

Universiti Teknologi MARA

Sentiment Analysis On Covid-19 Vaccine

Nur Qamarina Binti Hamsa

**Thesis submitted in fulfillment of the requirements for
Bachelor of Computer Science (Hons) Project Formulation
Faculty of Computer and Mathematical Sciences**

July 2021

DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.



.....

NUR QAMARINA BINTI HAMSA

2020996883

JULY 4, 2021

ABSTRACT

The Covid-19 virus has spread to all countries over the world. In order to handle and survived through this pandemic, a vaccine for Covid-19 was developed to give body a better immune system. However, many people has different point of view towards vaccine. People tend to share their opinions on social media which is Twitter platform such as the effectiveness and side effect of the vaccine. Government need to identify their sentiment in order to give better solution and actions related to Covid-19 vaccination. This project performed a sentiment analysis that identify people sentiment on Covid-19 vaccine. The data are collected through Twitter platform by collecting tweets discussing about Covid-19 vaccine and machine learning method was used to develop the sentiment model. The dataset are clean and processing by using natural language toolkit in Python such as stopwords and NeatText library. The model used support vector machine classifier to classify the dataset into its polarity categories and evaluate the accuracy. Performance metric such as precision, recall and F-score used to validate the model effectively. This project designed a dashboard to visualized overall information of sentiment analysis on Covid-19 vaccine. The dashboard was designed using dash plotly library in python. There are changes of people sentiment around vaccine over the time by monitoring the analysis and statistic provide in the dashboard visualization. This study improves understanding of the public opinion on Covid-19 vaccine.

TABLE OF CONTENTS

CONTENTS	PAGE
SUPERVISOR'S APPROVAL	I
DECLARATION	II
ABSTRACT	III
TABLE OF CONTENTS	IV-VI
LIST OF TABLES	VII
LIST OF FIGURES	VII
LIST OF ABBREVIATIONS	IX
 CHAPTER ONE: INTRODUCTION	
1.1 Introduction	1
1.2 Project Background	2
1.3 Problem Statement	3-4
1.4 Project Question	4
1.5 Project Objective	4
1.6 Project Scope	4
1.7 Significance of Research	4
1.8 Summary	5
 CHAPTER TWO: LITERATURE REVIEW	
2.1 Introduction	6
2.2 Overview of Vaccine	7-8
2.3 Overview of Sentiment Analysis	
2.3.1 Lexicon Based Approach	9-10
2.3.2 Machine Learning Approach	10-12
2.4 Evaluation for Sentiment Analysis	
2.4.1 Accuracy	13
2.4.2 Precision	13
2.4.3 Recall	14
2.4.4 F-Measure	14
2.5 Existing Application Related to Sentiment Analysis	
2.5.1 Brandtix	15
2.5.2 Mentionlytics	16
2.5.3 Thematic	17
2.6 Related Research	18-24

2.7	Justification of Chosen Method, Technique and Features	25
2.8	Summary	26
CHAPTER THREE: METHODOLOGY		
3.1	Introduction	27
3.2	Operational Framework	
	3.2.1 Planing	28
	3.2.2 Information Gathering	29
	3.2.3 Implementation	30
	3.2.4 Result Analysis and Discussion	31
	3.2.5 Documentation	32
3.3	Development Methodology	33
3.4	System Architecture	34
3.5	Harware and Software Requirement	35
3.6	Summary	36
CHAPTER FOUR: PROJECT DESIGN AND IMPLEMENTATION		
4.1	Introduction	37
4.2	Analysis Requirement of Project Design and Development	
	4.1.1 Functional Requirement	38
	4.1.2 Non-Functional Requirement	38
4.2	Project Design	
	4.2.1 Design Flowchart	39-40
4.3	Project Development	
	4.3.1 Data Collection Process	41-42
	4.3.2 Sentiment Analysis Process	
	4.3.2.1 Pre-Processing	42
	4.3.2.2 Assigning Polarity	42-43
	4.3.2.3 Data Classification	43-44
	4.3.2.4 Data Visualization	44-45
4.4	Project Implementation	
	4.4.1 List of Features	46
	4.4.2 Snapshot from Apllication/Software	47
4.5	Testing	48
4.6	Summary	49