SENTIMENT ANALYSIS IN E-COMMERCE REVIEW(AMAZON)

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BACKGROUND

- Sentiment analysis is a part of artificial intelligence (AI). It is a type of natural language processing (NLP) that uses machine learning to identify and extract the sentiment of text. This can be used to understand the emotional tone of customer reviews, social media posts, and other types of text

- The exponential growth of online shopping has made it crucial for e-commerce platforms to understand customer sentiment towards their products.

PROBLEM STATEMENT :

- E-commerce companies receive a lot of customer reviews, but it is difficult consuming to read and analyze them all manually.

- Challenge for companies to understand how their customers feel about their products and services . This can lead to missed opportunities to improve products and services, as well as negative customer experiences.

RESEARCH QUESTION

- What is the method or technique for colleting data reviews from a website?
- How can the Natural Language Processing (NLP) model be improved to better handle complex and nuanced reviews?
- How is the accuracy of the sentiment analysis model on a held-out set of electronics product reviews?

OBJECTIVE OF THE STUDY

- To develop web scraping in collecting reviews for electronics product in Amazon website
- To develop a sentiment analysis model to classify reviews of electronic product into positive, neutral and negative sentiment
- To evaluate the performance of sentiments analysis model in classify reviews

SCOPE OF THE STUDY

- This project focuses on the development and implementation of a sentiment analysis model specifically designed to analyze reviews of laptop products at Amazon platform

- Generating positive,neutral or negative sentiment in e-commerce reviews focus at electronic product at amazon

THE IMPORTANCE

- Helps businesses understand customer feelings expressed in online reviews

- The project implementation of advanced data analysis techniques, demonstrating the power of technology in understanding and improving customer experiences

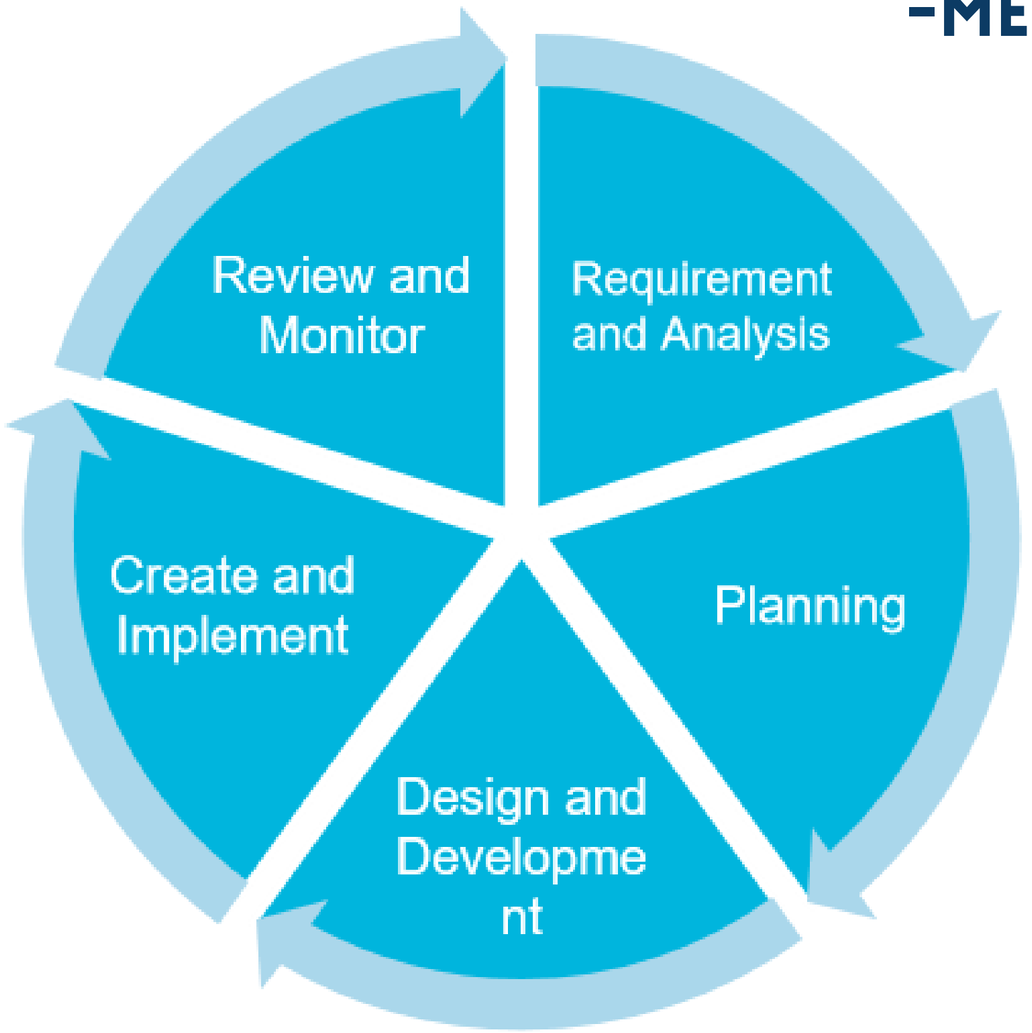
COMPARISON PREVIOUS STUDY

Title	Authors	Year	Algorithm	Objective	Limitations
Sentiment Analysis on Amazon Reviews Using Supervised Machine Learning Techniques	Naveed Sultan	2022	Naive Bayes, SVM, Random Forest	Sentiment classification of Amazon reviews	Only electronics reviews, no hyperparameter tuning
Contextual Sentiment Analysis in User-Generated Reviews Using BERT	Xueli Zhou	2023	BERT	Aspect-based sentiment analysis	Computationally intensive, limited domains tested
Sarcasm Detection in Amazon Product Reviews	Sahil Jain, Ashish Ranjan, Dipali Baviskar*	2022	RNN, CNN, transformer ensemble	Detect sarcastic sentiment	Limited domains, lack of labeled sarcastic data
Semi-Supervised Text Sentiment Classification Using BERT	Haochen Zou & Zitao Wang	2023	Semi-supervised BERT	Improve accuracy using unlabeled data	Computationally expensive, single dataset

FIGURE 1.SHOWS A COMPARISON PREVIOUS STUDY

RESEARCH METHODOLOGY

-METHOD : AGILE



- AGILE IS A METHODOLOGY OF PROJECT MANAGEMENT USED THAT IS CHARACTERIZED BY THE DIVISION OF TASKS INTO SHORT PHASES OF WORK AND FREQUENT REASSESSMENT AND ADAPTATION OF PLAN

REQUIREMENT AND ANALYSIS PHASE

- OBTAINING AND EXAMINING PARTICULAR REQUIREMENTS THAT ARE NECESSARY TO CREATE A SENTIMENT ANALYSIS REVIEW

- CREATE A CLEAR ROADMAP OF ACTIVITIES AND MILESTONES FOR THE SENTIMENT ANALYSIS PROJECT

PLANNING PHASE :

- ESTIMATE THE TIME REQUIRED FOR EACH TASK AND DETERMINE THE OVERALL SPRINT DURATION
- SPECIFY THE PRIMARY OBJECTIVES OF SENTIMENT ANALYSIS PROJECT
- BREAK DOWN THE SENTIMENT ANALYSIS PROJECT INTO SPECIFIC TASKS
- PROCESS OF SELECTING A CODING LANGUAGE AND LIBRARIES THAT ARE MOST SUITABLE FOR THIS PROJECT

FRAMEWORK OF SENTIMENT ANALYSIS PROJECT

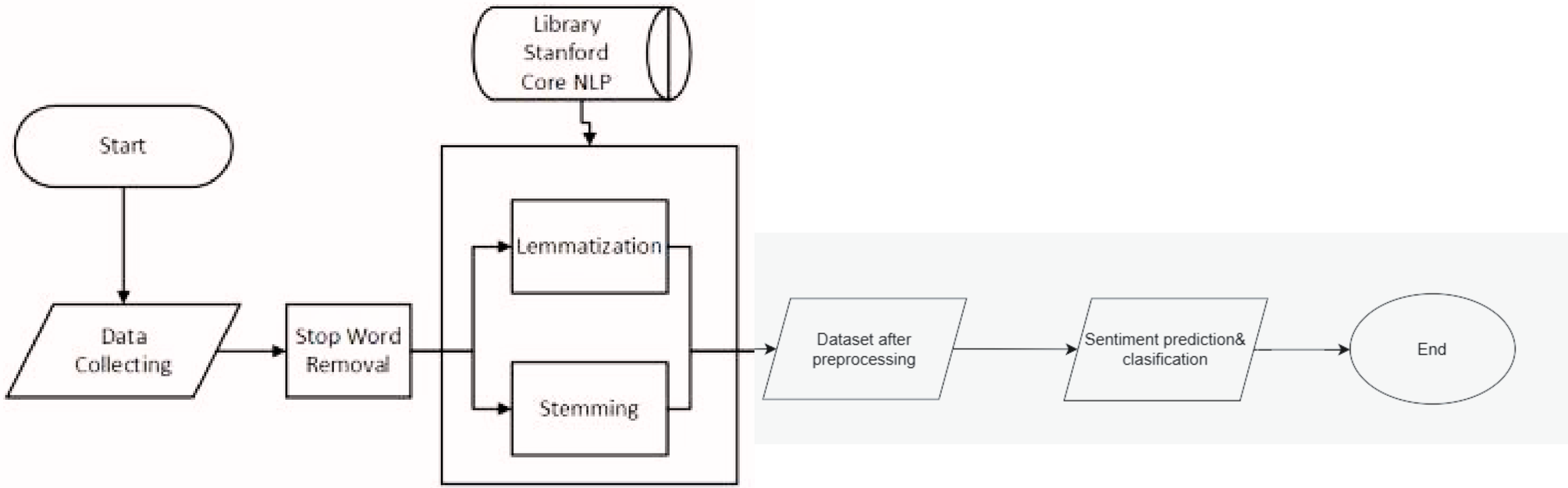


Figure 2.Flowchart System Overview

DESIGN AND DEVELOPMENT PHASE

- ACCESS AMAZON E-COMMERCE REVIEW DATASETS BY WEB SCRAPING METHOD
- IMPLEMENT PROGRAMMING LANGUAGE, SENTIMENT ANALYSIS LIBRARIES, AND ANY ADDITIONAL FRAMEWORKS REQUIRED FOR THE DEVELOPMENT PHASE
- USE NATURAL LANGUAGE PROCESSING (NLP) METHODS IN THE SYSTEM TO MANAGE THE NOT OBVIOUS LINGUISTIC ASPECTS OF ONLINE REVIEWS.
- CHOOSE A SUITABLE SENTIMENT ANALYSIS ALGORITHM ,
- DESIGN THE USER INTERFACE THAT WILL BE USED FOR INTERACTING WITH THE SENTIMENT ANALYSIS SYSTEM

DESIGN PHASE : USE CASE DIAGRAM

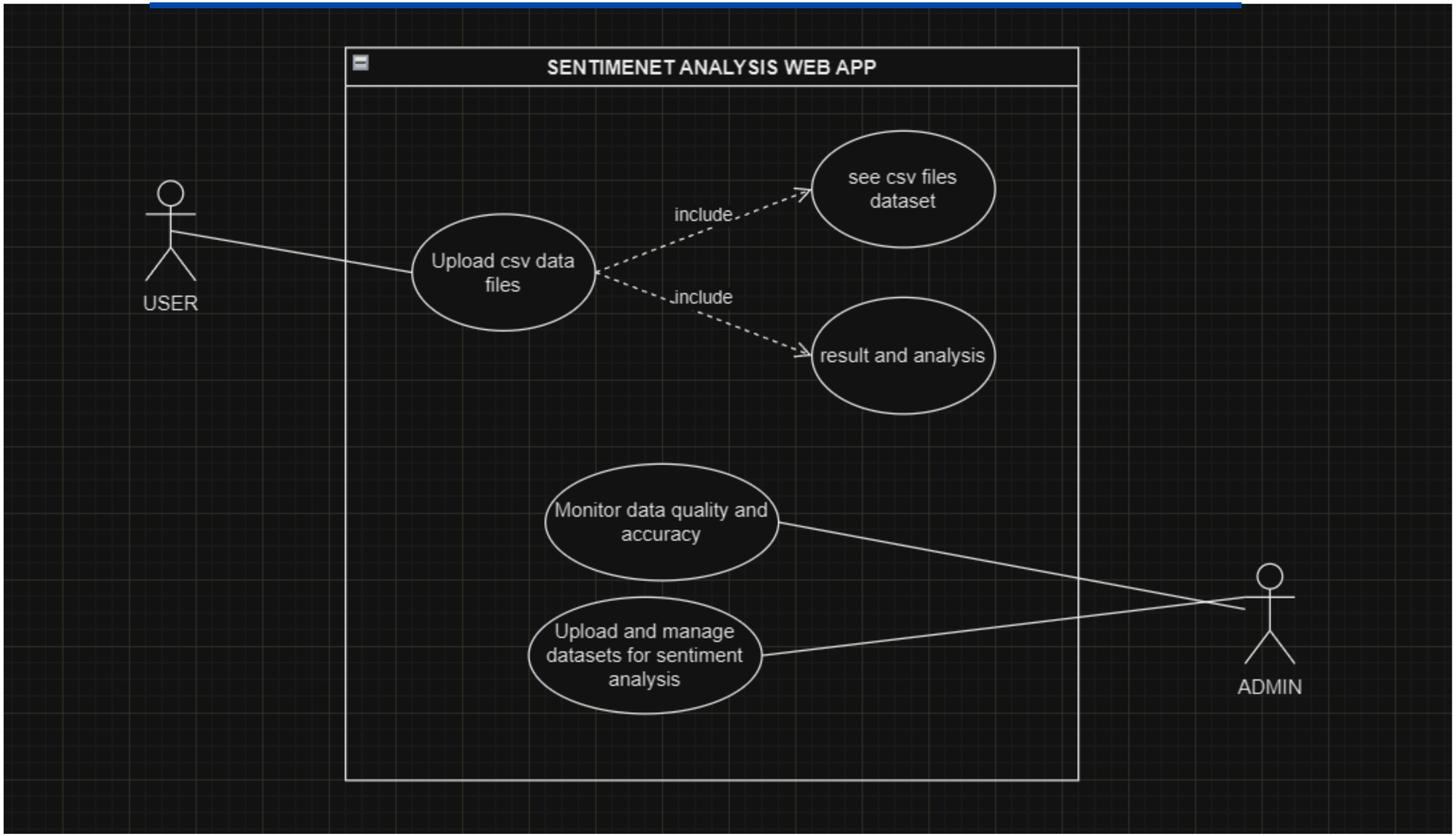


Figure 3. shows a use case diagram web app sentiment analysis

CREATE AND IMPLEMENT

- INTEGRATE THE TRAINED MODEL INTO WEBSITE FOR SENTIMENT ANALYSIS REVIEW
- DEVELOP A USER-FRIENDLY INTERFACE WHERE USERS CAN INTERACT WITH THE WEBSITE AND MONITOR DATA REVIEW
- CONNECT THE TRAINED MODEL WITH THE USER INTERFACE AND ENSURE SMOOTH COMMUNICATION BETWEEN THE COMPONENTS
- CONDUCT THOROUGH TESTING TO VERIFY THE FUNCTIONALITY AND PERFORMANCE OF THE APPLICATION.

DEVELOPMENT PHASE: WEBSITE APP FRAMEWORK

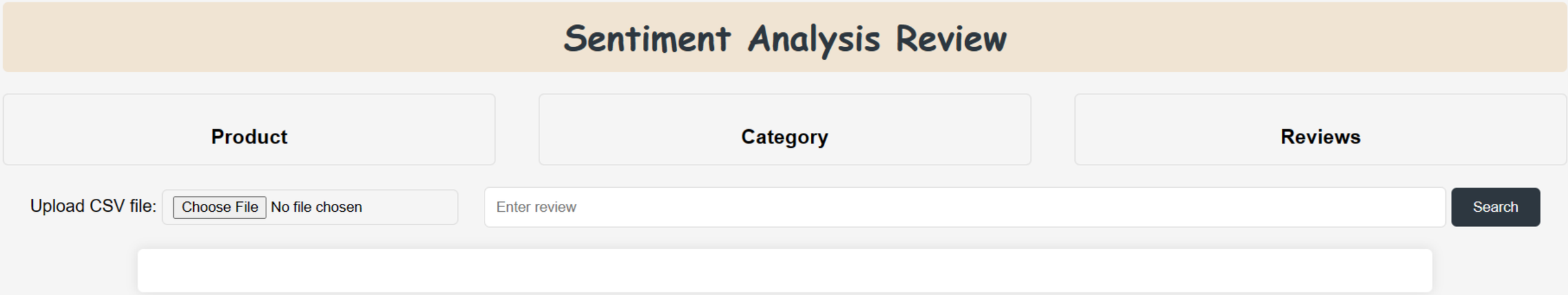
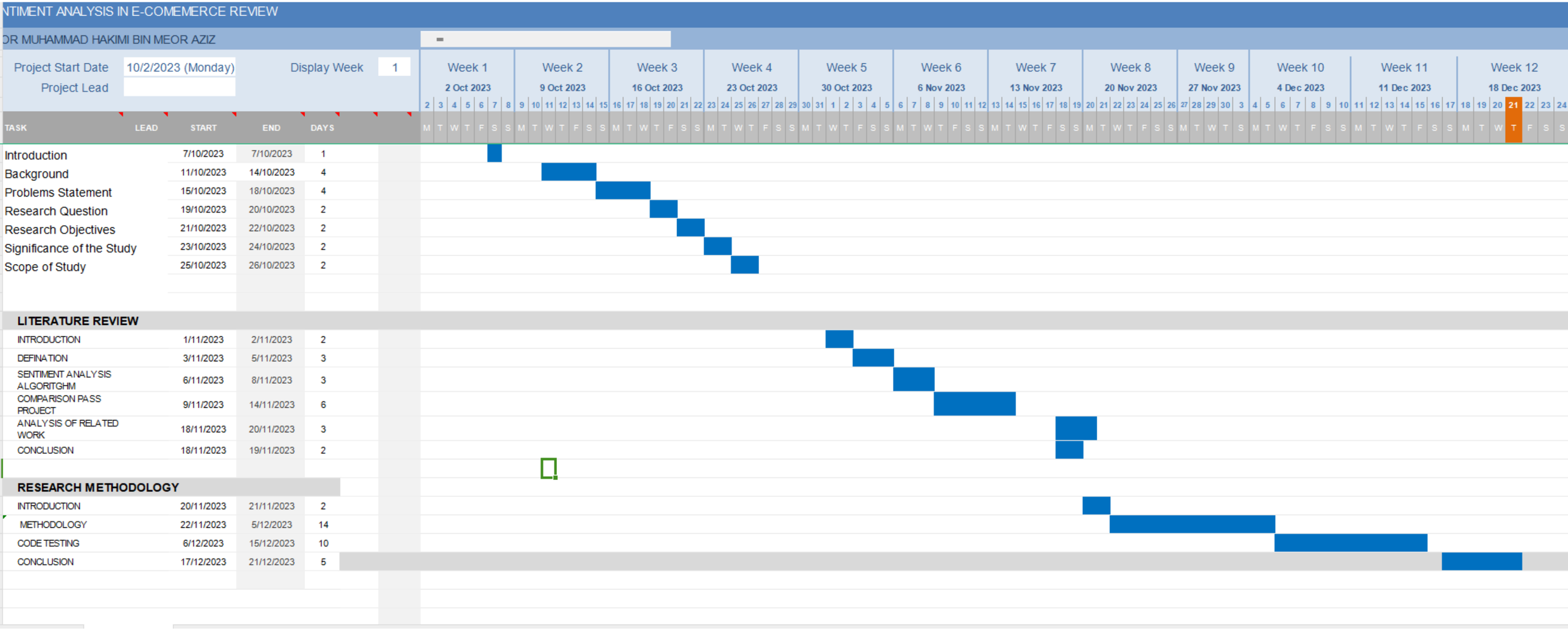


FIGURE 4. SHOWS A USER INTEREFACE WEB APP SENTIMENT ANALYSIS

REVIEW AND MONITOR PHASE

- THE FINAL PHASE EMPHASISES ITERATIVE IMPROVEMENT FOLLOWING IMPLEMENTATION AND FOLLOWS THE PRINCIPLES OF THE AGILE METHODOLOGY
- ASSESS THE PERFORMANCE OF SENTIMENT ANALYSIS MODELS.
- CONTINUOUSLY MONITOR AND EVALUATE THE WEBSITE PERFORMANCE
- GATHER FEEDBACK FROM USERS TO IDENTIFY AREAS FOR IMPROVEMENT OR ADDITIONAL FEATURES.

GANTT CHART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OR MUHAMMAD HAKIMI BIN MEOR AZIZ
Project Start Date
10/2/2023 (Monday)
Display Week
1
Project Lead
Week 1
2 Oct 2023
Week 2
9 Oct 2023
Week 3
16 Oct 2023
Week 4
23 Oct 2023
Week 5
30 Oct 2023
Week 6
6 Nov 2023
Week 7
13 Nov 2023
Week 8
20 Nov 2023
Week 9
27 Nov 2023
Week 10
4 Dec 2023
Week 11
11 Dec 2023
Week 12
18 Dec 2023
TASK
LEAD
START
END
DAYS
Introduction 7/10/2023 7/10/2023 1
Background 11/10/2023 14/10/2023 4
Problems Statement 15/10/2023 18/10/2023 4
Research Question 19/10/2023 20/10/2023 2
Research Objectives 21/10/2023 22/10/2023 2
Significance of the Study 23/10/2023 24/10/2023 2
Scope of Study 25/10/2023 26/10/2023 2
LITERATURE REVIEW
INTRODUCTION 1/11/2023 2/11/2023 2
DEFINATION 3/11/2023 5/11/2023 3
SENTIMENT ANALYSIS ALGORITGHM 6/11/2023 8/11/2023 3
COMPARISON PASS PROJECT 9/11/2023 14/11/2023 6
ANALYSIS OF RELATED WORK 18/11/2023 20/11/2023 3
CONCLUSION 18/11/2023 19/11/2023 2
RESEARCH METHODOLOGY
INTRODUCTION 20/11/2023 21/11/2023 2
METHODOLOGY 22/11/2023 5/12/2023 14
CODE TESTING 6/12/2023 15/12/2023 10
CONCLUSION 17/12/2023 21/12/2023 5

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THANK YOU