



اَوْنَبُوْ رَسِيْطِيْ تَتِيْكَوْ لُوْ كِيْ مِمَارَا  
UNIVERSITI  
TEKNOLOGI  
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UNIVERSITI TEKNOLOGI MARA (UITM)

**ISP543**

KNOWLEDGE BASED SYSTEM

**TITLE**

DENGUE DIAGNOSE SYSTEM

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## Table of Contents

Table of Contents.....	2
1.0 Introduction .....	<b>Error! Bookmark not defined.</b>
2.0 Problem Statement.....	<b>Error! Bookmark not defined.</b>
3.0 Objective .....	<b>Error! Bookmark not defined.</b>
4.0 Entity-Relationship Diagram (ERD) .....	<b>Error! Bookmark not defined.</b>
5.0 3NF Relational Schema .....	<b>Error! Bookmark not defined.</b>
6.0 Interview Session .....	<b>Error! Bookmark not defined.</b>

## 1.0 INTRODUCTION

Artificial intelligence (AI) is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction. Particular applications of AI include expert systems, speech recognition and machine vision.

An Expert System is an Artificial Intelligence application and it is defined as an interactive and reliable computer-based decision-making system which uses both facts and heuristics to solve complex decision-making problems. It is considered at the highest level of human intelligence and expertise. It is a computer application which solves the most complex issues in a specific domain.

At present, transportation technology is growing fast. However, most of the car owners have insufficient understanding about the detection of faults that have occurred and evolved from their cars. These mistakes require the presence of auto mechanic. To help this inadequacy of information and momentarily to determine either suspected having a dengue fever or just high fever, Dengue Diagnose System is created.

This knowledge-based system will be created to determine either the patient is having dengue fever or not. That is will determine the dengue based on symptoms that were collected from users. This system will let the patient know either use have the possibilities to be infected by dengue or just suspected symptoms for the dengue. Moreover, the system will collect the information and knowledge about dengue from research, journal or article that clarified by medical domain organization. Furthermore, this system also will suggest the best treatment, and recommending the solution based on the patient's dengue fever level.

## 2.0 PROBLEM STATEMENT

We decided to create a Dengue Diagnose System due to several reasons and obstacles that everyone faced. First, we want to create this system because not a single person knows how to detect and inspect either they have been infected by dengue or normal fever only. This system will help user to determine their health condition without going to the clinic or hospitals.

Next, the diseases is rarely and hardly to be detected and people did not have much experience and information about how have been infected by dengue. As we already know, not everyone has expertise and experience in medical or diseases information. Without having this knowledge, medical experts such as doctor tend to advice or tell the people about confusing and wrong information about dengue or diseases. This will lead to fraud and deceit in person health and then, this will cause spread the diseases more easily to other people without they not knowing what happens.

Thus, the users did have misleading information about dengue fever. Current nowadays, there many posts about dengue without verification from expertise and exists some blog or website give treatment advice to prevent it's. Sometimes, the online posts on the Internet such as article, journal and video about preventing and treating dengue will lead to misleading information to the user because they are lack of experience and information on how to handle dengue fever correctly.

## 3.0 OBJECTIVES

The objectives of this system is:

- i) To develop expert system to help users identifying a patient got dengue fever or not.

## 4.0 SCOPE

The scope for this dengue diagnoses system is

- i) This system only can detect dengue fever symptom.
- ii) This system will differentiate between severe dengue symptom and dengue symptom.
- iii) This system will provide the solution and treatment based on their result.

## 5.0 METHODOLOGY

### 5.1 KNOWLEDGE ACQUISITION

#### **WEBSITE REFERENCES:**

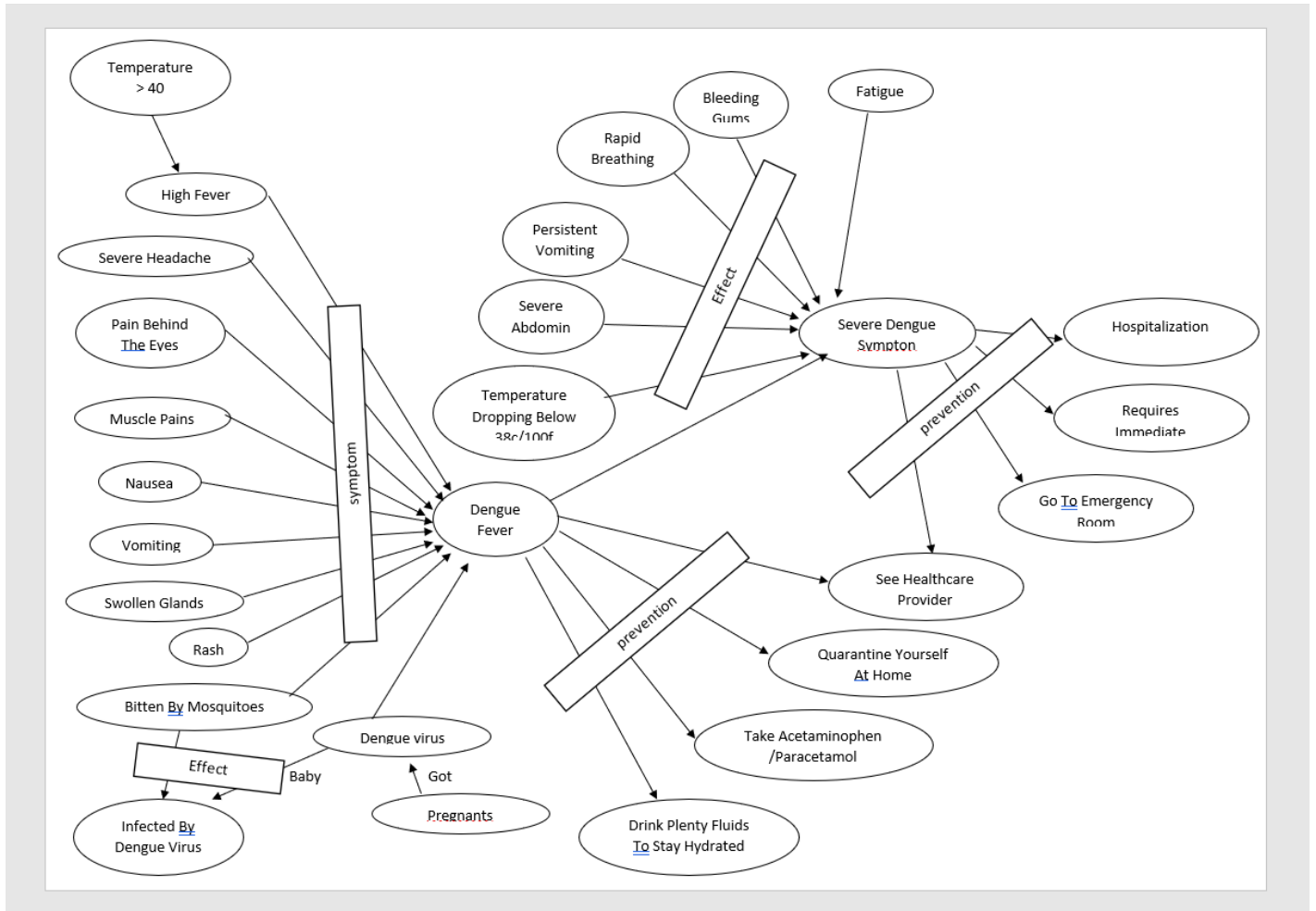
- 1) <https://www.cdc.gov/dengue/about/index.html>

**This website contains a lot of data including symptoms, testing, treatment, statistic based on experts experiences and skills. To create an expert system that able to treat disease, we taking incentives creating diverse parts of cars problem based on the article. From the article we able to point out 4 main compartment of car which is engine, brake, tyre and battery.**

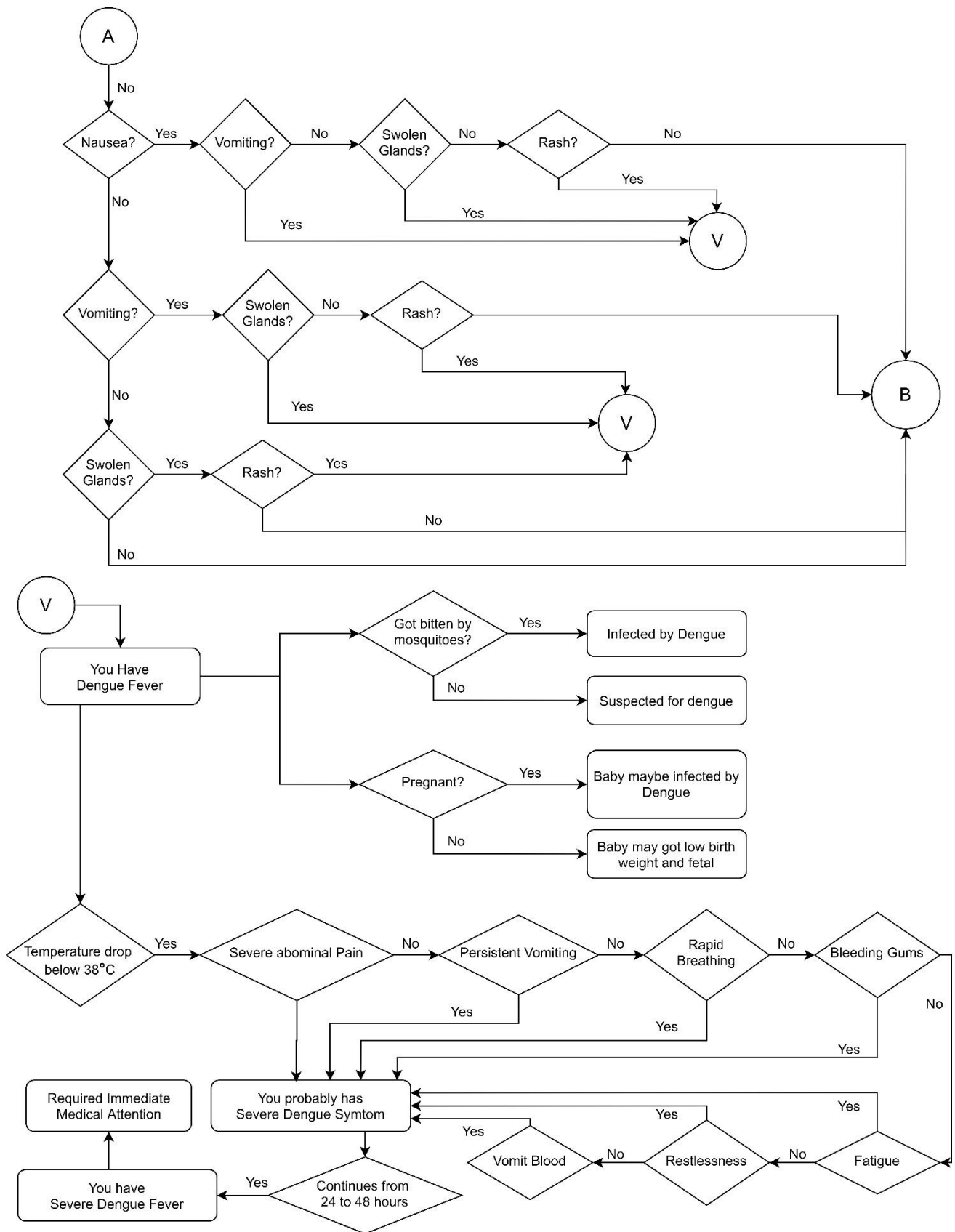
- 2) <https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue>

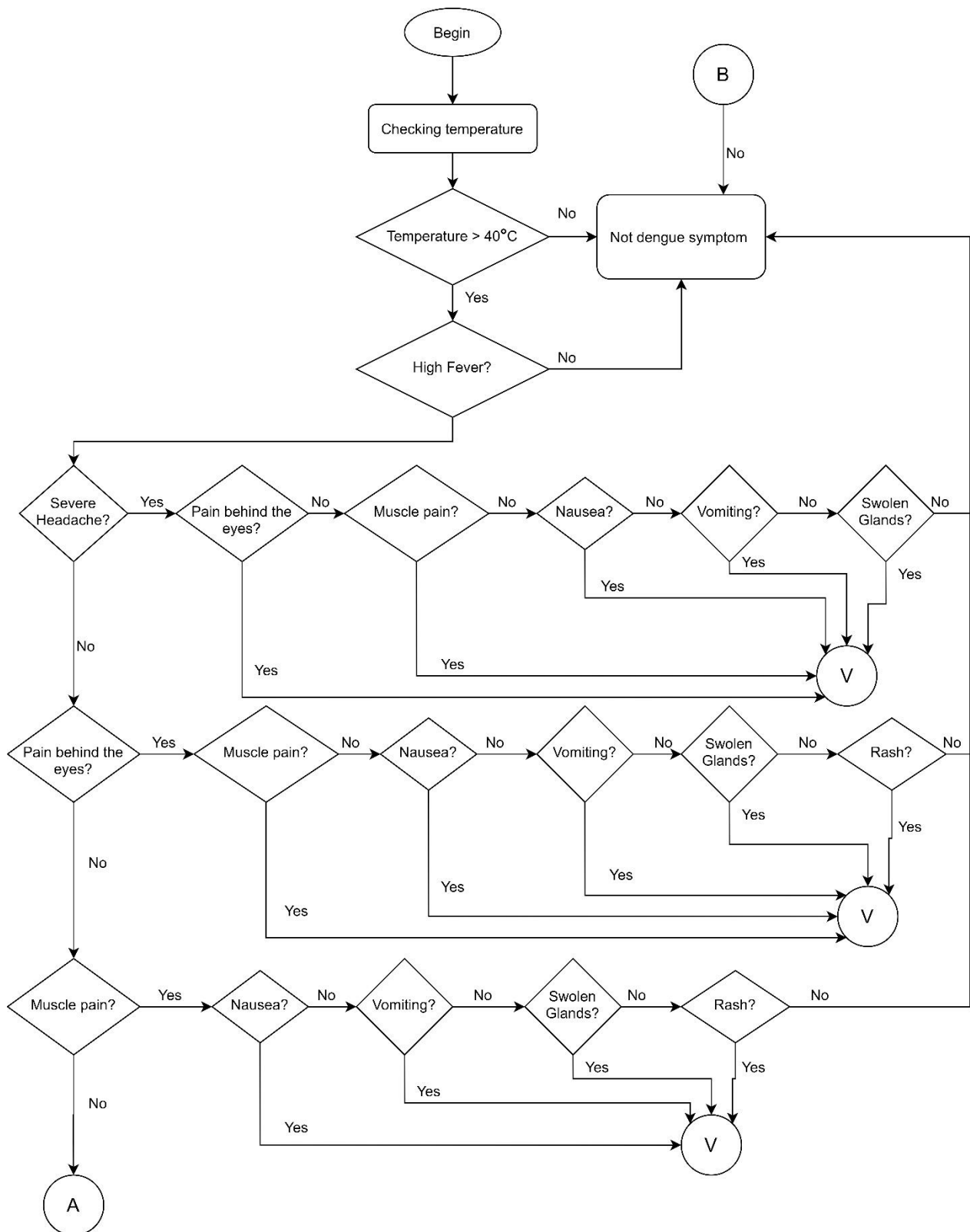
**This website contains key facts for dengue and severe dengue. With the article that we had referred, we add multiple problems to our expert system. For example, we dengue symptoms and severe dengue symptoms to ensure the expert system is practically accepted by the patients as it one of the common problems in dengue disease.**

## SEMANTIC NETWORK



## FLOWCHART







## DESIGN :

DENGUE DIAGNOSE SYSTEM

localhost / 127.0.0.1 / dengue2 / x

localhost/phpmyadmin/sql.php?db=dengue2&table=information&pos=0

phpMyAdmin

Recent Favorites

- New
- dengue
- dengue2
- New
- information
- severe
- hotel
- information\_schema
- mysql
- performance\_schema
- phpmyadmin
- ptks
- test

Server: 127.0.0.1 > Database: dengue2 > Table: information

Showing rows 0 - 4 (5 total, Query took 0.0008 seconds)

SELECT \* FROM `information`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Options

	ic	name	gender	temp	rash	eyes	muscle	nausea	vomitting	gland	pregnant
<input type="checkbox"/>	22222222	Izzat	male	yes	yes	yes	no	yes	no	no	
<input type="checkbox"/>	991102145201	Muhammad Aliff Bin Md Norman	male	yes	yes	no	yes	no	yes	no	
<input type="checkbox"/>	991407025301	Najwa	female	yes	no	no	no	yes	yes	yes	yes
<input type="checkbox"/>	997654653	imm	male	yes	yes	no	no	yes	no	yes	
<input type="checkbox"/>	9999999999	Ariff Nazhan	male	yes	yes	no	yes	no	yes	yes	

Check all | With selected: Edit Copy Delete Export

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

Print Copy to clipboard Export Display chart Create view

Console

Press Ctrl+Enter to execute query

```
> SELECT * FROM `information`
```

DENGUE DIAGNOSE SYSTEM

localhost / 127.0.0.1 / dengue2 / x

localhost/phpmyadmin/sql.php?server=1&db=dengue2&table=severe&pos=0

phpMyAdmin

Recent Favorites

- New
- dengue
- dengue2
- New
- information
- severe
- hotel
- information\_schema
- mysql
- performance\_schema
- phpmyadmin
- ptks
- test

Server: 127.0.0.1 > Database: dengue2 > Table: severe

Showing rows 0 - 4 (5 total, Query took 0.0008 seconds)

SELECT \* FROM `severe`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Options

	id	user_ic	temp2	vomit2	breath	gum	fatigue	restless	blood	abdominal
<input type="checkbox"/>	31	991102145201	yes	yes	yes	yes	no	no	no	no
<input type="checkbox"/>	32	991407025301	yes	no	no	no	no	yes	no	no
<input type="checkbox"/>	33	997654653	yes	no	yes	no	yes	no	no	yes
<input type="checkbox"/>	34	9999999999	yes	no	no	no	no	yes	no	yes
<input type="checkbox"/>	35	22222222	no	no	no	no	yes	no	no	no

Check all | With selected: Edit Copy Delete Export

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

Print Copy to clipboard Export Display chart Create view

Console

Press Ctrl+Enter to execute query

```
> SELECT * FROM `information`
```

```
> SELECT * FROM `severe`
```

localhost/phpmyadmin/sql.php?db=dengue2&table=severe&sql\_query=SELECT \*%2A+FROM...

## DENGUE DIAGNOSE SYSTEM

Name:

IC:

What is your gender?

- ☐ Male  
☐ Female

Are you pregnant?

- ☐ Yes  
☐ No

Is your temperature higher than 40C?

- ☐ Yes  
☐ No

Do you have any rash?

- ☐ Yes  
☐ No

Any pain in the eyes?

- ☐ Yes

## SEVERE DENGUE DIAGNOSE SECTION

Are your temperature drop Below 38C?

- ☐ Yes  
☐ No

Do you Persistent Vomitting?

- ☐ Yes  
☐ No

Do you have Rapid Breathing

- ☐ Yes  
☐ No

Do you Fatigue?

- ☐ Yes  
☐ No

Are you Restlessness?

- ☐ Yes  
☐ No

Are you vomitting blood

- ☐ Yes

**This is your result. Dear Syahmi,**

#### WHY?

Conclusion	Why?
Dengue symptom	You shown the most common symptom of dengue that is high fever with any of the following: Nausea, vomiting, rash, aches and pains.
Severe dengue symptom	People with medical conditions are more likely to develop severe dengue

#### TREATMENT

Dengue symptom	You need to see the health provider, or quarantine yourself at home. Another ways is to take acetaminophen/paracetamol and drink plenty fluids to stay hydrate.
Severe dengue symptom	You need to see healthcare provider or go to emergency room immediately check up. Another ways is to requires immediate medical attention or hospitalization.

HOW?

SURVEY PAGE

#### HOW THIS OCCUR?

Conclusion	How
Dengue symptom	IF you have high fever AND you have Rash AND you have Eyes pain AND you have Nausea THEN you have dengue symptom
Severe dengue symptom	IF you have dengue symptom AND you have Fatigue AND you have Restlessness THEN you have severe dengue symptom

WHY?

SURVEY PAGE

## 6.0 Conclusion

The purpose of medical expert system is to support the diagnosis process of physicians. It considers facts and symptoms to provide diagnosis. This implies that a medical expert system uses knowledge about diseases and facts about the patients to suggest diagnosis. The aim of this research is to design an expert system application for diagnosing eye diseases using forward chaining method and to figure out user acceptance to this application through usability testing. Dengue Diagnosis System will help most of us to make a dengue disease screening with precise result. Sometimes, if the patient wanted to make the fever screening, it will also requires human strength and expertise to inspect the diagnosis and also go the the hospital instead. However, this system will help to reduce user dependence of humans expertise in medical field and thus, giving the information and experiences about dengue fever.

## 7.0 References

Dengue and severe dengue. Retrieved from <https://www.cdc.gov/dengue/about/index.html>

About Dengue: What You Need to Know. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue>