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VETERINARY PRACTICE MANAGEMENT INFORMATION SYSTEM

TAN CHEW JOO

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


**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
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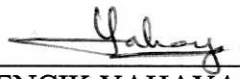
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DEDICATION

To my beloved parents...

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ABSTRACT

Veterinary Practice Management Information System (VPMIS) is a software management system proposed for veterinarians to manage veterinary practice. Now a day, many veterinary clinics still used the current system that being carried out manually and consumes a great deal of time and effort to get things done. Therefore, VPMIS develop to improve the performance and professional of practicing veterinarians through easily accessed and well organized computerized system. The essential of study is to study the domain problem faced by veterinary clinic. Most of the local veterinary clinics encounter difficulties on reaching desired data as they wish immediately. Therefore, the outcome of study is to develop computerized system, that is VPMIS to reduce paper work and promotes complete and accurate patient information storage. Spiral model is chosen to assists in the control and coordination of a real VPMIS project. In order to develop a well-designed system, object-oriented approach is applying. Lastly, standard features of VPMIS including fast patient registration with alert messages, the power and flexibility to speed up billing and provides quick, ready-to-use and fully customizable reporting capabilities. Also including is a special facility for rapidly creating drug labels, prescriptions labels, and certificates such as vaccination certificates, letter and other documents. VPMIS will allow full clinical histories and client's medical histories to be recorded on the system. This system is develop using Oracle technology and forth generation language.

ABSTRAK

Veterinary Practice Management Information System (VPMIS) merupakan salah satu perisian untuk sistem pengurusan dan perawatan binatang yang dicadangkan kepada veterinarian. Pada masa kini, kebanyakan klinik veterinary masih menggunakan sistem manual untuk menguruskan rekod perawatan pesakit. Sistem manual ini membazir masa dan membebankan pengguna untuk menyelesaikan tugas mereka. Oleh itu, VPMIS dibangunkan dengan menggunakan sistem perkomputeran untuk meningkatkan prestasi kerja pengurusan dan perawatan binatang. Kepentingan kajian tersebut adalah untuk mengkaji masalah domain yang dihadapi dan dikemukakan oleh klinik veterinary. Kebanyakan klinik veterinary tempatan menghadapi kesukaran untuk mencapai data dalam masa yang dikehendaki. Oleh yang demikian, hasil daripada kajian ini adalah membangunkan satu sistem perkomputeran, VPMIS bagi membantu pengguna mencapai data yang dikehendaki dan meyimpan data secara sistematik melalui media elektronik. Model *spiral* telah dipilih sebagai metodologi untuk mengawal dan mengkoordinat sepanjang proses pembangunan VPMIS. Di samping itu, pendekatan berorientasikan objek diimplementasi dalam setiap peringkat model *spiral* bertujuan untuk mengawal kualiti sistem yang dibangunkan. Dan akhir sekali, skop kajian tersebut termasuk proses pendaftaran melalui sistem elektronik. Segala maklumat peribadi pesakit disimpan dalam pangkalan data. Veterinarian pula memasukan maklumat perawatan yang dirawat. Sistem ini juga menyimpan maklumat preskripsi ubat-ubatan dan menjana pelbagai laporan termasuk sijil penyuntikan dan sebagainya. Sistem ini akan dibangukan dengan menggunakan teknologi *Oracle*.

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LIST OF ACRONYMS

AHMS	–	Animal Hospital Management System
ATTR	–	Attribute
DBMS	–	Database Management System
DFD	–	Data Flow Diagram
EMRS	–	Electronic Medical Record System
ER	–	Entity Relation
ERD	–	Entity Relationship Diagram
GUI	–	Graphic User Interface
IC	–	Identity Card
IS	–	Information System
LAN	–	Local Area Network
MIS	–	Management Information System
ORA	–	Oracle
OOA	–	Object-Oriented Analysis
OOAD	–	Object-Oriented Analysis and Designs
OOD	–	Object-Oriented Analysis
OODM	–	Object-Oriented Development Methodology
RAD	–	Rapid Application Development
SDLC	–	Software Development Life Cycle
SQL	–	Structure Query Language
UD	–	User Defined
UML	–	Unified Modeling Language
VCTS	–	Veterinary Clinic Taman Segar
VP	–	Vet's Pet Veterinary Software
VPMIS	–	Veterinary Practice Management System
VVS	–	Ventana Veterinary System

CHAPTER I

INTRODUCTION

1.1 Overview

Veterinary Practice Management Information System (VPMIS) is a software management system proposed for veterinarians to manage any type of veterinary practice. VPMIS is proposed specifically for the in-clinic computer access. It is suitable use by any organization of a veterinary clinic. VPMIS aims to improve the performance and professional of practicing veterinarians through easily accessed and well-organized computerized system.

Health care providers and administrators today demand the need to increase efficiency and reduce cost while providing high-quality service in their practice management system. Besides, some veterinary management software systems in the market are not user friendly. Thus, VPMIS is proposed to fulfill user's demands by providing system with very friendly and familiar Windows environment.

VPMIS is targeted to veterinary medical staff such as veterinarians, nurses, and other normal staff of veterinary clinic. The standard feature of VPMIS including fast patient registration with alert messages, the power and flexibility to speed up billing and provides quick, ready-to-use and fully customizable reporting capabilities. Also including is a special facility for rapidly creating drug labels, prescriptions labels, and certificates such as vaccination certificates, letter and other documents. VPMIS will allow full clinical histories and client's medical histories to be recorded on the system. It has been designed to allow very efficient entry of records. All the history of previous dispensing for a particular animal is kept.

Besides, the charges of services are calculated automatically and invoice is produced in reception. Reminder system will be a sub system to remind veterinarians to do follow-up calls to clients. For example, they may specify that a particular type of reminder will only be sent if the animal has had that vaccination before.

On the other hand, VPMIS is considered of security features. The customer data can be accessed only with a valid username and password combination. All users will be given to create their valid username and password to access into system to ensure secure and trustable. Besides, user may change their username and password from time to time to ensure system security.

Lastly, VPMIS is a client/server system. The data store in server whilst system access by client. Besides, Object-Oriented Methodology is used as a milestone and guideline to develop the system successfully.

1.2 Problem Statements

Now a day, many veterinary clinics still used the current system that being carried out manually and consumes a great deal of time and effort to get things done.

Current systems that carried out manually still maintain most of the patient records in the form of paper charts. Besides, it is too relying on file management and paper work. It will caused inefficient and burden the work of veterinary practice if the file management is poor. All medical records on paper are likely to be lost when the file management is poor, or caused by disaster such as fire or flood. Furthermore, failure to capture these data is costly.

Report generation that carried out manually also consumed a great deal of time and minds. Manual report generating is not effective because most reports need to generate fast and immediately for daily operations. The layouts of manual report are not up to standard too. The output could be not consistent due to rough and careless manual calculations. Therefore, it leads the poor performance of veterinary practices.

Furthermore, system manual leads high expenses. Many tools such as paper, file, pens need to consume in order to record the data. More manpower needs to hire to manage the veterinary practice such as file management, report generation and patients' registration. It caused the expenses of clinic veterinary increase.

Due to many problems and lack of efficiency in providing information, especially by traditional and manual methods, there is a need to develop a computerized veterinary practice system. A superior cannot ever require subordinate to remember everything about the clinic, every appointment, visit, client, payment, product or service related to day-to-day operations.

The computerized system can increase the efficiency of information management of the veterinary practices. Furthermore, by utilizing the most advance information technology, computer software for veterinary practice is another alternative to stand alone computer based information system to provide high quality and accurate information to the veterinary practices.

1.3 Objectives

The proposed system will divided into general objectives and specifies objectives.

1.3.1 General Objectives

With the existing relationship between Information Technology and Veterinary Practice, the study of the project aims to:

- a) To eliminate paper-based work and increase paperless working environment.
- b) Saving countless of manual data entry and management.
- c) Saving manpower to manage veterinary practice.
- d) Increase the efficiency of accessible information.

1.3.2 Specifies Objectives

The objectives for this study are outlined as the following:

- a) A computerized system will be highly beneficial to most veterinary practices because of carrying so many pharmacy and medical history.
- b) To provide user-friendly software for veterinary practice management such as maintain consistency of data values. (For example, validation of input against a master list), require a minimum number of keystrokes or mouse operations to perform any function.
- c) VPMIS system application will be developed on advanced Oracle technologies, well known for system stability and accuracy to reduce data errors caused by manual data re-entries and unstable system.
- d) As users are unable to respond to the dynamic market changes as report are late and inaccurate, VPMIS will provide users with proactive, flexible, accurate, timely and complete reports to maximize earnings.
- e) Help to generate business document electronically such as invoices, receipt, prescriptions label and others. This help to double productivity without increasing of staff.
- f) In order to increase security controls, VPMIS will require security and access controls that prevent unauthorized access.
- g) VPMIS that developed using client/server database can reduce the chance of data failure when a workstation fails due to a software malfunction of power failure.

1.4 Scopes

This section defines the users and scope of proposed project.

1.4.1 Users

The system is developing especially to use by veterinary medical staff:

- a) Management staff and receptionist of veterinary clinic
- b) Veterinarian
- c) Clinical assistants or nurses

1.4.2 Scopes

VPMIS will separate into five modules. Each function of the module is presented as Figure 1.1. The modules are:

- a) System Manager Module
- b) Client and Pet Look Up Module
- c) Medical Treatment Module
- d) Reminder System Module
- e) Billing Module

1.4.2.1 System Manager Module

System Manager Module use to define master list or data that will be used in veterinary practice management. For example, breeds, type of animals, color of animals, area, state, country, and others master file.

1.4.2.2 Registration Module

This module use to record and maintain clients and their pets' records. All clients must register before their pet can be veteran. Keep track of clients' record mission to make data searching more easily and efficiency. It helps veterinarians to contact their client easily to follow up the medical treatments. Besides, all pet will register before they have their treatments too. Staffs of clinic veterinary also register under registration module. User account creation and password changing are included in System Manager Module.

1.4.2.3 Medical Treatment Module

Medical Treatment Module will keep track of patients' medical history and comments. This module will record the medical history and activities for every patient. Besides, system will print certificates and home instructions such as vaccination certificates, rabies certificates, health certificates and also prescription label printing. Medical Treatment Module is integrates with Reminder Module to record all necessary reminder such as vaccination reminder. For example, the reminder is automatically set once vaccination is performed to the pet.

1.4.2.4 Reminder System Module

The Reminder system includes facilities to remind when the pets' vaccination is about to expire. For example, produce mailing cards for puppy/kitten shots which are performed at three week intervals. Custom Reminders allow entering a customized message to be sent on a one-time basis to a specific pet. Besides, all the follow up treatment is recorded in the reminder system and the treatments that need to be reminding at specific times will be highlighted.