SENTIMENT ANALYSIS OF X ON ISLAMIC-RELATED TEXT DATA

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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.

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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

δ	-	Minimal error
D, d	-	Diameter
F	-	Force
v	-	Velocity
p	-	Pressure
I	-	Moment of Inersia
r	-	Radius
Re	-	Reynold Number

LIST OF APPENDICES

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