

**BORANG PENGESAHAN STATUS TESIS \***

JUDUL: MEDICAL SCREENING TEST INFORMATION SYSTEM

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\* Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM)

## **MEDICAL SCREENING TEST INFORMATION SYSTEM**

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

**FACULTY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY**

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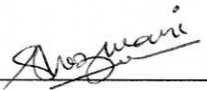
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## DECLARATION

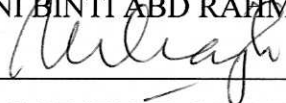
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### **MEDICAL SCREENING TEST INFORMATION SYSTEM**

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## DEDICATION

I would like to dedicate to my beloved husband, Azizul Rusmadi bin Abdul Rahman,  
to my parent En Abd Rahman bin Husain and Pn. Normala Ibrahim and all my friends  
for their sacrifices, understanding and supporting....

## ACKNOWLEDGEMENTS

I would like to thanks to my supervisor who always give me her opinion on how to do this project.

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## **ABSTRACT**

Healthcare is currently very important. Anyone who is serious about healthcare will always do a medical examination up to upgrade his or her health. Research found that those who above the age of 40 are more prone to harmful diseases. Prevention and early medical examination are very important in order to trace the prevention of any diseases as early as possible. Early detection will be able to save more lives. This program maybe offers on periodical basis to gauge the level of health of those above the age of 40. In order to ensure that diseases detection is effective, I propose this system to test the level of health in an efficient and effective manner.

## ABSTRAK

Penjagaan kesihatan adalah amat penting dimasa kini. Individu yang amat mementingkan penjagaan kesihatan akan melakukan sesuatu bagi meningkatkan lagi tahap kesihatan dirinya. Daripada kajian yang telah dijalankan, didapati kebanyakan penyakit berbahaya dihidapi oleh individu yang berumur 40 tahun dan keatas. Pencegahan dan pemeriksaan kesihatan yang awal adalah sangat penting kerana dapat mengesan kewujudan sesuatu penyakit dengan lebih awal. Lebih cepat sesuatu penyakit dikesan lebih banyak nyawa dapat diselamatkan. Program pemeriksaan kesihatan ini ditawarkan secara berkala bagi memastikan dan mengesan tahap kesihatan golongan individu yang berumur 40 tahun dan keatas. Bagi memastikan proses mengenalpasti penyakit lebih berkesan, saya mencadangkan sistem ujian pemeriksaan kesihatan yang dapat mengeluarkan keputusan pemeriksaan dengan lebih efisien dan efektif.



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# CHAPTER I

## INTRODUCTION

### 1.1 Project Background

My project title is Medical Screening Test System. Screening test is a test that significant to adult from ages 30 years and above. There are four categories in screening test. The first category is for men from ages 30 until 49 years, second category is for women from ages 30 years until 49 years, third category is for men from ages 50 years and above and fourth category is for women from ages 50 and above. There are difference test for difference categories.

Before this, there is no computerizing system. They analyze the result from the medical test manually. After the patient took the medical screening test, the staff nurse needs to fill in the form that listing all the medical tests according to particular categories with the test results. The lab assistance then must refer to medical screening test table for each type of medical test to analyze the result. The analyzing result will pass to the doctor to diagnose the disease according to the interpretation from the lab. The patient needs to meet the doctor again to get the result from the medical screening test.

There are many problems appear when using this manual system. The data may be lost and switch with another person. The patients also need to wait for much more time to get the analyzed result.

Because of this, we need to propose computerize system to manage the medical screening test system. This system will manage all the tasks involved with the screening test system.

## 1.2 Problem Statement

Medical screening test system is an importance medical test for adult. It will help the doctor to trace the serious diseases like anemia, leukemia, gout, diabetes, cancer and many more diseases. Before this, they are using manual system. They use a lot of paper. They need more space to store the data. I will use OOAD methodology to develop computerize system to increase the productivity. The structure of the current system is inefficient and ineffective. There are many problems occur when using the manual system. I will briefly define below.

- **Lack of data confidential**

There is one or more data that must be secret data. This data must be confidential and no one will know about the data. If the data just store in a manual filing system, everyone can access the data. Unauthorized user also can access the data.

- **Data redundancy**

The data entered may be having already existed. Because of people weaknesses the data that already exist will be enter again because they cannot find that data at that time. If this situation happens continuously the data redundancy will occur.

- **Data unsafe**

The data may be lost or damage when we store the data in a paper. The data may be damage because of insect, water and fire. The data may be lost when it past from one person to another person.

- **Wasting time**

This manual system is wasting time because the patient needs to wait while the receptionist finding the file. If the file does not exist the patient need to fill in the form to register as a patient. The lab assistance needs to analyze the result from the lab test to find the disease this task will take mush more time.

- **Difficult to find the existing data.**

The receptionist needs to fine the patient file before the patient can order the screening test. It is difficult to find the particular file when the patients are increasing. The redundancy data will also cause the problem when finding the particular patient file.

- **Inefficient and ineffective system**

There are many problem occur when using the manual system. The manual system is inefficient and ineffective. The patient needs to waste much more time to waiting for the receptionist to order the screening test and also to get their result.

### 1.3 Objective

The objectives of this project are:

- To diagnosis the medical results from the tests and trace the expected disease and give some advises to the patient.
- To help the involved person to manage the screening test start from the registration, order the test, analyzed the result, give some advices, print the result and state the cost of the screening tests.
- To provide capabilities for diagnose the medical results from the screening test to trace the serious diseases and give some advices to the patient such as what they should do or maybe they should take some intermediate tests.
- To help the doctor to trace the disease and give some advices to the patient quickly and easily.

## 1.4 Scope

The scopes of this project are: -

- The users of this project are receptionist, nurse, lab assistance and the doctor.
- The receptionist needs to login to the system and enter the patient registration data.
- The system will detect the category of screening test that suitable for that patient according to their age and gender.
- The result from the tests will be entered by lab assistance that handle the tests and the system will analyzed the result and give the analyzed results such as what the disease, the level of the health and some advices about the disease and the intermediate tests that the patient should take.
- The system will generate the report about all the analyzed result and the advices.
- The doctor can view the result and the history about medical screening test that the patient had taken.
- The result will be print and send it to the patient. The doctor will view the result and give some more advice and illumination about the disease to the patient when they meet.



## 1.5 Project Significance

This project will help the involved person to manage the tasks that exist in this medical screening test. This project is importance because using this system, all the managing tasks involve during the medical screening test will be more efficient and effective. Without this system, the data confidential will scratch because of the people careless, unauthorized user stole the data and the data also will be able to switch with another patient.

This system will also analyze the results and give some advices to the patient. Before this, nurse must refer to the table to analyze the data. These take much time to analyze the results. Using this system all the analyzed result will not have an error.

## 1.6 Expected Output

This medical screening test system will manage all the tasks involved in screening tests start from registration, order the tests until print the result. During the registration, the receptionist needs to enter the patient name, patient address, patient phone number, patient age, patient gender and patient identical number. The system will trace the suitable test for that patient according to their age and gender. After the patient took the screening test, all the result from the test will be enter and this system will analyze the result, give interpretations and give some advices. The doctor will diagnose the disease according to the interpretation. The doctor will also ask for intermediate test or repeat test if there are some abnormal results. If the patient needs to take the intermediate tests and doctor and also the receptionist will order those tests if the patient wants to take those tests. All the data and the results will be store in database. The report will generate and the doctor will print out the result and give it to the patient and the doctor will view the screening test report and give the advice and more explanations about the analyzed results.



## 1.7 Conclusion

As the conclusion, we know that this project will increase the effectiveness and efficiency of the medical screening tests system. This project will handle all the tasks involve during medical screening tests. The analyzing results process will become easier and do not need much more time. This project starts with registration and ordering part until the analyzed results will be print and send it to the patient. Using this project, the doctor's duty become easier and save time. The doctor does not need to analyze the results and trace the diseases. This project is very useful to develop because it will help the doctors, nurse and also the patient indirectly.

## CHAPTER 2

### LITERATURE REVIEW AND PROJECT METHODOLOGY

#### 2.1 Introduction

Literature review is a revision about all the articles, fact and finding that related to the project. Literature review is importance to have some idea and knowledge about the system that we will develop. After we do some literature review, we can compare our system with another existing system. May be we can improve some functions to make our system more effective then the existing system.

For my project, I have found some articles about screening test. The tests in screening test are not bound by particular tests. It is according to the organization to state the particular test.

#### 2.2 Fact and finding

##### 2.2.1 Medical screening test

Screening test is a periodic test to classify their probability of having a particular disease. Screening test is not only for illness person but the person who feel healthy also need to take screening test. Patients with positive test results are referred for subsequent testing or examination. This is because to provide the physician with more information to determine whether that patient have the particular disease or not.

Screening test is very importance to trace the dangerous disease. If we can trace the dangerous disease early, we can safe that patient life. Screening test also can monitor the patient health phase.

There are some common tests for screening test, which are: -

Lab tests

**Table 2.1: Lab test type**

No.	Name of test	Diagnose of damage
1.	Haemoglobin	Anaemia
2.	TWBC	Leukaemia, Heart Disease, infection or inflammatory disease
3.	Diff Count	Heart Disease
4.	Ph	
5.	Total Cholesterol	Heart Disease
6.	HDL Cholesterol	Heart Disease, Liver damage
7.	LDL Cholesterol	Arteriosclerosis
8.	Triglyceride	Heart Disease
9.	Urine Acid	Gout
10.	Creatinine	Kidney
11.	Urea	Kidney
12.	Fasting blood sugar	Diabetes
13.	PSA	Prostate Cancer
14.	CEA	Colon Cancer
15.	AFP	Liver Cancer
16.	CA 153	Breast Cancer
17.	CA 125	Ovary Cancer
18.	CK MB (Creatine Kinase)	Cardiac Damage
19.	Cardiac Troponine 1	Angina, Detecting heart muscle damage and predicting risk of heart attack
20.	Homocysteine	Heart Attack and stroke
21.	LDH	Cardiac Damage
22.	SGOT	Cardiac Damage
23.	Glucose	Diabetes

## Physical tests

$$\text{BMI} = \frac{\text{Weight in Kilograms}}{(\text{Height in Meters}) \times (\text{Height in Meters})}$$

or

$$\text{BMI} = \left( \frac{\text{Weight in Kilograms}}{(\text{Height in centimeters}) \times (\text{Height in centimeters})} \right) \times 10,000$$

**Figure 2.1: Body Mass index (BMI) formula**

**Table 2.2: Risk of Associated Disease According to BMI**

<b>Risk of Associated Disease According to BMI and Waist Size</b>			
BMI		Waist less than or equal to 40 in. (men) or 35 in. (women)	Waist greater than 40 in. (men) or 35 in. (women)
18.5 or less	Underweight	--	N/A
18.5 - 24.9	Normal	--	N/A
25.0 - 29.9	Overweight	Increased	High
30.0 - 34.9	Obese	High	Very High
35.0 - 39.9	Obese	Very High	Very High
40 or greater	Extremely Obese	Extremely High	Extremely High