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Online medicine system (OMS) / Nor Afidah Othman.

ONLINE MEDICINE SYSTEM (OMS)

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This report is submitted in partial fulfillment of the requirements for the Bachelor of Information and Communication Technology (Software Development)

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KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
2004**

TESIS^ APPROVAL STATUS FORM

JUDUL: ONLINE MEDICINE SYSTEM (OMS)

SESI PENGAJIAN: SEMESTER 1 (2004/2005)

Saya

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(HURUF BESAR)

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ABSTRACT

Online Medicine System (OMS) was build for all staff at *Pejabat Kesihatan Negeri (Farmasi) Johor* (PKNFJ). The dispensary only focuses to the district hospital or health center in *Johor Bahru*. Its system have a several functions for user access; function for registration, online order, view order report, new information, drug list, search for another hospital and feedback form. It was discussed at chapter 1 (introduction). I was done some research for make comparison with my system and others. The literature review was discussed at chapter 2. For ensures that OMS was designed with fixed timescales, and procedures, I was decide to use waterfall model as my methodology. This methodology was explained detail at chapter 3 (project planning and methodology). At chapter 4 (analysis), it was discussed about the business study, problem analysis, problem statement and requirement analyst, Context Diagram and DFD. The requirement analyst was divided by five; the function requirement, software requirement, hardware requirement, network requirement and applications requirement. For complete the documentation, the flow chart, ERD, data dictionary, input and output specifications, interface system were explained at chapter 5 (System Design). At chapter 6 (Implementation), it was discussed about software development environment setup, software configuration management and status for implementation. Test plan, test strategy, test design and test case result were explained at chapter 7 (Testing). For the conclusion, it was explained at chapter 8 (conclusion). It was summarized all of the information at this documentations.

ABSTRAK

Sistem Perubatan secara *Online* (OMS) telah di bina untuk semua pekerja di Pejabat Kesihatan Negeri (Farmasi) Johor (PKNFJ). Dispensari hanya di fokuskan kepada hospital-hospital kerajaan dan pusat kesihatan di Johor Bahru. Sistem yang di bangunkan ini mempunyai beberapa fungsi utama iaitu; pendaftaran ahli baru, tempahan secara *online*, memaparkan tempahan yang telah dibuat, memaparkan maklumat-maklumat baru mengenai ubat, senarai ubat yang terdapat di PKNFJ, mencari maklumat mengenai hospital atau klinik yang berdaftar di bawah PKNFJ, dan borang maklumbalas. Setiap fungsi telah diterangkan di dalam bab 1 (pengenalan). Saya telah melaksanakan beberapa kajian terhadap sistem-sistem lain untuk melihat sejauh mana kelebihan dan kekurangan sistem tersebut dan memastikan sistem yang dibina dapat memansuhkan masalah-masalah yang telah dikenalpasti. Segala maklumat yang telah di perolehi telah diterangkan di dalam bab 2 (*literature review*). Bagi memastikan sistem OMS di bangunkan mengikut prosedur dan tempoh masa yang telah di ditetapkan, saya telah menggunakan metodologi terkini iaitu model air terjun. Penerangan mengenai model air terjun ini telah di terangkan di dalam bab 3 (perancangan projek dan metodologi). Di dalam bab 4 (analisis), ia membincangkan berkenaan kajian bisnes, analisa masalah, pernyataan masalah dan analisa keperluan, rajah konteks, dan DFD. Analisa keperluan telah di bahagikan kepada 5 bahagian iaitu fungsi keperluan, keperluan perisian, keperluan perkakasan, keperluan rangkaian dan keperluan aplikasi. Untuk melengkapkan dokumentasi ini, carta alir, ERD, kamus data, spesifikasi untk masukan dan keluaran, antaramuka sistem telah di bina dan di terangkan di dalam rekabentuk perisian (bab 5). Di dalam bab 6 (perlaksanaan), ia membincangkan berkenaan *software development environment setup*, *software configuration management* dan status untuk perlaksanaan. Plan ujian, strategi ujian, rekabentuk ujian, dan keputusan kajian ujian telah diterangkan di dalam bab 7 (Pengujian). Kesimpulan bagi keseluruhan sistem ini juga telah diterangkan dengan jelas di dalam bab 8 (kesimpulan). Ia merupakan ringkasan bagi semua maklumat-maklumat yang telah di sediakan di dalam dokumentasi ini.

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LIST OF THE ACRONYM

PKNFJ	-	Pejabat Kesihatan Negeri (Farmasi) Johor
OMS	-	Online Medicine System
SME's	-	Subject Matter Experts
MuSCoW	-	Must/Should/Can/Wish
IIS	-	IIS Internet Information Service
ERD	-	Entity Relationship Diagram
DFD	-	Data Flow Diagram

CHAPTER I

INTRODUCTION

1.1 Preamble/Overview

Pejabat Kesihatan Negeri(Farmasi) Johor (PKNFJ) was distributes the drugs for district hospital or health center in *Johor Bahru*. The dispensary provides all the medication needs for the any cases where provide a 7 day supply of medications. According to the management problem that always been happen, PKNFJ request me to develop one system for them refer with their requirement.

This system called Online Medicine System (OMS). PKNFJ staff can use this system for add a new medicines information. They also can add a new stock and view the drug list to check whether the stock was expired or not.

The system will be build to make easier to customer for make the online order and view their order at view order report page. This system also has a registration form for new user (health center or district hospital). The entire drugs order will be access by online order. This order will be save at the database. PKNFJ staff can recognize name of company, types of order or quantity depends to the database.

This system also will appear all about the drugs that have been selling in Malaysia. From time to time, the new information about the drugs will be update when it gets permission from Kementerian Kesihatan Malaysia.

System also has a function for search another hospital that was registered under PKNFJ. For search the hospital information, users just key in the hospital name or clinic name at space that has been provided in hospital search interface.

PKNFJ also offer the services for give an advice for a new health center and district hospital. So that, they can write their entire problem or comment at the Feedback Form and PKNFJ can answering the entire questionnaire by email.

To develop this project it as web based. I will be develop by using PHP scripting language because PHP is been used by developer of the PKNFJ system. Java Script, VB Script and MySQL-Front for database because PKNFJ using MySQL-Front as their database and Internet Information Service (IIS). Window XP Professional will be use for the Operating System because it can support IIS.

1.2 Problem statement(s)

PKNFJ employees have a problem when they want to check entire of the order per day. It is making difficult for employees and has a big risk for database problem because any person always used the same database. Sometimes, they have a problem with some people about their responsibility. That is mean; they used name of another company for doing the medicine order and the company do not know about that.

For detect the type of drugs that have been order, user must add to card at the drugs list. Sometimes they add so many times because they do not know about the order process.

PKNFJ staff can detect the order by their code. Even system will give the name list for any drugs, but the database only can detect the drugs code as a primary key. So its can make difficult to PKNFJ staff because they have to study and check the code if they want to check the users order. The possibility to do the mistake and lost a book is extremely great.

The users always have a problem because they do not know the new information about the drugs. They not alert about the medicine changeable. From time to time, the new information about the drugs will be update when its get a permission from Kementerian Kesihatan Malaysia.

Most of users always have a problem because the drug that they have been order is out of stock. Then, the website do not mentioned about that and never give any hint.

PKNFJ Staff have a problem in stock management because they have to make sure that the drugs still can use by the user. In another word, they must check one by one the expired date for all drugs and make sure that the drugs is save to use.

1.3 Objective

Its have a several objectives for the project:

- i The Online Medicine System can make easier to PKNFJ staff because they can add new drugs information directly in system without open the database.
- ii PKNFJ also can add a new stock and recognize status of the drugs.
- iii The user can make an online order and also can view their order report.
- iv User can search another company information because system provide a space for a searching another hospital.
- v Internet user be able to know about a new drugs and its applications.
- vi Internet user can give their opinion or comment about PKNFJ support and services that PKNFJ provide for them at Feedback Form.

1.4 Scopes

This system was build for all staff at *Pejabat Kesihatan Negeri Johor* (PKNFJ). This is an Online Medicine System (OMS). Its order just focuses to the district hospital or health center in *Johor Bahru* for make easier to them to make the **online order**.

PKNFJ staff can use this system for add a new medicines information. They also can add a new **stock** and view the drug list to check whether the stock was expired or not. Users also can view their order because system has a **view order report**. We can recognize all order refer with the database that will be appear at the system.

The system will be build to make easier to customer for make the online order. This system has a **registration form** for new user(health center and

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

The Webster's 1913 Dictionary said "Dispensary" is a place where medicines are prepared and dispensed or a place where the poor can obtain medical advice and medicines gratuitously or at a nominal price. "Medicine" is the science which relates to the prevention, cure, or alleviation of disease. Any substance administered in the treatment of disease; a remedial agent; a remedy; physic. In another meaning of "Medicine" is a among the North American Indians, any object supposed to give control over natural or magical forces, to act as a protective charm, or to cause healing; also, magical power itself; the potency which a charm, token, or rite is supposed to exert

The North American Indian boy usually took as his medicine the first animal of which he dreamed during the long and solitary fast that he observed at puberty.

F. H. Giddings

According to M.I.T.T.E.N, 1998 Computers And More, May 24, 2000, "Medicine Dispensary System is an application that keeps inventory of every pill, where and to whom that pill goes to, what is in the stock room, what is in the dispensary room, and even prints the label for the bottles, your records, and mailing labels.

A.T. Kearney, "Improving the Medicine Supply Chain" said medicines play an important role in public health care programs, saving lives and drawing people to health facilities, where they can also receive preventive treatment. But

the high cost of medicines is putting increasing pressure on health care budgets. Adding to the problem, most public health care programs supply drugs through internal, antiquated and complex supply chains. As a result, critical drugs may not be available when patients need them. These factors, when combined, means that public health care programs face a massive struggle in providing patients with a consistent flow medicine, while keeping costs down and maintaining high levels of services - The Pharmaceutical Journal, 20 April 2002.

According to this matter, I'm so interested for develop the system and website that can make easier for them to get the information and to get the drug as soon as possible. The most important thing is I have to create an essential drug list in database. This list names the drugs needed to satisfy the health care needs of a majority of the population safely and cost effectively. Ideally, a national list of essential drugs should include 40% of stock for a district hospital - one that treats large communities and has several specializations should have 30% drugs on its essential list, a health center should have 20%, while a dispensary should have 10% only for their stock to get ready for a emergency case. While many people have adopted a list of essential medicines, they must follow all the guidelines.

They also must impose controls on drug use. In the medicine dispensary system can ensure to impose controls on demand for drugs. Its means, entire district hospital or health center will be limited to take drugs stock just for one or two month only.

2.2 Fact and finding

2.2.1 ONLINE CHRONIC MEDICINE DISPENSARY SYSTEM

CHRONIC Medicine Dispensary
Your discount online pharmacy

CONTACT
0860 633420
011-2379100
Fax: 011-2379101

POSTAL DETAILS
PostNet Suite #128
Private Bag X65
Halfway House
1685

ALTERNATE
Available when
Telkom down:
082 8788978
082 8788979
Phone & Fax

Benefits
Specialised service and a discount of 30% off the retail price of the following:

- All repeat prescription medicines.
- All chronic medicine

Delivery Service

- Speed Services to Post office
- Home delivery to housebound patients
- Delivery to holiday destination

Script Management

- Schedule delivery dates
- Claims submitted directly to the medical aid
- Script renewal reminder
- Accurate on time deliveries
- Hassle free process
- Provide a Pharmacist counselling service via our help line or on questions page

[Registration](#)

[Download forms](#)

[Ask Questions](#)

[Email us](#)

[Amend Delivery](#)

[Credit and payment](#)


Figure 2.1 – Interface for Online CHRONIC Medicine Dispensary

CHRONIC Medicine Dispensary (CMD) gives a specialized service and a discount of 30% off the retail price; all repeat prescription medicines and all chronic medicine. The types of delivery service are speed services to post office, home delivery to housebound patients and delivery to holiday destination. The script management is schedule delivery dates, claims submitted directly to the medical aid, script renewal reminder, accurate on time deliveries, hassle free process and CMD also provide a pharmacist counseling service via our help line or on questions page

MAIN MEMBER and MEDICAL AID DETAILS			
Title and Initials	Surname	First Name	
Mrs <input type="text"/>	<input type="text"/>	<input type="text"/>	
Telephone Home	<input type="text"/>		
Telephone Work	<input type="text"/>		
Fax	<input type="text"/>		
Cell Phone	<input type="text"/>		
Email Address	<input type="text"/>		
Medical Scheme	<input type="text"/>		
Medical Aid number	<input type="text"/>	Plan	<input type="text"/>
ID Number	<input type="text"/>	Date Of Birth	<input type="text"/>
DEPENDANT DETAILS			
Dependant Code	Dependant Name	Dependant Date of Birth	Gender
<input type="text"/>	<input type="text"/>	Year <input type="text"/> M <input type="text"/> D <input type="text"/>	M <input type="radio"/>
			F <input checked="" type="radio"/>
<input type="text"/>	<input type="text"/>	Year <input type="text"/> M <input type="text"/> D <input type="text"/>	M <input type="radio"/>
			F <input checked="" type="radio"/>
<input type="text"/>	<input type="text"/>	Year <input type="text"/> M <input type="text"/> D <input type="text"/>	M <input type="radio"/>
			F <input checked="" type="radio"/>
GENERAL			
We can supply your medicines automatically on a 28 day cycle, on your request or we can call you ?			
28 Day Cycle <input checked="" type="radio"/> Request <input type="radio"/> We call you <input type="radio"/>			
Do you and your doctor agree to the use of generic medication for your prescription :			
Yes <input checked="" type="radio"/> No <input type="radio"/>			
DELIVERY DETAILS			
<input type="radio"/>	Postal Details will be used below		
<input type="radio"/>	Physical Address will be used below		
<input type="radio"/>	Enter in details in physical Address below		
	Postal Details (Required)	Physical address for Home delivery or Work delivery	
	<input type="text"/>	<input type="text"/>	
	<input type="text"/>	<input type="text"/>	
	<input type="text"/>	<input type="text"/>	
	0000	0000	
Web Form <input type="radio"/>	Required delivery date of first script		
	2003 <input type="text"/> M <input type="text"/> D <input type="text"/>		
<input type="button" value="Submit"/> <input type="button" value="Reset"/>			

Figure 2.2 – Example for Online Drugs Order Form

2.2.2 South Manchester University Hospitals (NHS) Dispensary Services



South Manchester University Hospitals **NHS**
NHS Trust

Dispensary Services

Withington Hospital	Wythenshawe Hospital
Department Opening Hours	Department Opening Hours
Monday to Friday 8.30a.m to 5.00p.m Saturday Closed Sunday Closed	Monday to Friday 9.00a.m to 6.30p.m Saturday 9.00a.m to 12.00p.m Sunday 9.00a.m to 12.30p.m

The dispensary provides all the medication needs for the Trusts Accident & Emergency department where we provide a 7 day supply of emergency medications. We also provide emergency medications to the 10+ Outpatient clinics run each day when a supply of 14 days is made to allow communication from the clinic to the GP. All non-urgent medication supplies should be communicated to the GP on the referral letter held within each outpatient clinic.

All the inpatient workload is managed by a team of technicians, a Pharmacist is present within the dispensary at all times to clinically check all incoming work prior to passing it on to our dispensing technicians. Our more experienced technicians undergo a period of internal/external training in order to be able to accurately check all dispensed items prior to them leaving the department.

Site Last Updated : 12 February 2004

The Trust
Aseptic Services
Clinical Pharmacy
Clinical Trials
Dispensary Services
Education & Training
Medicine Formulation
Medicine Information
Patients Own Drugs
R&D

Figure 2.3 – South Manchester University Hospitals Website

The dispensary provides all the medication needs for the Trusts Accident & Emergency department where we provide a 7 day supply of emergency medications. They also provide emergency medications to the 10+ Outpatient clinics run each day when a supply of 14 days is made to allow communication from the clinic to the GP. All non-urgent medication supplies should be communicated to the GP on the referral letter held within each outpatient clinic.

All the inpatient workload is managed by a team of technicians, a Pharmacist is present within the dispensary at all times to clinically check all incoming work prior to passing it on to our dispensing technicians.

2.2.3 Online Naturopathic and Homeopathic Medicine System



Dr. Taams
*Naturopathic Medical Practice
& Holistic Spa Retreat*
Removing the obstacles that impede full empowerment

[Home Page](#)
[Naturopathic Medical Practice](#)
[Holistic Spa Retreat](#)
[About the Naturopathic Retreat](#)
[Facilities at the Retreat](#)
[Retreat Rates](#)
[Gallery of Images](#)
[Location of the Retreat](#)
[Contact Information](#)

Dispensary

Naturopathic and Homeopathic Medicine

Our dispensary carries homeopathic and Naturopathic Medicines and Preparations.

Key Benefits:

- All preparations are readily at hand
- The Medicines are prescribed to your specific needs
- We mail world wide
- Our well stocked on-site dispensary.

For DISPENSARY INQUIRIES or to place an ORDER, please [email Dr. Taams](mailto:Dr.Taams) and include the word 'DISPENSARY' in the subject line.

Quick Links

Practice

Diagnosis

- Blood Analysis
- Homeopathic Examination
- Toxicology
- Hair Sampling
- Bioenergetic Testing
- Heart Function
- Cardiovascular Health

Figure 2.4 – Naturopathic and Homeopathic Medicine

Their dispensary carries homeopathic and Naturopathic Medicines and Preparations. According to Dr Taams, suppliers will give some types for make easier to users when they want to do the payment for their online drugs order. The type is:

- i. Supply the drugs by Credit. In this case, the drugs will be delivery to the pharmacy and they paid by credit. Etc PKNFJ give the limited time for 30 days, 90 days. They must pay before end of the limited time. This is the famous way to do the payment for drugs order.
- ii. Supply by Consignment. In this case, the pharmacy must pay to the PKNFJ when the drugs have been selling.

- iii. Supply by Cash. They must pay before the orders was delivery. Mostly, the supplier will come to the pharmacy to open the account. In other case, the pharmacy must inform to the supplier that they already open a new pharmacy.

2.2.4 HEALTCARE & MEDICAL MARKET IN HONG KONG



The screenshot shows the UK Trade & Investment website interface. At the top, there is a navigation bar with the text 'EXPORT INFORMATION' and a search box. Below this, the breadcrumb trail reads 'Home / Healthcare / Hong Kong / Profile'. The main heading is 'Healthcare & Medical Market in Hong Kong'. On the left side, there is a sidebar menu with categories: Profile, Doing Business Opportunities, Events, Websites, and Contacts. Under 'Profile', there are sub-links for 'Overview' and 'Characteristics of Market'. The 'Overview' section is selected and contains the following text: 'Hong Kong has adopted a dual system for healthcare in which services are provided by both the public and private healthcare sectors.' Below this, there is a paragraph detailing the Hospital Authority (HA) as a non-governmental organisation (NGO) with a 90% market share, and its financial challenges, including a record deficit of HK\$ 700 million in the current year and a projected deficit of HK\$70 billion. The text mentions that the SAR Government is looking to reduce public sector spending and that the HA has been asked to find a 1.8% saving on last year's budget, when it had been seeking a 1.5% increase. It also notes that many doctors and nurses have not had their contracts renewed and are seeking placements in either mainland China or abroad. The text concludes with the statement: 'Over 85% of the HA's spending is devoted to salary-related items.'

Figure 2.5 – Healthcare & Medical Market In Hong Kong

Hong Kong has adopted a dual system for healthcare in which services are provided by both the public and private healthcare sectors.

Healthcare in Hong Kong is dominated by the Hospital Authority (HA), a non-governmental organisation (NGO) which has a 90% market share. The remaining balance falls to the private sector. Funding for healthcare has fallen into recession. From the boom times in the '90s the