

BORANG PENGESAHAN STATUS TESIS

JUDUL: e-Pharmacy

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e-PHARMACY

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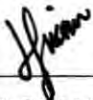
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DEDICATION

This project is dedicated to my beloved parents, Mr. Neoh Seow Chye and Madam Lim Guat Choon for their love, support and motivation. Without them, everything would have been impossible.

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ABSTRACT

e-Pharmacy is a web based application developed not only to cater the growing needs of Malaysians but also the needs of the emerging pharmaceutical field in the country. Currently, local pharmacies are still utilizing the old-fashioned standalone system in managing their stocks. Standalone system is no longer suitable for the trend today because most businesses have ventured into web based application or e-commerce in order to remain competitive. Thus, e-Pharmacy, which serves as an online inventory application and also information system, is introduced to bring advantage to the local pharmaceutical field. Through e-Pharmacy, pharmacy inventory can be managed effectively and systematically. If a stock quantity is less than the reorder point, stock replenishment is invoked. Stock ordering will also be hassled-free because statistical report for sales and ordering of pharmacy products can be generated. As for customers, they are provided the online service where they can check for the availability of pharmacy products. They are also allowed to view the pharmacy location. In short, e-Pharmacy will benefit the pharmaceutical employees in the pharmacy headquarter in managing pharmacy product in its branches through a centralized database and also the public. Since the duration given to implement e-Pharmacy is rather short, Rapid Application Methodology (RAD) is used. The stages in RAD include requirements planning, user design, construction and implementation. Unified Modeling Language (UML) comes in handy in modeling the system functionalities and user interactions for e-Pharmacy. For system design, 3-Tiered Architecture is chosen. Lastly, Microsoft Windows environment is selected as the development platform with ASP.NET as the programming language.

ABSTRAK

e-Pharmacy ialah sejenis aplikasi web yang dibangunkan untuk memenuhi keperluan anak watan Malaysia dan juga bidang farmaseutikal negara yang makin berkembang pesat. Kini, kebanyakan kedai farmasi dalam negara masih menggunakan kaedah yang telah ditelan zaman iaitu sistem *standalone* dalam pengurusan stok farmasi. Kaedah ini tidak sesuai lagi dengan peredaran zaman kini kerana kebanyakan peniaga telah mula mengembangkan perniagaan ke arah perdagangan electronic (*e-commerce*) dan juga teknologi maklumat. Dengan itu, *e-Pharmacy* diperkenalkan untuk membawa bidang farmeseutikal negara ke arah kecemerlangan. Inventori farmasi dapat diuruskan dengan lebih berkesan dan sistematik melalui *e-Pharmacy*. Jika kuantiti stok farmasi berada di bawah paras yang sepatutnya, aplikasi web ini akan memberi amaran kepada staf farmasi. Proses memesan stok baru juga akan menjadi lebih mudah dengan terjananya data untuk produk yang telah dijual and ditempah. Para pelanggan juga dapat menikmati *real-time* servis untuk mengetahui kedai farmasi yang masih mempunyai stok sesuatu produk melalui internet. Dengan itu, dapat dikatakan bahawa *e-Pharmacy* membawa manfaat kepada staf farmaseutikal di ibupejabat dalam pengawalan inventori dan juga pengguna melalui *centralized database*. Oleh sebab masa yang diperuntukkan bagi menyiapkan *e-Pharmacy* adalah agak pendek, maka methodologi yang sesuai digunakan ialah *Rapid Application Development (RAD)*. Fasa-fasa yang terdapat dalam methodologi ini ialah rancangan keperluan, rekabentuk pengguna, pembangunan dan implementasi. Keberkesanan fungsi sistem dan interaksi pengguna adalah dimodel dengan menggunakan *Unified Modeling Language (UML)*. *3-Tiered Architecture* dipilih untuk mereka bentuk sistem. Akhir sekali, *ASP.NET* ialah bahasa pengaturcaraan yang digunakan bersama-sama dengan platform *Microsoft Windows* untuk membangunkan *e-Pharmacy*.

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LIST OF ABBREVIATIONS

B2B	-	Business to Business
B2C	-	Business to Consumer
CPhA	-	Canadian Pharmacists Association
ERD	-	Entity Relationship Diagram
GISA	-	German Information Security Agency
HTTP	-	Hypertext Transfer Protocol
IE	-	Internet Explorer
JE	-	Japanese Encephalitis
JSP		JavaServer Page
KUTKM	-	Kolej Universiti Teknikal Kebangsaan Malaysia
RAD	-	Rapid Application Development
RBAC	-	Role-Based Access Control
SARS		Severe Acute Respiratory Syndrome
SQL	-	Structured Query Language
TCSEC	-	Trusted Computer System Evaluation Criteria
UML	-	Unified Modelling Language

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CHAPTER I

INTRODUCTION

The project to be developed is e-Pharmacy. e-Pharmacy is an online application designed for the use of pharmaceutical personnel in the headquarter and the public. Unlike virtual pharmacies of western countries, e-Pharmacy is not an e-commerce application. It acts more as an information provider, providing information concerning pharmacy products' availability in pharmacy branches. e-Pharmacy also focuses on the inventory management of pharmacy products and report generation.

1.1 Project Background

Currently, Malaysians lead a very hectic lifestyle concurrent with the development of the country towards vision 2020. Heavy workload, polluted environment and unhealthy eating habits are contributing to the adverse effect of public health.

Based on the health article in Utusan Malaysia published on 1st December 2003 (Refer to References), heart attack remained the number killer illness in Malaysia. Other than that, illnesses like cancer, stroke, Alzheimer and diabetes are on the rise especially among city folks. New diseases, Japanese Encephalitis (JE) and SARS (Severe Acute Respiratory Syndrome) to name a few are also discovered.

Due to the various campaigns launched, Malaysians especially those living in the city are becoming more health conscious. They are now aware of the importance of health. Besides going for yearly health screening, the public is also turning to pharmacists for supplements and over-the-counter drugs. All these have led to the growing number of pharmacies throughout Malaysia.

On the other hand, the announcement made by the Health Ministry to separate the dispensing right of drugs from doctors to pharmacists in late of year 1999 has also promoted the growth of pharmaceutical field in the country.

Pharmacy is something not only new in the western countries such as United States of America, Australia and Canada but is even newer here in Asian countries. In Australia, the pharmaceutical field has ventured into e-commerce, providing the local with online services. These services include selling over-the-counter drugs, search for health products and others.

Here in Malaysia, standalone system is used to manage the inventory of stocks in pharmacies at large. A handful of them have come up with their own homepage. A few have upgraded their systems into online applications, but with limited functions. So, there is room for improvement in online application for pharmacies in Malaysia and e-Pharmacy will be developed to fulfill the needs of the public.

1.2 Problem Statement(s)

The current standalone system used in pharmacies brings problem to pharmacists and also consumers.

Retail pharmacies like Guardian have many chains at different locations in every state throughout Malaysia. In Malacca alone, there are already five Guardian pharmacies at five different locations. All these branches sell the same supplements and drugs.

With the current standalone system, pharmacists from Guardian at Jusco Malacca cannot check the availability of supplements and drugs in Guardian at Mahkota Parade. If Guardian at Jusco Malacca runs out of Vita Health Vitamin A, the pharmacist cannot recommend customers to get it from other branches. This is because standalone system does not support checking of product availability in other branches.

On the other hand, customers could not go online to check the location of pharmacy convenient for them to make their purchase. If the pharmacy visited does not sell or run out of pharmacy products that the customer wanted, than he will have to waste time searching in pharmacies at other locations. A sick person cannot possibility run from one pharmacy to another to purchase the drugs he needed.

Besides that, it is hard for pharmacists to identify the pharmacy products that have run out of stock in a pharmacy using the current standalone system. This situation makes it difficult for stock ordering. Therefore, a system with statistics generation function is required to generate table for the pharmacy products according to time.

1.3 Objective

The objectives of e-Pharmacy are:

1. To provide a secure web-based application

A secure web-based application is provided since each headquarter personnel uses a different user name and password to access the web pages they are granted privilege to. Other than that, the password will also be encrypted to be saved into the database. This is to ensure that business information is not exposed to any irresponsible parties.

Customers are only allowed to view general pharmacy information such as the company background, check for pharmacy location and product availability. They are restricted from viewing pharmaceutical information that is confidential. Therefore, customers are not required to be authenticated to access e-Pharmacy.

2. To provide a centralized web-based inventory functions for e-pharmacy

Headquarter pharmaceutical personnel can check the availability of pharmacy products and manage the ordering and dispensing of pharmacy stocks of different pharmacy branches from the centralized database effectively and systematically.

3. To enable pharmaceutical personnel to view and generate statistical report

A statistical report provides the summary of important information like the status or availability of pharmacy products for certain duration. Statistical reports make reordering of pharmacy products hassle-free.

4. To guide customers to the nearest pharmacy

Customers can check for the nearest pharmacy according to its location and also identify the availability of products via internet. Thus, customers do not have to waste time running from one pharmacy to another in searching for a pharmacy product.

1.4 Scopes

The scopes of the project would be as followed:

- To developed an online or web-based application called e-Pharmacy. A web-based pharmacy is more suitable for the society now. With e-Pharmacy, users staying in the city and rural area can check the products' availability and pharmacy location easily.
- The domain of e-Pharmacy focuses on the pharmaceutical field.
- The target users of e-Pharmacy would be the headquarter personnel (system administrator, store managers, pharmacists) and customers.
- e-Pharmacy is developed for the two pharmacies located at Jaya Jusco (Ayer Keroh) and Mahkota Parade respectively.
- The pharmacy products for e-Pharmacy are narrowed down to supplement only.
- To manage the inventory of pharmacy products.