

SENTIMENT ANALYSIS OF X ON ISLAMIC-RELATED TEXT DATA

MOHAMED TAREK ELSAYED MOHAMED TORKY

UNIVERSITI TEKNOLOGI MALAYSIA





**UNIVERSITI TEKNOLOGI MALAYSIA  
DECLARATION OF thesis**

Author's : Mohamed Tarek Elsayed Mohamed Yousef Mohamed Torky  
full name

Student's : MCS241037 Academic :202420252  
Matric No. Session

Date of : 03/01/2003 UTM :  
Birth Email mohamed.elsayed@graduate.utm.my

Thesis Title : SENTIMENT ANALYSIS OF X ON ISLAMIC-RELATED TEXT

I declare that this thesis is classified as:

☒

**OPEN ACCESS**

I agree that my report to be published as a hard copy or made available through online open access.

☐

**RESTRICTED**

Contains restricted information as specified by the organization/institution where research was done.  
(The library will block access for up to three (3) years)

☐

**CONFIDENTIAL**

Contains confidential information as specified in the Official Secret Act 1972)

*(If none of the options are selected, the first option will be chosen by default)*

I acknowledged the intellectual property in the Choose an item. belongs to Universiti Teknologi Malaysia, and I agree to allow this to be placed in the library under the following terms :

1. This is the property of Universiti Teknologi Malaysia
2. The Library of Universiti Teknologi Malaysia has the right to make copies for the purpose of only.
3. The Library of Universiti Teknologi Malaysia is allowed to make copies of this Choose an item. for academic exchange.

Signature of Student:

Signature : Mohamed Tarek Torky

Full Name Mohamed Tarek Elsayed Mohamed Yousef Mohamed Torky

Date : 29/04/2025

Approved by Supervisor(s)

Signature of Supervisor I:

Signature of Supervisor II

Full Name of Supervisor I

Full Name of Supervisor II

Date :

Date :

**NOTES :** If the thesis is CONFIDENTIAL or RESTRICTED, please attach with the letter from the organization with period and reasons for confidentiality or restriction







“I hereby declare that I have read this thesis and in my  
opinion this thesis is sufficient in term of scope and quality for the  
award of the degree of Master of Data Science”

Signature : \_\_\_\_\_  
Name of Supervisor I : \_\_\_\_\_  
Date : 9 MAY 2017

Signature : \_\_\_\_\_  
Name of Supervisor II : \_\_\_\_\_  
Date : 9 MAY 2017

Signature : \_\_\_\_\_  
Name of Supervisor III : \_\_\_\_\_  
Date : 9 MAY 2017









SENTIMENT ANALYSIS OF X ON ISLAMIC-RELATED TEXT DATA TITLE

MOHAMED TAREK ELSAYED MOHAMED TORKY

A thesis submitted in fulfilment of the  
requirements for the award of the degree of  
Master of Data Science

School of Computing  
Faculty of Computing  
Universiti Teknologi Malaysia

APRIL 2025



## DECLARATION

I declare that this thesis entitled “*Sentiment Analysis of X on Islamic-Related Text Data*” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : Mohamed Tarek Torky  
Name : Mohamed Tarek Elsayed Mohamed Torky  
Date : 29 APRIL 2025



## **ACKNOWLEDGEMENT**

I spoke with several people while writing my thesis, including researchers, academics, and practitioners. They have aided my comprehension and thought processes. I'd want to convey my heartfelt gratitude to my major thesis supervisors, ----, for their support, direction, criticism, and friendship. This thesis would not have been the same without their continued support and interest.

## **ABSTRACT**

X (formerly Twitter) now functions as an influential digital platform through which users post thoughts and opinions on worldwide subjects that include religion. Twitter users frequently post about Islam since it represents one of the world's most examined religions thus their tweets demonstrate range from admiration to hostility. The proposed analysis performs sentiment assessment of Islamic-related text data derived directly from X. The system adopts NLP and pre-trained sentiment analysis models to identify tweets as either positive or negative or non-committal. The analyzed data will be presented as charts and graphs to show underlying sentiment patterns. The study contributes to data-based social research by showing the public perception of Islam on social media while highlighting how sentiment analysis functions in religious and cultural settings.



## **ABSTRAK**

Dalam era digital, X (dahulunya Twitter) telah menjadi platform utama di mana pengguna berkongsi pandangan dan pendapat mengenai pelbagai topik global, termasuk agama. Islam, sebagai salah satu agama yang paling banyak dibincangkan, sering disebut dalam ciapan yang mempunyai nada berbeza-beza — dari sokongan hingga kritikan. Projek ini bertujuan untuk menjalankan analisis sentimen terhadap data teks berkaitan Islam yang dikumpul secara khusus dari X. Menggunakan pemprosesan bahasa semula jadi (NLP) dan model analisis sentimen sedia ada, sistem ini akan mengelaskan ciapan kepada kategori positif, negatif atau neutral. Data yang dianalisis akan divisualisasikan melalui graf dan carta untuk menunjukkan corak sentimen. Projek ini menyumbang kepada penyelidikan sosial berasaskan data dengan menawarkan pandangan tentang bagaimana Islam dilihat di media sosial dan menunjukkan aplikasi analisis sentimen dalam konteks keagamaan dan budaya.

## TABLE OF CONTENTS

	TITLE	PAGE
	DECLARATION	iii
	ACKNOWLEDGEMENT	v
	ABSTRACT	vi
	ABSTRAK	vii
	TABLE OF CONTENTS	viii
	LIST OF TABLES	x
	LIST OF FIGURES	xi
	LIST OF ABBREVIATIONS	xii
	LIST OF SYMBOLS	xiii
	LIST OF APPENDICES	xiv
<b>CHAPTER 1</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	Problem Background	1
1.2	Problem Background	1
1.3	Problem Statement	2
1.4	Research Goal	2
	1.4.1 Research Objectives	Error! Bookmark not defined.
1.5	Captions	2
1.6	Quotation	Error! Bookmark not defined.
1.7	Equation	Error! Bookmark not defined.
<b>CHAPTER 2</b>	<b>LITERATURE REVIEW</b>	Error! Bookmark not defined.
2.1	Introduction	Error! Bookmark not defined.
	2.1.1 State-of-the-Arts	Error! Bookmark not defined.
2.2	Limitation	Error! Bookmark not defined.
2.3	Research Gap	Error! Bookmark not defined.

<b>CHAPTER 3</b>	<b>RESEARCH METHODOLOGY</b>	Error! Bookmark not defined.
3.1	Introduction	<b>Error! Bookmark not defined.</b>
3.1.1	Proposed Method	<b>Error! Bookmark not defined.</b>
3.1.1.1	Research Activities	<b>Error! Bookmark not defined.</b>
3.2	Tools and Platforms	<b>Error! Bookmark not defined.</b>
3.3	Chapter Summary	<b>Error! Bookmark not defined.</b>
<b>CHAPTER 4</b>	<b>PROPOSED WORK</b>	Error! Bookmark not defined.
4.1	The Big Picture	<b>Error! Bookmark not defined.</b>
4.2	Analytical Proofs	<b>Error! Bookmark not defined.</b>
4.3	Result and Discussion	<b>Error! Bookmark not defined.</b>
4.4	Chapter Summary	<b>Error! Bookmark not defined.</b>
<b>CHAPTER 5</b>	<b>CONCLUSION AND RECOMMENDATIONS</b>	Error!
		Bookmark not defined.
5.1	Research Outcomes	<b>Error! Bookmark not defined.</b>
5.2	Contributions to Knowledge	<b>Error! Bookmark not defined.</b>
5.3	Future Works	<b>Error! Bookmark not defined.</b>
	<b>REFERENCES</b>	Error! Bookmark not defined.
	<b>LIST OF PUBLICATIONS</b>	Error! Bookmark not defined.

## LIST OF TABLES

TABLE NO.	TITLE	PAGE
Table 1.1	The role of statistical quality engineering tools and methodologies	<b>Error! Bookmark not defined.</b>
Table 1.2	Basic ANN models used for control chart pattern recognition	<b>Error! Bookmark not defined.</b>
Table 2.1	Regression analysis for the results of preliminary feature screening	<b>Error! Bookmark not defined.</b>
Table 2.2	Estimated effects and regression coefficients for the recogniser's performance (reduced model)	<b>Error! Bookmark not defined.</b>
Table 5.1	Example Repeated Header Table	<b>Error! Bookmark not defined.</b>

## LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
Figure 1.1	Trends leading to the problem using MZJ Formatting Method	<b>Error! Bookmark not defined.</b>
Figure 1.2	Design and development phases of the proposed scheme (Muhamad, 2018)	<b>Error! Bookmark not defined.</b>
Figure 2.1	Continuous variability reduction using SPC chart (Revelle and Harrington, 1992)	<b>Error! Bookmark not defined.</b>
Figure 2.2	Typical fully developed patterns on Shewhart control chart (Cheng, 1989)	<b>Error! Bookmark not defined.</b>
Figure 3.1	Example of Formatting Method	<b>Error! Bookmark not defined.</b>
Figure 4.1	This is MZJ original idea	<b>Error! Bookmark not defined.</b>
Figure 4.2	The method for hig performance formatting	<b>Error! Bookmark not defined.</b>

## **LIST OF ABBREVIATIONS**

ANN	-	Artificial Neural Network
GA	-	Genetic Algorithm
PSO	-	Particle Swarm Optimization
MTS	-	Mahalanobis Taguchi System
MD	-	Mahalanobis Distance
TM	-	Taguchi Method
UTM	-	Universiti Teknologi Malaysia
XML	-	Extensible Markup Language
ANN	-	Artificial Neural Network
GA	-	Genetic Algorithm
PSO	-	Particle Swarm Optimization

## LIST OF SYMBOLS

$\delta$	-	Minimal error
$D, d$	-	Diameter
$F$	-	Force
$v$	-	Velocity
$p$	-	Pressure
$I$	-	Moment of Inertia
$r$	-	Radius
Re	-	Reynold Number

## LIST OF APPENDICES

APPENDIX	TITLE	PAGE
Appendix A	Mathematical Proofs	Error! Bookmark not defined.
Appendix B	Psuedo Code	Error! Bookmark not defined.
Appendix C	Time-series Results Long Long Long Long Long Long Long Long Long Long	Error! Bookmark not defined.



# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Problem Background**

Through X (formerly Twitter) people now interact differently by sharing beliefs and discussing worldwide subjects among numerous users who maintain this platform's public communication lead. Shortly after Islam appears as one of the major points discussed among other topics. Users exchange religious information that varies in nature between support and education and between misinformed offensive commentary. Unstructured textual data which shows public perception occurs daily through multiple thousands of tweets that mention Islam.

The automatic analysis of such data proves impractical since it originates at a fast rate from a large volume. The accurate understanding of Islamic perceptions by the worldwide audience becomes essential because of the widespread online prejudice against Islam. Sentiment analysis has received extensive application in business and product reviews but lacks sufficient research involving Islamic content evaluation on X. The proposed system uses NLP techniques to automatically analyze sentiment in X tweets dedicated to Islamic content.

### **1.2 Problem Statement**

The massive number of Islam-related content posted daily on X currently lacks specialized tools that evaluate public sentiment towards Islam on the platform. The process of manual analysis proves very time-consuming while scalability is impossible and most sentiment analysis tools work only with general content or commercial domains focused on products and politics.

This shortcoming hinders researchers as well as educational institutions and Islamic organizations from properly interpreting and responding to public views. The absence of specialized sentiment analysis software prevents tracking sentiment trends and detecting negative Islamic-related narratives on X. The requirement emerges for a simple sentiment analysis tool which specializes in Islamic content from X while performing automated classification and sentiment visualization.

### **1.3 Research Questions**

This project aims to explore how Islam is perceived on X (formerly Twitter) by applying sentiment analysis to relevant tweets. The research will be guided by the following key questions:

- (a) What is the overall sentiment of Islamic-related tweets on X — positive, negative, or neutral?
- (b) Can a simple sentiment analysis model accurately classify Islamic-related tweets into sentiment categories?
- (c) What are the most used words and phrases in each sentiment category?
- (d) What conclusions may be derived from the users Islamic-related tweets?

### **1.4 Research Objectives**

- (a) To collect and preprocess Islamic-related text data specifically from X (formerly Twitter).
- (b) To develop a sentiment analysis model using NLP techniques to classify the tweets into positive, negative, or neutral sentiments.

- (c) To visualize the sentiment analysis results using suitable methods such as charts and word clouds to illustrate sentiment trends.

## **1.5 Scope of Research**

This research is limited to analyzing Islamic-related text data sourced exclusively from X (formerly Twitter). The focus and constraints of the project include:

- (a) This project will focus exclusively on tweets collected from X (formerly Twitter) that are related to Islamic topics.
- (b) Only English-language tweets will be used to ensure compatibility with available sentiment analysis tools.
- (c) The sentiment classification will be limited to three categories: positive, negative, and neutral.
- (d) The project will be developed using Python.
- (e) Employing libraries such as NLTK, VADER, TextBlob for sentiment analysis