a requirement list [16]. The Analysis Phase is also the part of the project where overall direction of the project will be identified. In the formal process there are four processes involved in accomplishing analysis phase. The four processes are elicitation, validation, specification, verification. The requirements gathered for Web based Pediatrics Vaccination System are divided into two parts which are User requirement and System requirement. User requirement states the user of the system and also the ability of the user. System requirement states the hardware and software that will be utilized in building the system.

3.3.1.2.2 User Requirement

There are three types of user in this system. They are doctors, medical staffs and administrator. The users of I-VACCI need to have basic computer handling and internet knowledge. First users have to log in to the system by entering username and password provided by the administrator. Once they had log in to the system they will be directed to the homepage. In the homepage users can select what activity they prefer to do. Doctors or medical staffs need to enter patient's details in the registration form and save it for future references. Users can also enter vaccination data such as date, types of vaccination and so on into the system by using MyKid number. The system will save the data. The doctor can view and add patient details here by entering MyKid No in View Data menu in order to view the data. Users can set appointment for the pediatrics for the next appointment. User will enter MyKid Number in the appointment form and set an appointment for the next appointment. Users can view pediatric data by entering MyKid number to search any pediatric profile or from the view the user can filter by date, name and vaccination data. Admin will be able to add or delete the users who are the doctors and the medical staffs and update user status.

3.3.1.3 System requirement

The software that will be used in developing I-VACCI is Hypertext Preprocessor (PHP) for the user interface and codes implementation, while My SQL will be used to develop the database tables. I-VACCINE is able to run in all Windows platform. Most suitable versions will be Windows XP, Windows Vista and Windows 7. These versions can give users a better performance based on their specification. Internet Explorer and Google Chrome support the browsing activity for I-VACCI. However, Internet Explorer would be a better choice as it is Microsoft product and it will be used throughout development and implementation phase. I-VACCI do not require any specific peripherals.

3.3.1.3 Hardware Requirement

Hardware Requirements are the device or peripherals that will be needed in the development of this project.

Table 3.1: Hardware to develop I-VACCI

Computer Hardware	Quantity (unit)	Description	Purpose
Personal Notebook	1	Processor : Intel(R) Core(TM)2 Duo CPU P8700 @ 2.53GHz Ram : 3.00GB	Personal research and project development
Pendrive	1	Kingston 4GB	Backup data and files
Printer	1	Canon iP1900 series	Printing

3.3.1.4 Software Requirement

Software requirements needed for this project are as below:

Table 3.2: Software to develop I-VACCI

Software Computer	Version	Purpose
Microsoft Windows 7 Home Premium	Home Premium	Operating system to done the project
Adobe Dreamweaver	CS5	Project development
XAMPP	2.5	To build database
Microsoft Office Word	2007	Project documentation
Microsoft Power Point	2007	Project presentation
Microsoft Visio 2007	2007	To create graphical representation
Google Chrome	17.0.942.0	Information searching
Avast antivirus home edition	4.8	Protection from virus
Nero	6.0	To burn project documentation

3.3.2 User Design Phase

This phase is also known as the Functional Design Stage, this stage uses workshops to model the system's data and processes and to build a working prototype of critical system components. A clear process flow can be seen through flow chart, use case diagram and DFD level 1. [19]

3.3.2.1 Flowchart for the system

There are three flowcharts for this system. There are flowcharts for administrator, medical staff and doctor and also for overall system.

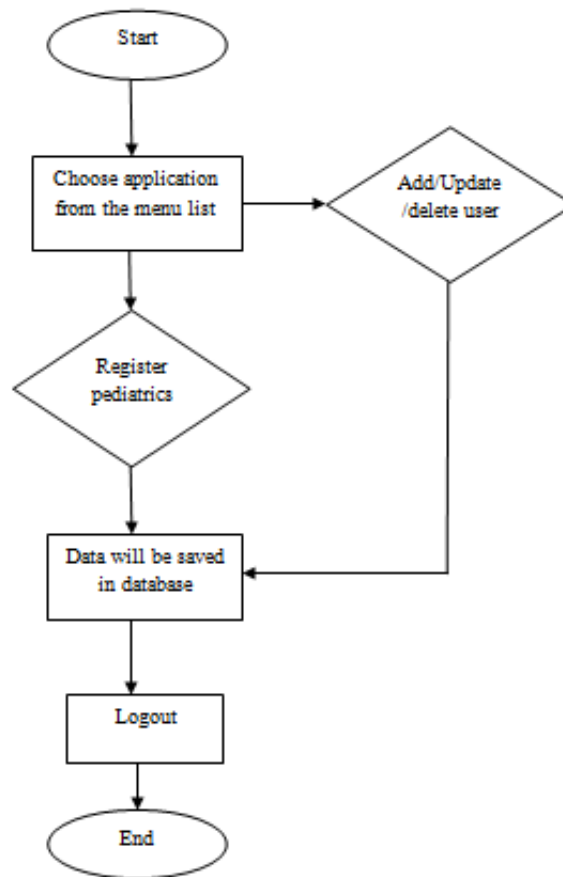


Figure 3.2 Flowchart for administrator

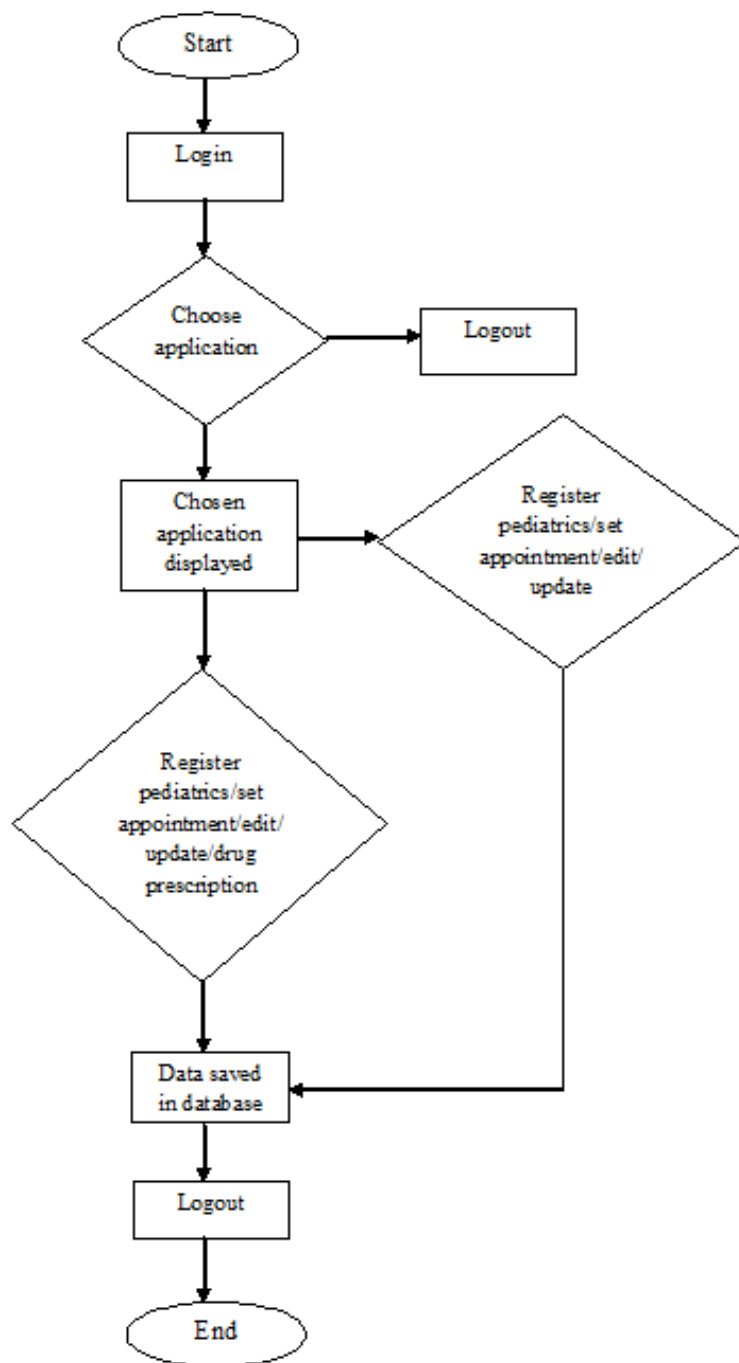


Figure 3.3: Flowchart for doctor and medical staff

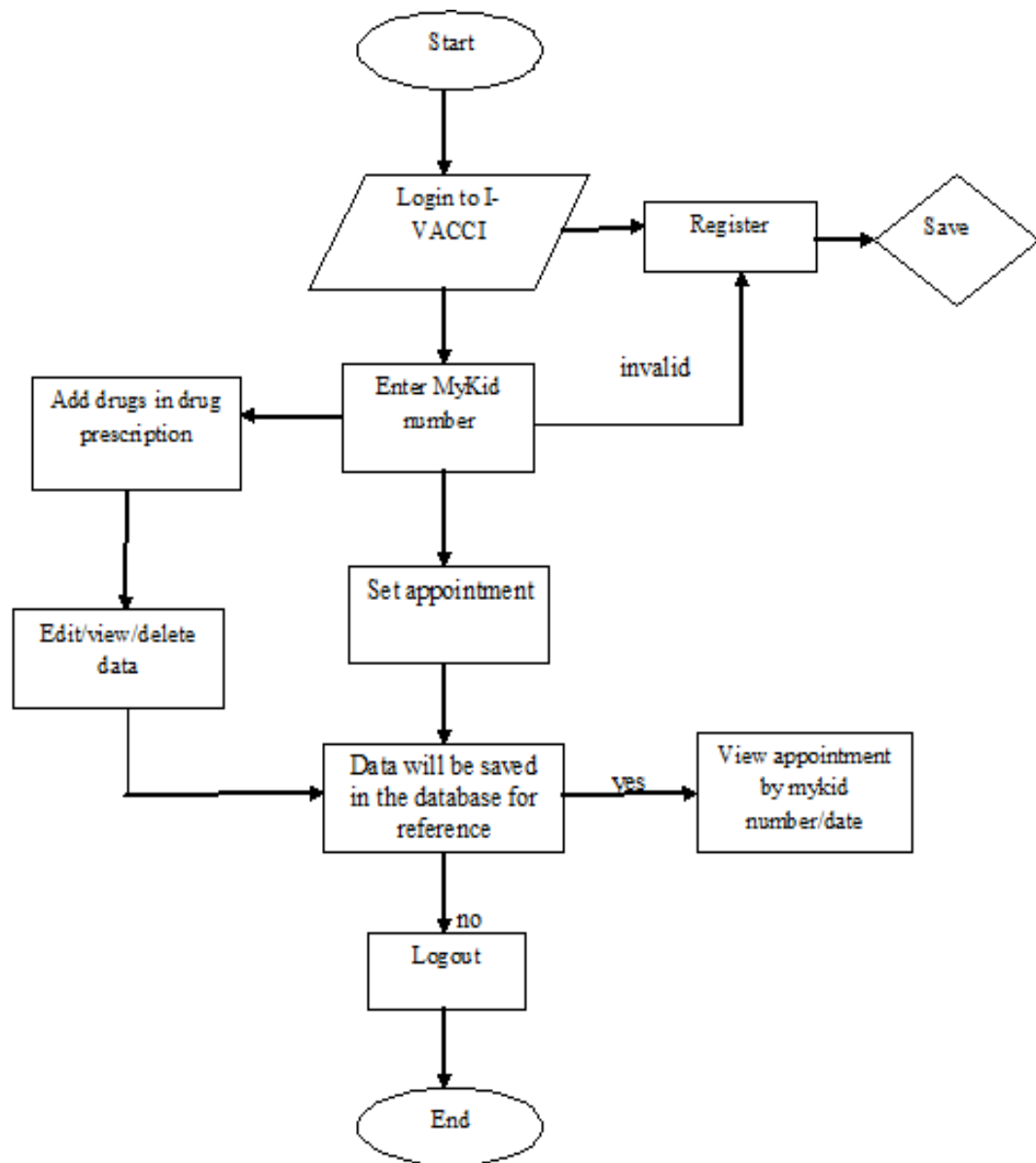


Figure 3.4: Flowchart for overall system

3.3.2.2 Use case diagram

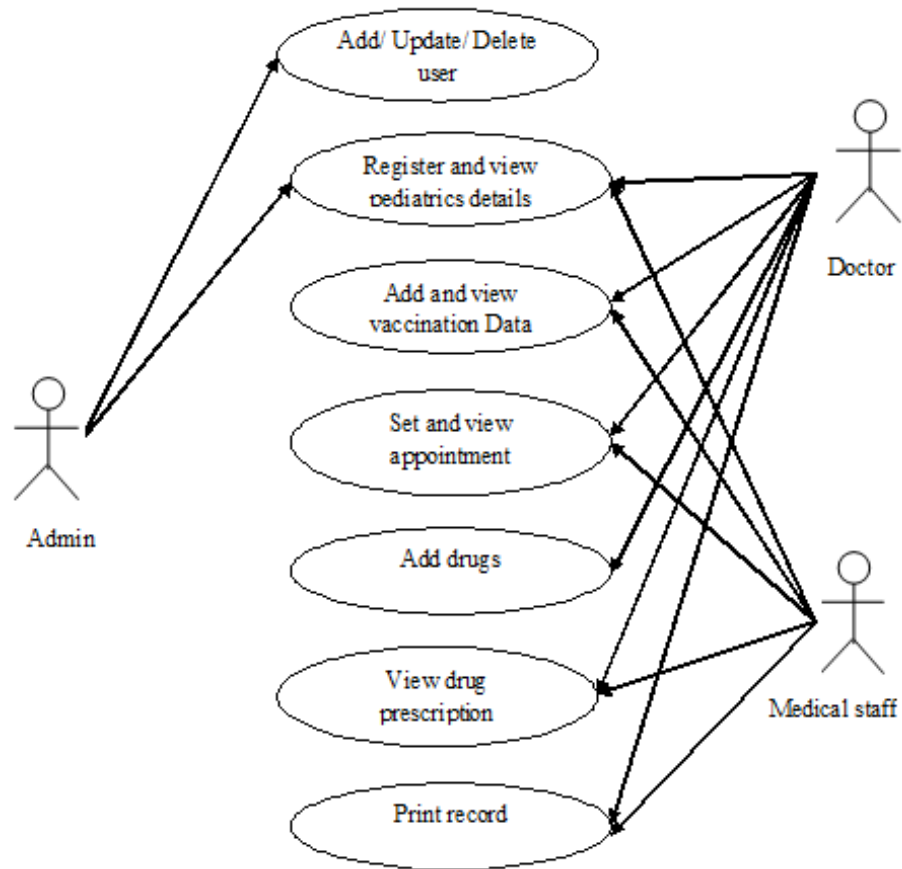


Figure 3.5: Overall system use case diagram

3.3.2.3 Context diagram

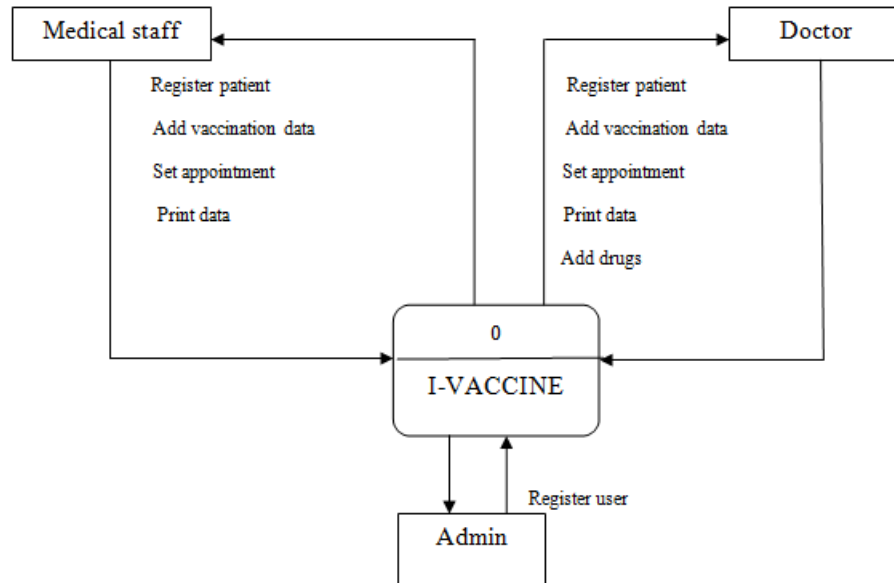


Figure 3.6: Context diagram of I-VACCI

3.3.2.4 Data flow diagram

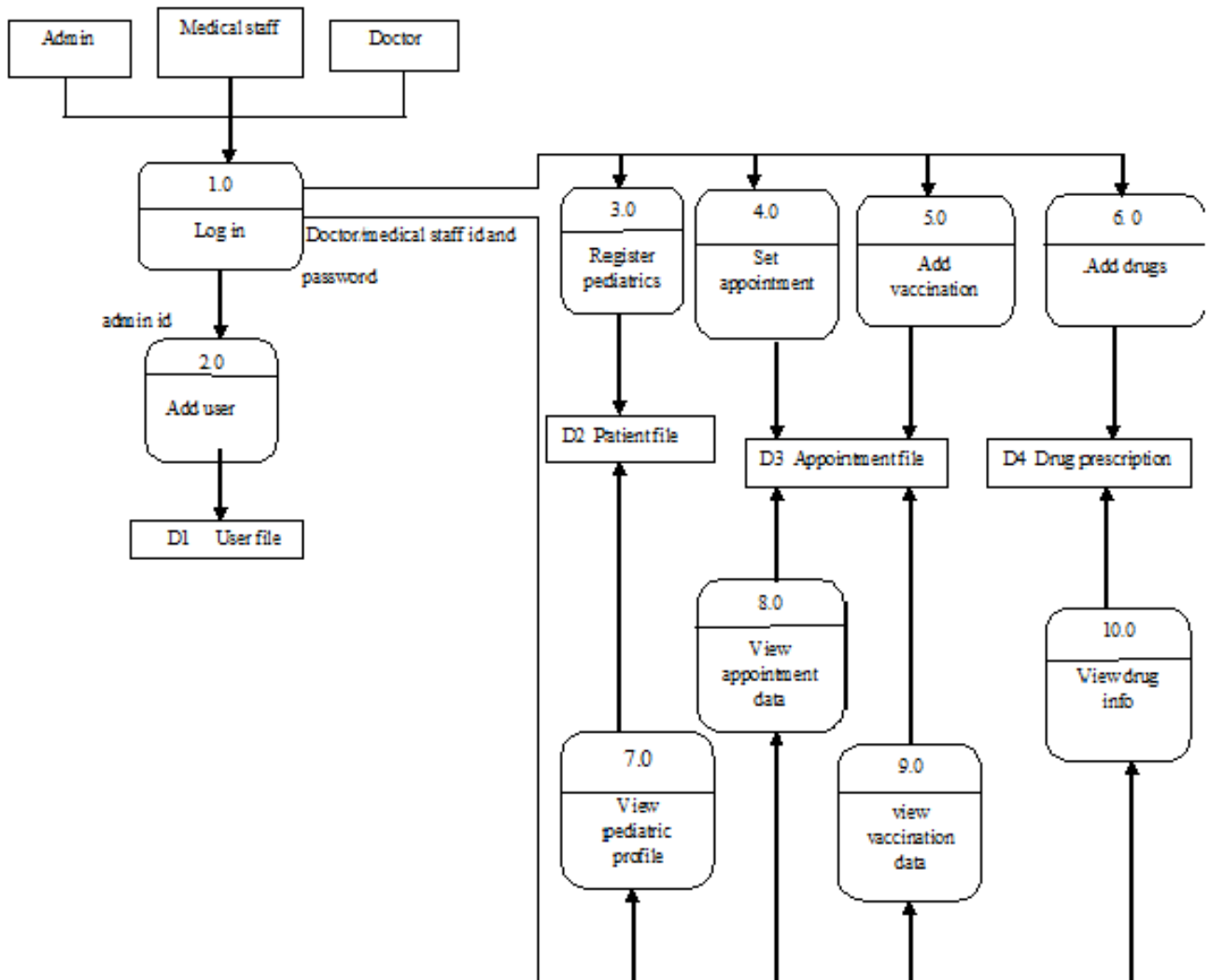


Figure 3.7: DFD Level 0 of I-VACCI

3.3.2.5 Database design

The database design of I-VACCINE comprises of Entity Relationship Diagram (ERD). The attributes, primary key, foreign and relationship type can be viewed in this diagram. Table 3.3 to Table 3.6 represents the data dictionary of the database tables in I-VACCI.

Table 3.3 Table for user

FIELD	TYPE	NULL	DEFAULT	EXTRA
user_id	int(5)	No	None	Auto_increment
date_reg	varchar(13)	No	None	
username	varchar(30)	No	None	
password	varchar(50)	No	None	
category	varchar(30)	No	None	
gender	varchar(10)	No	None	
address	text	No	None	
name	varchar(30)	No	None	
ic	varchar(30)	No	None	
phone	varchar(14)	No	None	

Table 3.4 Table for patient_info

FIELD	TYPE	NULL	DEFAULT	EXTRA
patient_info_id	int(5)	No	None	auto_increment
pediatric_name	varchar(30)	No	None	
kid_no	varchar(30)	No	None	
father_name	varchar(30)	No	None	
father_ic	varchar(30)	No	None	
mother_name	varchar(30)	No	None	
mother_ic	varchar(30)	No	None	
address	text	No	None	
email	varchar(30)	No	None	
contact	varchar(30)	No	None	
date_reg	varchar(11)	No	None	
by_who	varchar(5)	No	None	

Table 3.5 Table for appointment and vaccination

FIELD	TYPE	NULL	DEFAULT	EXTRA
app and vacci id	int(15)	No	None	auto_increment
by_who	varchar(30)	No	None	
kid_no	varchar(30)	No	None	
vaccination_type	varchar(30)	No	None	
vaccination_time	int(5)	No	None	
date_give	varchar(10)	No	None	
date_first	varchar(10)	No	None	
date_second	varchar(10)	No	None	
date_third	varchar(10)	No	None	

Table 3.6 Table for drug prescription

FIELD	TYPE	NULL	DEFAULT	EXTRA
drug prescription id	int(5)	No	None	auto_increment
by_who	int(5)	No	None	
kid_no	varchar(30)	No	None	
drug_type	varchar(30)	No	None	
drug_give	Varchar(11)	No	None	

3.3.2 Construction

Construction phase is the implementation or development stage. This is the phase where every analysis and design is put into building the system. The system will be built based on the requirement gathered and design that have been created in the previous phases. I-VACCI will be developed using PHP for the interface of the system and will be integrated with SQL server for the database design. Interaction between the interface and database will be made via coding.

3.3.3 Cutover Phase

In this phase the system is implemented in the real environment. The systems are placed and used in the actual environment. This system must run normally without functional errors in the real environment and with the real users [16]. This system should be able to function well in this phase to ensure the satisfaction of the user. Satisfaction of the user is in the sense of good interactivity with the system and also user friendliness of the system. This phase is mainly focused on the functionality of the system without any disruption or error and also most importantly user experience.

CHAPTER 4

IMPLEMENTATION

4.1 Introduction

Implementation phase is an important phase where a system is developed based on planning and requirement that has been discussed in previous chapters. System interface attracts customer and makes user interaction easier for customers. System coding plays a very important role in this implementation phase, where it is used to run the functions in this website. Developer has to that the website meet its requirement and objective and also to void system errors.

This chapter covers the implementation phase of the Pediatric Vaccination System. Issues that will be discussed in this chapter are database tables, interfaces and coding analysis. Each issue together with the coding is thoroughly explained in this chapter.

4.2 Database Architecture

A database is a collection of information that is organized so that it can easily be accessed, managed, and updated. In one view, databases can be classified according to types of content such as bibliographic, full-text, numeric and images. However, a database design is the process of producing a detailed data model of a database. This logical data model will generate a design in a Data Definition Language, which can then be used to create a database. Software that is used to develop the database for I-VACCI is PhpMyAdmin.

4.2.1 I-VACCI Database

The database for I-VACCI is named as i-vacchi. List of tables created in this database are user, patient_info, app_vacchi, and drug prescription. The diagrams show the sequence in detail.

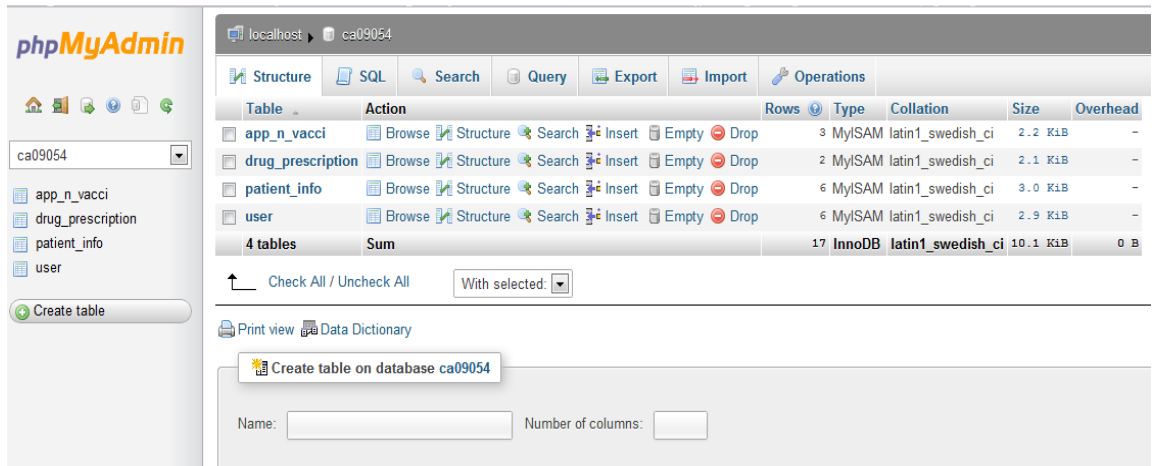


Figure 4.1 I-VACCI database

4.2.1.1 User table

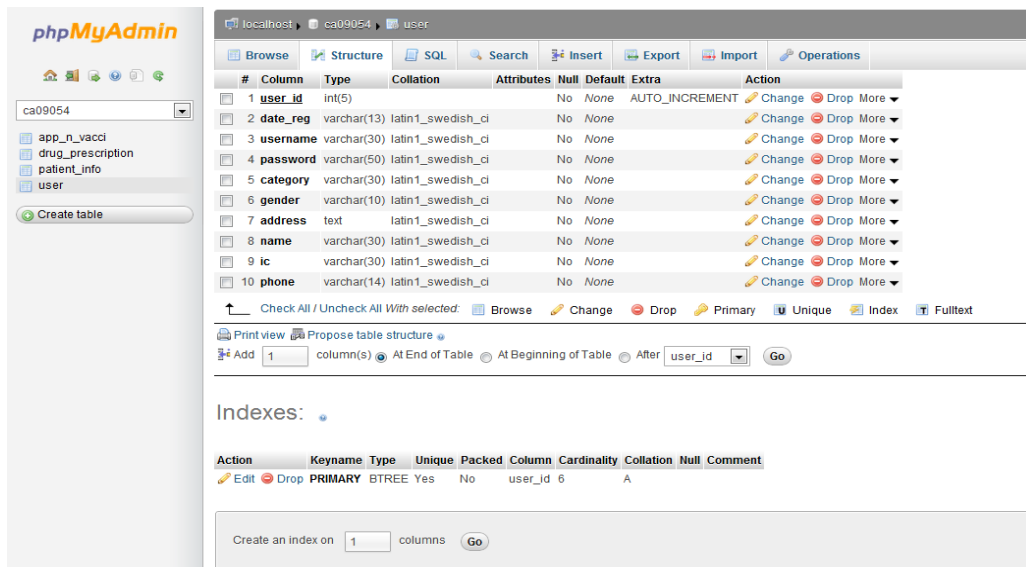


Figure 4.2 User table

4.2.1.2 Patient info table

localhost | ca09054 | patient_info

#	Column	Type	Collation	Attributes	Null	Default	Extra	Action
1	patient_info_id	int(5)			No	None	AUTO_INCREMENT	Change Drop More
2	pediatric_name	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
3	kid_no	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
4	father_name	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
5	father_ic	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
6	mother_name	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
7	mother_ic	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
8	address	text	latin1_swedish_ci		No	None		Change Drop More
9	email	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
10	contact	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
11	date_reg	varchar(11)	latin1_swedish_ci		No	None		Change Drop More
12	by_who	int(5)			No	None		Change Drop More

Indexes:

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	PRIMARY	BTREE	Yes	No	patient_info_id	6	A		

Figure 4.3 Patient info table

4.2.1.3 Appointment and vaccination table

localhost | ca09054 | app_n_vaccl

#	Column	Type	Collation	Attributes	Null	Default	Extra	Action
1	app_n_vaccl_id	int(5)			No	None	AUTO_INCREMENT	Change Drop More
2	by_who	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
3	kid_no	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
4	vaccination_type	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
5	vaccination_time	int(5)			No	None		Change Drop More
6	date_give	varchar(11)	latin1_swedish_ci		No	None		Change Drop More
7	date_first	varchar(10)	latin1_swedish_ci		No	None		Change Drop More
8	email_first	int(5)			No	None		Change Drop More
9	date_second	varchar(10)	latin1_swedish_ci		No	None		Change Drop More
10	email_second	int(5)			No	None		Change Drop More
11	date_third	varchar(10)	latin1_swedish_ci		No	None		Change Drop More
12	email_third	int(5)			No	None		Change Drop More
13	date_fourth	varchar(11)	latin1_swedish_ci		No	None		Change Drop More
14	email_fourth	int(5)			No	None		Change Drop More

Indexes:

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	PRIMARY	BTREE	Yes	No	app_n_vaccl_id	4	A		

Figure 4.4 appointment and vaccination table

4.2.1.4 Drug prescription table

The screenshot shows the phpMyAdmin interface for the 'drug_prescription' table. The table structure is as follows:

#	Column	Type	Collation	Attributes	Null	Default	Extra	Action
1	drug_prescription_id	int(5)			No	None	AUTO_INCREMENT	Change Drop More
2	by_who	int(5)			No	None		Change Drop More
3	kid_no	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
4	drug_type	varchar(30)	latin1_swedish_ci		No	None		Change Drop More
5	date_give	varchar(11)	latin1_swedish_ci		No	None		Change Drop More

Indexes:

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	PRIMARY	BTREE	Yes	No	drug_prescription_id	4	A		

Figure 4.5 Drug prescription table

4.2.2 Database and Server Connection

```
<?php
mysql_connect("172.20.30.36","ca09054","09054");
mysql_select_db("ca09054");
?>
```

4.3 System Interface and Implementation

A system interface will allow user to communicate with the system. Therefore, the interface of e-learn system will be design using Adobe Dreamweaver CS5 in PHP language.

4.3.1 System login page

In this module, user will be allowed to login in to the system according to the user category which is admin, doctor and medical staff. After user login, they will be redirect to each home page according to the user category.

I-VACCI
Pediatric's Vaccination System

Login here

Username

Password

User category
--choose--

I-VACCI Pediatrics's Vaccination System.

Immunization is among the most effective and gratifying way we can protect our children from disease. The understanding of vaccine science and practices is evolving along with rapid development of new vaccines. The pediatric and adolescent practitioner needs to stay current with these developments, to provide optimal protection for patients. Pediatric vaccination system (i-VACCI) is a web based system that is developed to assist health care professional and public health administrator in managing the vaccination for pediatrics. I-VACCI will record vaccination details for malaysian pediatrics. The concept of I-VACCI is to store vaccination record and maintain data of vaccination for Malaysian pediatrics. Therefore this I-VACCI should be developed to help the pediatrician in managing vaccination system.

Use mozilla firefox 3.5 above and latest Chrome for best view
Copyright@i-vacci.

Figure 4.6 Login page module

```

<?php
session_start();
include("config.php");
include("login_class.php");
$id = @$_SESSION['user_id'];
$category = @$_SESSION['category'];
if($id!="")
{
header("location:a_login_success.php");
}
else
{
header("");
}
if(isset($_POST['sub']))
{
login_control()
}
function login_control()
{
extract($_POST);
$satu = new Login();

$satu->set_user($username,$password,$type_user);
$satu->select_user();
$satu->set_session();
}
//exit();
?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>i - vacci</title>
<link href="styles.css" type="text/css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery-1.7.1.js"></script>
<script type="text/javascript" src="js/jquery-effect.ui.js"></script>
<script type="text/javascript">
function data()
{
if(document.getElementById("username").value=="")
{
alert("Please enter username first");
document.getElementById("username").focus();
return false;
}
if(document.getElementById("password").value=="")
{
alert("Please enter password first");
document.getElementById("password").focus();
return false;
}
}
}

```

```

    }

    if(document.getElementById("type_user").value=="")
    {
        alert("Please select category");
        document.getElementById("type_user").focus();
        return false;
    }
}
</script>
<style type="text/css">
#admin{
    display:none;
}
#user_log{
    cursor:pointer;
}
</style>
</head>
<body>
<center>
<div id="kandungan_besar">
<div id="banner">
    <?php include("banner.php");?>
</div>
<div id="menu_nav">
</div>
<div id="kiri">

    <div id="dalam_kiri">
        <h3 class="h2_background" id="user_log">Login here</h3>

        <div class="user_login" id="user">
            <form action="" method="post" name="form1"
onsubmit="return data(this.value)">
                <p>Username<br /><input type="text" size="30"
class="input_teks" name="username" id="username"/></p>
                <p>Password<br /><input type="password" size="30"
class="input_teks" name="password" id="password"/></p>
                <p>User category<br /><select name="type_user" id="type_user">
<option value="">--choose--</option>
                    <option value="doctor">Doctor</option>
                    <option value="staff">Staff</option>
                    <option value="admin">Admin</option>
                </select></p>
                <p><input type="reset" value="Reset" class="input_button"/><input
type="submit" value="Submit" class="input_button" name="sub"/></p>
            </form>
        </div>
    </div>

```

```

        </div>
    </div>
    <script type="text/javascript">
    $("#user_log").click(function(){

        $("#user").slideToggle(1500);
        $("#admin").hide();

    });
    $("#admin_log").click(function(){
        $("#admin").slideToggle(1500);
        $("#user").slideUp(1500);
    });
    </script>
    <div id="kanan">
        <div style="padding:7px">
            <h2>  I-VACCI Pediatrics's
Vaccination System.</h2>
            <p align="justify">
            Immunization is among the most effective and gratifying way we can
protect our children from disease. The understanding of vaccine science
and practices is evolving along with rapid development of new vaccines.
The pediatric and adolescent practitioner needs to stay current with
these developments, to provide optimal protection for patients. Pediatric
vaccination system (i-VACCI) is a web based system that is developed to
assist health care professional and public health administrator in
managing the vaccination for pediatrics. I-VACCI will record vaccination
details for malaysian pediatrics. The concept of I-VACCI is to store
vaccination record and maintain data of vaccination for Malaysian
pediatrics. Therefore this I-VACCI should be developed to help the
pediatrician in managing vaccination system.</p>
        </div>
    </div>
    <div id="footer">
    <?php include("footer.php");?>
    </div>
</div>
</center>
</body>
</html>

```

Figure 4.7 Login page source code

4.3.2 Pediatric Registration Module

This module is for pediatric registration. User need to fill up all the details needed in the space provided. This module is very important because pediatric cannot fix appointment with the doctor if he or she is not registered

The screenshot displays the I-VACCI Pediatric's Vaccination System interface. At the top, the title "I-VACCI" is prominently displayed in white on a blue background, with the subtitle "Pediatric's Vaccination System" below it. A navigation bar includes a welcome message "Welcome : Dr Eric" on the left and a "Logout" link on the right. A vertical menu on the left side lists various system functions: Info, Appointment, Vaccination, Search profile, Change password, Register pediatric (highlighted in blue), Drug prescription, and Report. The main content area is titled "Register pediatric : child info" and is divided into two sections. The "Register pediatric : child info" section contains input fields for "Pediatric's name", "My kid number" (with an example "[ex: 881209034567]"), "Father name", "My card number" (with an example "[ex: 881209034567]"), "Mother name", "My card number", "Phone number" (with an example "[ex: 0142345676]"), "Email", and "Address". At the bottom right of the form, there are "Submit" and "Reset" buttons.

Figure 4.8 patient registration modules

```

<?php
session_start();
include("session_doctor.php");
?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>i - vacci</title>
<link href="styles.css" type="text/css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery-1.7.1.js"></script>
<script type="text/javascript" src="js/jquery-effect.ui.js"></script>
</script>
</head>
<style type="text/css">
#admin{
    display:none;
}
</style>
<body>
<center>
<div id="kandungan_besar">
    <div id="banner">
        <?php include("banner.php");?>
    </div>
    <div id="menu_nav">
        <?php include("welcome_admin.php");?>
    </div>
    <div id="kiril">
        <div id="dalam_kiril">
            <?php
if($_SESSION['user']=="doctor"){include("menu_tepi_doctor.php");}elseif($_SESSION['user']=="admin"){include("menu_tepi_admin.php");}else{include("menu_tepi_staff.php");}?>
        </div>
    </div>
<script type="text/javascript">
    $("#user_log").click(function(){
        $("#user").slideToggle(1500);
        $("#admin").hide();
    });
    $("#admin_log").click(function(){
        $("#admin").slideToggle(1500);
        $("#user").slideUp(1500);
    });
</script>
    <div class="kanan2 clearfix">
        <h3 class="h2_background_interior">Register pediatric :
child info</h3>
<p class="kanan1_interior">
        <form action="" method="POST" >

```


4.3.3 Vaccination information module

This module provides information regarding vaccination. This source is taken from Kementerian Kesihatan Malaysia. All the information available here will be useful for the reference of doctors and medical staffs.

The screenshot shows the I-VACCI Pediatric's Vaccination System interface. The header is blue with the text 'I-VACCI Pediatric's Vaccination System'. Below the header, there is a dark blue bar with 'Welcome : Dr Eric' on the left and 'Logout' on the right. The main content area is divided into a 'Menu' sidebar on the left and an 'Info' section on the right. The 'Menu' sidebar contains the following items: Info, Appointment, Vaccination, Search profile, Change password, Register pediatric, Drug prescription, and Report. The 'Info' section contains a table with the following data:

Vaccination	Age (month)						
	0	1	2	3	5	6	12
BCG	Orange						
HEPATISIS B	Orange	Orange				Orange	
DTAP			Orange	Orange	Orange		
HIB			Orange	Orange	Orange		
POLIO			Orange	Orange	Orange		
MMR							Orange

At the bottom of the interface, there is a footer with the text: 'Use mozilla firefox 3.5 above and latest Chrome for best view' and 'Copyright©i-vacci.'

Figure 4.10 Vaccination information module

```

<?php
session_start();
include("register/register_class.php");
include("session_all.php");
?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>i - vacci</title>
<link href="styles.css" type="text/css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery-1.7.1.js"></script>
<script type="text/javascript" src="js/jquery-effect.ui.js"></script>
<script type="text/javascript">
</script>
</head>
<style type="text/css">
#admin{
    display:none;
}
</style>
<body>
<center>
<div id="kandungan_besar">
    <div id="banner">
        <?php include("banner.php");?>
    </div>

    <div id="menu_nav">
        <?php include("welcome_admin.php");?>
    </div>

    <div id="kiri1">
<div id="dalam_kiri1">
        <?php
if($_SESSION['user']=="doctor"){include("menu_tepi_doctor.php");}elseif($_SE
SSION['user']=="admin"){include("menu_tepi_admin.php");}else{include("menu_t
epi_staff.php");}?>
</div>
<div class="kanan2 clearfix">
        <h3 class="h2_background_interior">Info</h3>
        <p class="kanan1_interior">
<form action="" method="POST" id="form1">
            <table border="1" cellspacing="0" cellpadding="7" width="600"
align="center" style="border:0px solid
#056FA3;background:#ECECEC">
                <tr>
                <tr>
                    <td rowspan="2" style="border-right:1px solid #056FA3;border-bottom:1px
solid
#056FA3;background:#1E89BF;color:white">Vaccination</td>
                    <td colspan="7" align="center" style="border-right:1px solid
#056FA3;border-bottom:1px solid

```

```

#056FA3;background:#1E89BF;color:white">Age (month)</td> </tr>
<tr style="border-right:1px solid #056FA3;border-bottom:1px solid
#056FA3;background:#1E89BF;color:white">
  <td>0</td>
  <td>1</td>
  <td>2</td>
  <td>3</td>
  <td>5</td>
  <td>6</td>
  <td>12</td>
</tr>
<tr>
  <td>BCG</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
</tr>
<tr>
  <td>HEPATISIS B</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td>&nbsp;</td>
</tr>
<tr>
  <td>DTAP</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
</tr>
<tr>
  <td>HIB</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
</tr>
<tr>
  <td>POLIO</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>

```

```
</tr>
<tr>
  <td>MMR</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td>&nbsp;</td>
  <td bgcolor="#FFCC99">&nbsp;</td>
</tr>
</table>

      </p>
    </form>

  </div>
  <div id="footer">
    <?php include("footer.php");?>
  </div>
</div>
</center>
</body>
</html>
```

Figure 4.11 Vaccination information source code

4.3.4 Set Appointment Module

This module is used to set appointment between doctor and patient. Before accessing this page, user must be registered first. This interface will automatically generate the date for next immunization visit after user fill up all the details required.

The screenshot displays the 'I-VACCI Pediatric's Vaccination System' interface. At the top, a blue header contains the system name. Below it, a dark blue bar shows a welcome message 'Welcome : Dr Eric' and a 'Logout' link. A left-hand menu lists various options: Info, Appointment, Vaccination, Search profile, Change password, Register pediatric, Drug prescription, and Report. The main content area is titled 'Set appointment' and contains a form with the following fields:

- MyKid no :
- Type of vaccination : --select vaccination type--
- Number of times vaccination :

At the bottom right of the form are two buttons: 'Submit' and 'Reset'. A footer at the bottom of the page reads: 'Use mozilla firefox 3.5 above and latest Chrome for best view Copyright©i-vacchi.'

Figure 4.12 Set appointment module

```

<?php
session_start();
include("register/register_class.php");
include("session_doctor.php");
?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>i - vacci</title>
<link href="styles.css" type="text/css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery-1.7.1.js"></script>
<script type="text/javascript" src="js/jquery-effect.ui.js"></script>
<script type="text/javascript">

</script>
</head>
<style type="text/css">
#admin{
    display:none;
}
</style>
<body>
<center>
<div id="kandungan_besar">
    <div id="banner">
        <?php include("banner.php");?>
    </div>

    <div id="menu_nav">
        <?php include("welcome_admin.php");?>
    </div>

    <div id="kiril">

        <div id="dalam_kiril">
            <?php
if($_SESSION['user']=="doctor"){include("menu_tepi_doctor.php");}else{include(
"menu_tepi_staff.php");}?>
            </div>

        </div>
<div class="kanan2 clearfix">
    <h3 class="h2_background_interior">Set appointment</h3>
<p class="kanan1_interior">

        <form action="" method="POST" id="form1">
        <table width="600" border="0" cellspacing="4" cellpadding="4">
        <tr>
            <td width="205">MyKid no</td>
            <td width="367">: <input type="hidden" value="<?php echo
$_SESSION['user_id'];?>" id="user_id" name="user_id"/>
                <input type="text" name="kid_no" id="kid_no"
class="input_teks1" size="30"/></td>

```



```

</tr>
        <tr>
            <td>Type of vaccination</td>
            <td>: <select name="vaccination_type"
id="vaccination_type">
                <option value="">--select vaccination type--
</option>
<option value="BCG">BCG</option>
                <option value="HEPATISIS B">HEPATISIS B</option>
                <option value="DTAP">DTAP</option>
                <option value="HIB">HIB</option>
                <option value="POLIO (IPU) ">POLIO (IPU) </option>
                <option value="MMR">MMR</option>
            </select>
            </td>
        </tr>
        <!--<tr>
            <td>Doctor in charge</td>
            <td>: <select name="by_who" id="by_who">
                <option value="">--select vaccination type--
</option>
                <option value="BCG">BCG</option>
                <option value="HEPATISIS B">HEPATISIS B</option>
                <option value="DTAP">DTAP</option>
                <option value="HIB">HIB</option>
                <option value="POLIO (IPU) ">POLIO (IPU) </option>
                <option value="MMR">MMR</option>
            </select>
            </td>
        </tr-->
        <tr>
            <td>Number of times vaccination</td>
            <td>: <input type="text" name="vaccination_time"
id="vaccination_time" class="input_teks1" size="5" onkeyup="matchi()"/><div
id="c_output"></div></td>
        </tr>
        <tr>
            <td></td>
        </tr>
    </table>
</p>
<td align="right"><input type="button" id="submit" value="Submit"
class="input_button" name="submit"/><input type="reset" id="buang"
value="Reset" class="input_button"/></td>
</tr>
</table>
</p>
</form>

```

Figure 4.13 Set appointment source code

4.3.5 View appointment by MyKid number

Doctors and medical staffs can search appointment date for a particular kid by entering MyKid number.

The screenshot displays the I-VACCI Pediatric's Vaccination System interface. At the top, the system name "I-VACCI Pediatric's Vaccination System" is shown. Below this, a navigation bar includes "Welcome : Dr Eric" and a "Logout" link. A left-hand menu lists various options: Info, Appointment, Vaccination, Search profile, Change password, Register pediatric, Drug prescription, and Report. The main content area is titled "Appointment by mykid no" and features a search input field labeled "Search by MyKid No :" with a "Submit" button. Below the search field is a table displaying appointment details for a single record.

No.	MyKid no	1st meeting	2nd meeting	3rd meeting	4th meeting	Delete
1	111226025224	2012/06/20	2012/07/21	none	none	delete

At the bottom of the page, there is a footer with the text: "Use mozilla firefox 3,5 above and latest Chrome for best view" and "Copyright © i-vacchi".

Figure 4.14 Search appointment by MyKid number

```

<?php
session_start();
include("register/register_class.php");
include("session_doctor.php");
?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>i - vacci</title>
<link href="styles.css" type="text/css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery-1.7.1.js"></script>
<script type="text/javascript" src="js/jquery-effect.ui.js"></script>
<script src="Scripts/AC_RunActiveContent.js" type="text/javascript"></script>
<script type="text/javascript">
</script>
</head>
<style type="text/css">
#admin{
    display:none;
}
</style>
<body>
<center>
<div id="kandungan_besar">
    <div id="banner">
        <?php include("banner.php");?>
    </div>

    <div id="menu_nav">
        <?php include("welcome_admin.php");?>
    </div>

    <div id="kiri1">

        <div id="dalam_kiri1">
            <?php
if($_SESSION['user']=='doctor'){include("menu_tepi_doctor.php");}else{include("me
nu_tepi_staff.php");}?>
        </div>
    </div>
    <div class="kanan2 clearfix">
        <h3 class="h2_background_interior">Appointment by mykid
no</h3>
        <p class="kanan1_interior">

            <form action="" method="POST" id="form1" name="form1">
            <table width="600" border="0" cellspacing="4"
cellpadding="4">
                <tr>
                    <td width="205" align="right">Search by MyKid No</td>
                    <td width="367">:
                        <input type="text" name="kid_no" id="date" class="input_teks1" size="20"/>
                        <input type="submit" id="submit" value="Submit" class="input_button"
name="submit"/></td>

```

```

</tr>

</table>

</p>

</form>

<div>
<?php
include("config.php");
$kid_no = @$_REQUEST['kid_no'];

if($kid_no)
{
    $t = mysql_query("select *from app_n_vacci where
kid_no='$kid_no' and by_who='".$_SESSION['user_id']."'")or die(mysql_error());
    ?>
    <table border="0" width="650" style="border:1px solid
#056FA3;background:#ECECEC" cellpadding="5" align="center">
        <tr>
            <th width="29" style="border-right:1px solid
#056FA3;border-bottom:1px solid #056FA3;background:#1E89BF;color:white">No.</th>
            <th width="244" style="border-right:1px solid
#056FA3;border-bottom:1px solid #056FA3;background:#1E89BF;color:white">MyKid
no</th>
            <th style="border-right:1px solid #056FA3;border-
bottom:1px solid #056FA3;background:#1E89BF;color:white">1st meeting</th>
            <th style="border-right:1px solid #056FA3;border-
bottom:1px solid #056FA3;background:#1E89BF;color:white">2nd meeting</th>
            <th style="border-right:1px solid #056FA3;border-
bottom:1px solid #056FA3;background:#1E89BF;color:white">3rd meeting</th>
            <th style="border-right:1px solid #056FA3;border-
bottom:1px solid #056FA3;background:#1E89BF;color:white">4th meeting</th>
            <th width="137" style="border-right:1px solid
#056FA3;border-bottom:1px solid
#056FA3;background:#1E89BF;color:white">Delete</th>
        </tr>
        <?php
            $a = 1;
            $today_date = date("Y/m/d");
            $row_d = mysql_num_rows($t);
            if($row_d>0)
            {
                while($get_t = mysql_fetch_array($t))
                {
                    extract($get_t);
                    ?>
                    <tr>
                        <td><?php echo $a++;?></td>
                        <td><a href="app_by_kid_no_view.php?kid_no=<?php
echo $kid_no;?>&date=<?php echo $date;?>"><?php echo $kid_no;?></a></td>
                        <td align="center"><?php if($date_first==$today_date){echo "<font
color='#FF0000'>$date_first</font>";}else{echo $date_first;}?></td>

```

```

        <td><?php if($date_second==$today_date){echo "<font
color='#FF0000'>$date_second</font>";}else{echo $date_second;}?></td>
        <td align="center"><?php if($date_third==$today_date){echo "<font
color='#FF0000'>$date_third</font>";}else{echo $date_third;}?></td>
        <td align="center"><?php if($date_fourth==$today_date){echo "<font
color='#FF0000'>$date_fourth</font>";}else{echo $date_fourth;}?></td>
                <td><a href="app_by_kid_no_del.php?kid_no=<?php
echo $kid_no;?>&date=<?php echo $date;?>" onclick="return confirm('Are you sure
to proceed ?');">delete</a></td>
</tr>

                <?php
                }
                }
                else
                {
                ?>
                <td colspan="7" align="center">No data found</td>
<?php
}
                ?>
</table>
<?php
}
}
?>
                </div>

        <br />

</div>

<div id="footer">
<?php include("footer.php");?>
</div>
</div>
</center>
</body>
</html>

```

Figure 4.15 Search appointment by mykid number

4.3.6 View vaccination by MyKid number

Doctors and medical staffs can view Vaccination details by entering MyKid number in the space provided. Details about pediatric's vaccination will be listed.

The screenshot displays the I-VACCI Pediatric's Vaccination System interface. At the top, the system name "I-VACCI" and "Pediatric's Vaccination System" are shown. A navigation menu on the left includes options like Info, Appointment, Vaccination, Search profile, Change password, Register pediatric, Drug prescription, and Report. The main content area features a search form for "Vaccination by MyKid no" with a text input field and a "Submit" button. Below the search form, a table lists the search results.

No.	MyKid no	Vaccination type
1	111226025224	BCG

Use mozilla firefox 3.5 above and latest Chrome for best view
Copyright © i-vacchi

Figure 4.16 Search vaccination by MyKid number

```

<?php
session_start();
include("register/register_class.php");
include("session_doctor.php");
?>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>i - vacci</title>
<link href="styles.css" type="text/css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery-1.7.1.js"></script>
<script type="text/javascript" src="js/jquery-effect.ui.js"></script>
<script src="Scripts/AC_RunActiveContent.js" type="text/javascript"></script>
<script type="text/javascript">
</script>
</head>
<style type="text/css">
#admin{
    display:none;
}
</style>
<body>
<center>
<div id="kandungan_besar">
    <div id="banner">
        <?php include("banner.php");?>
    </div>
    <div id="menu_nav">
        <?php include("welcome_admin.php");?>
    </div>

    <div id="kiri1">

        <div id="dalam_kiri1">
            <?php
if($_SESSION['user']=="doctor"){include("menu_tepi_doctor.php");}else{include("me
nu_tepi_staff.php");}?>
            </div>
        </div>
<div class="kanan2 clearfix">
    <h3 class="h2_background_interior">Vaccination by MyKid no</h3>
    <p class="kanan1_interior">
<form action="" method="POST" id="form1" name="form1">
<table width="600" border="0" cellspacing="4" cellpadding="4">
    <tr>
        <td width="205" align="right">Search by MyKid No</td>
        <td width="367">:
            <input type="text" name="kid_no" id="date"
class="input_teks1" size="20"/> <input type="submit" id="submit" value="Submit"
class="input_button" name="submit"/></td>
    </tr>
    </table>
</p>

```

```

        </form>
    </div>
    <?php
        include("config.php");
        $kid_no = @$_REQUEST['kid_no'];
        if($kid_no||$kid_no!="")
        {
            $t = mysql_query("select *from app_n_vacchi where
        kid_no='$kid_no' and by_who='".$_SESSION['user_id']."'")or die(mysql_error());
            ?>
            <table border="0" width="550" style="border:1px solid
        #056FA3;background:#ECECEC" cellpadding="5" align="center">
                <tr>
                    <th width="29" style="border-right:1px solid
        #056FA3;border-bottom:1px solid #056FA3;background:#1E89BF;color: :white"
        ">Vaccination type</th>
                </tr>
                <?php
                    $a = 1;
                    $today_date = date("Y/m/d");
                    $row_d = mysql_num_rows($t);
                    if($row_d>0)
                    {
                        while($get_t = mysql_fetch_array($t))
                        {
                            extract($get_t);
                            ?>
                            <tr>
                                <td><?php echo $a++;?></td>
                                <td><?php echo $kid_no;?></td>
                                <td><?php echo $vaccination_type;?></td>
                            </tr>
                            <?php
                                }
                                else
                                {
                                    ?>
                                    <td colspan="3" align="center">No data found</td>
                                <?php
                                    }
                                </table>
                                <?php
                                    }
                                <br />
                            </div>

```

Figure 4.16 Search vaccination by mykid number source code

4.3.7 Assign Drug Module

This module is for doctors only. Doctors can add all the necessary drugs needed by the pediatric by choosing from the available list of drugs. Medical staffs can view the drugs assigned by the doctors.

The screenshot displays the I-VACCI Pediatric's Vaccination System interface. The header features the system name and a welcome message for 'Dr Eric'. A navigation menu on the left includes options like 'Info', 'Appointment', 'Vaccination', and 'Drug prescription'. The main content area is titled 'Add drug to patient' and contains a form with input fields for 'MyKid no' (111226025224) and 'Drug name' (a dropdown menu). Below the form are 'Add' and 'Reset' buttons. A table below the form lists assigned drugs for the patient.

No.	Kid no	Drug type	date	Delete
1	111226025224	Adderall	2012/05/20	delete
2	111226025224	Cinryze	2012/05/20	delete

Use mozilla firefox 3.5 above and latest Chrome for best view
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Figure 4.18 Assign drug module

```

<?php
session_start();
include("register/register_class.php");
include("session_doctor.php");
extract($_REQUEST);
?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>i - vacci</title>
<link href="styles.css" type="text/css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery-1.7.1.js"></script>
<script type="text/javascript" src="js/jquery-effect.ui.js"></script>
<script type="text/javascript">
</script>
</head>
<style type="text/css">
#admin{
    display:none;
}
</style>
<body>
<center>
<div id="kandungan_besar">
    <div id="banner">
        <?php include("banner.php");?>
    </div>

    <div id="menu_nav">
        <?php include("welcome_admin.php");?>
    </div>

    <div id="kiril">

        <div id="dalam_kiril">
            <?php
if($_SESSION['user']=="doctor"){include("menu_tepi_doctor.php");}else{include("me
nu_tepi_staff.php");}?>
            </div>

        </div>
<div class="kanan2 clearfix">
    <h3 class="h2_background_interior">Add drug to patient</h3>
    <p class="kanan1_interior">

        <form action="pro_add_drug.php" method="POST" id="form1">
        <table width="600" border="0" cellspacing="4"
cellpadding="4">
<tr>

                <td width="205">MyKid no</td>
                <td width="367">:

```

```

                <input type="text" name="kid_no" id="kid_no"
class="input_teks1" size="30" value="<?php echo @$kid_no;?>" /></td>
            </tr>
            <tr>
                <td>Drug name</td>
                <td>: <select name="drug_type" id="drug_type">
                    <option value="">--select drugs type--</option>
                    <option value="Accetrophin">Accetrophin</option>
                </select>
            </td>
            </tr>
            <tr>
                <td></td>
                <td align="right"><input type="submit" id="submit"
value="Add" class="input_button" name="submit" /><input type="reset" id="buang"
value="Reset" class="input_button" /></td>
            </tr>
        </table>
</p>

        </form>
<center><div id="output"></div></center><br />

        <div>
            <IFRAME SRC="add_drug_view.php?date=<?php echo
$date;?>&kid_no=<?php echo $kid_no;?>&by_who=<?php echo $by_who;?>" WIDTH=630
HEIGHT="250" style="border:1px solid #666">

                </IFRAME>
            </div>

</div>

<div id="footer">
<?php include("footer.php");?>
</div>

```

Figure 4.19 Assign Drug source code

4.3.7 View drug prescription by MyKid number

Doctors and medical staffs can view pediatrics drug prescription by entering MyKid number. All the assigned drugs together with assigned date will be displayed.



The screenshot displays the I-VACCI Pediatric's Vaccination System interface. The header features the system name and a welcome message for 'Dr Eric'. A navigation menu is located on the left side. The main content area is titled 'Drug prescription by mykid no' and includes a search input field and a 'Submit' button. Below the search area, a table lists two drug prescriptions for MyKid number 111226025224, both dated 2012/05/20. Each entry includes a 'delete' link.

No.	MyKid no	Drug type	Date	Delete
1	111226025224	Adderall	2012/05/20	delete
2	111226025224	Cinryze	2012/05/20	delete

Use mozilla firefox 3.5 above and latest Chrome for best view
Copyright © vacci

Figure 4.20 Search drug prescription by MyKid number

```

<?php
session_start();
include("register/register_class.php");
include("session_user_n_staff.php");
?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>i - vacci</title>
<link href="styles.css" type="text/css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery-1.7.1.js"></script>
<script type="text/javascript" src="js/jquery-effect.ui.js"></script>
<script src="Scripts/AC_RunActiveContent.js" type="text/javascript"></script>
<script type="text/javascript">
</script>
</head>
<style type="text/css">
#admin{
    display:none;
}
</style>
<body>
<center>
<div id="kandungan_besar">
    <div id="banner">
        <?php include("banner.php");?>
    </div>
<div id="menu_nav">
    <?php include("welcome_admin.php");?>
</div>

    <div id="kiri1">

        <div id="dalam_kiri1">
            <?php
if($_SESSION['user']=="doctor"){include("menu_tepi_doctor.php");}else{include("me
nu_tepi_staff.php");}?>
            </div>

        </div>
<div class="kanan2 clearfix">
    <h3 class="h2_background_interior"> Drug prescription by
mykid no</h3>
    <p class="kanan1_interior">
    <form action="" method="POST" id="form1" name="form1">
    <table width="600" border="0" cellspacing="4"
cellpadding="4">
        <tr>
            <td width="205" align="right">Search by MyKid No</td>
            <td width="367">:

```

```

<input type="text" name="kid_no" id="date" class="input_teks1" size="20"/> <input
type="submit" id="submit" value="Submit" class="input_button"
name="submit"/></td>
    </tr>

</table>

</p>

</form>

<div>
<?php
    include("config.php");
    $kid_no = @$_REQUEST['kid_no'];

    if($kid_no)
    {
        $t = mysql_query("select *from drug_prescription
where kid_no='$kid_no'")or die(mysql_error());
        ?>
        <table border="0" width="450" style="border:1px solid
#056FA3;background:#ECECEC" cellpadding="5" align="center">
            <tr>
<th width="29" style="border-right:1px solid #056FA3;border-bottom:1px solid
#056FA3;background:#1E89BF;color:white">No.</th>
                <th width="244" style="border-right:1px solid
#056FA3;border-bottom:1px solid #056FA3;background:#1E89BF;color:white">MyKid
no</th>
                <th width="244" style="border-right:1px solid
#056FA3;border-bottom:1px solid #056FA3;background:#1E89BF;color:white">Drug
type</th>
                <th width="244" style="border-right:1px solid
#056FA3;border-bottom:1px solid #056FA3;background:#1E89BF;color:white">Date</th>
                <th width="137" style="border-right:1px solid
#056FA3;border-bottom:1px solid
#056FA3;background:#1E89BF;color:white">Delete</th>
            </tr>
            <?php
                $a = 1;
                $today_date = date("Y/m/d");
                $row_d = mysql_num_rows($t);
                if($row_d>0)
                {
                    while($get_t = mysql_fetch_array($t))
                    {
extract($get_t);
                        ?>
                        <tr>
                            <td><?php echo $a++;?></td>
                            <td><?php echo $kid_no;?></td>
                            <td><?php echo $drug_type;?></td>
                            <td><?php echo $date_give;?></td>
                            <td><a href="drug_by_kid_no_del.php?id=<?php echo
$drug_prescription_id;?>&kid_no=<?php echo $kid_no;?>&date=<?php echo $date;?>"
onclick="return confirm('Are you sure to proceed ?');">delete</a></td>
                            <!-- <td align="center"><?php echo
$vaccination_type;?></td>
                            <td align="center"><?php if($date_first==$today_date){echo "<font
color='#FF0000'>$date_first</font>";}else{echo $date_first;}?></td>

```

```

<td>
<?php
if($date_second==$today_date){echo "<font
color='#FF0000'>$date_second</font>";}else{echo $date_second;}?></td>
        <td align="center"><?php
if($date_third==$today_date){echo "<font
color='#FF0000'>$date_third</font>";}else{echo $date_third;}?></td>-->
        </tr>

        <?php
                }
                        }
                                else
                                        {
                                                ?>
                <td colspan=5" align="center">No data found</td>

        <?php
        }
?>

</table>
<?php
        }
        ?>
                </div>

        <br />

</div>

<div id="footer">
<?php include("footer.php");?>
</div>

</div>
</center>
</body>
</html>

```

Figure 4.20 Search drug prescription by mykid number

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Introduction

In this chapter, all the output of the system will be discussed. Detail about the outcome, assumption and further research about this system also discussed in this chapter. Hopefully, the discussion can bring ideas and more benefits to the future developer in order to upgrade and enhance the performance and functionality of the system in the future.

5.2 Result analysis

The developed application, I-VACCI has met all the objectives of this project, which are:

- i. To design and develop an easy and suitable web based vaccination system for pediatrics and to ease the work of the staff in the clinic.
- ii. To record all the pediatrics vaccination information for future reference and enhancement and to update and search pediatrics vaccination record.
- iii. Provide security for the data or information about the pediatrics details, vaccination record and drug prescription that kept in the database.

5.2.1 To design and develop an easy and suitable web based vaccination system for pediatrics and to ease the work of the staff in the clinic.

A prototype of I-VACCI is successfully developed with all functions as required. Database connection is also a success enabling data to be saved and retrieved easily. Main modules that generate output are:

- i. Login and logout screen
- ii. Pediatric registration
- iii. Set appointment
- iv. Drug prescription
- v. Vaccination information
- vi. Print record

5.2.2 To record all the pediatrics vaccination information for future reference and enhancement and to update and search pediatrics vaccination record.

This system has a database to store all the pediatric information and can be retrieved anytime using search interface. This searching can be done using Mykid number or date. Users can search for pediatrics profile where this interface stores all the pediatrics information given during registration. User can also search for appointment date, vaccination data and drugs prescription.

5.2.3 Provide security for the data or information about the peediatrics details, vaccination record and drug prescription that kept in the database.

This system is very secure because the passwords in the database are encrypted. So this system is free from phishing attacks. The passwords are encrypted by using MD5 algorithm. Only authorized users can access this system.

5.3 Result of the System

Pediatric Vaccination System (I-VACCI) is a web based system. This system will be used by clinic staffs to record pediatric details. Users of the system are administrator, doctor and medical staff. Doctor and medical staff will be added to the system by administrator and they will login to the system using their id as username and identity card number as password. After login to the system, user can change their password in the change password interface.

The system is developed using Rapid Application Development (RAD) methodology. RAD has four main phases which are Analysis, Design, Construction and Testing and Deployment phases. The testing phase was completed by constructing test cases to test the inputs and outputs. Units testing which is test by modules is used to make sure all modules does not have any error occur when user using I-VACCI.

5.4 Advantage and Disadvantages

In this section, advantages and disadvantages of I-VACCI will be discussed which will help to enhance the system in future.

5.4.1 Advantages

The advantage of I-VACCI is that it can store and retrieve pediatrics' data. After users key in pediatrics details, user can choose to save the data. After the data saved, user can also easily search for pediatrics profile by entering Mykid number. This application also consists of vaccination data interface. It will save all the vaccination information of the pediatric. Doctors can easily refer back the record whenever he needs. Besides, this application has set appointment interface. Here doctors and medical staff can fix appointment for the pediatrics for the next visit. Doctors and medical staffs can also view the appointment date by entering Mykid number. This application is also time saving. It helps user to save time as they don't have to waste their time looking for pediatrics' details manually. When setting an appointment time, users have to refer to calendar and calculate manually the date for next vaccination. But using this application, the date for next visit will be automatically generated after user key in the required vaccination. It can be said that this application can reduce paper works and reduce number of lost data in the clinic.

5.4.2 Disadvantages

The limitation of this system is that it is only used for paediatric patients only. This system does not consist of additional application for other types of patient. There are some users who still prefer using manual method. They find it more efficient compared to this application.

5.5 Assumptions

In order to make the system run properly there are some assumptions and constraints that needed to be fulfilled. They are :

- i. The system runs in Windows based computers.
- ii. The desktop computer or laptop is connected to the internet in order to use the system.
- iii. The computer requirements is matching or higher than system specification requirement.

5.6 Future System

Although this system already fulfill the objectives, scopes and purpose successfully, but it still have some limitations. There are three constraints of the system:

- i. The interface design can be changed to make the system more attractive.
- ii. The functionality of the system should be added in the future.
- iii. The database design of the system still needs to be enhanced.

CHAPTER 6

CONCLUSION

This chapter briefly discusses the conclusion of the proposed project.

I-VACCI is used mainly to ease the work of doctors and medical staffs of pediatric department. The users of this system are admin, doctors and medical staffs. Admin act as the controller for I-VACCI. Doctors and medical staffs are main users in using this application.

This system is developed using Rapid Application Development (RAD) methodology. RAD has four main phases which are requirement planning, user design, construction and cutover. This methodology was chosen because it is efficient in developing small system in a very short amount of time rapidly. Another reason for choosing this methodology is because this system is a prototype system.

This system is designed using Hypertext Preprocessor (PHP) with MySQL as database. PHP is a widely used and powerful language. It is a scripting language that was originally designed for web development which is to produce dynamic web pages. MySQL is also software under the name Microsoft Cooperation. Both this software will work effectively in finishing I-VACCI.

All the necessary research and development has been done to build I-VACCI. As a conclusion it could be stated that this study had successfully met its objective, mainly to develop a prototype vaccination system. More research and new functions should be inserted to enhance the system to be successful. All constraints should be overcome in order to enhance the system in the future.

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APPENDIX A

GANTT CHART

