A

SYNOPSIS

of

MINOR PROJECT

on

Social Media Sentiment Analysis

Submitted by

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Project Guide
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Problem Statement

- Analyzing and predicting sentiment from social media posts.
- Understanding user opinions to enhance customer engagement and satisfaction.

Brief Description

Sentiment analysis is a powerful technique that helps us understand and categorize opinions, emotions, and sentiments expressed in text data.
In this project we have developed-

- Development of a sentiment analysis tool using Python.
- Utilizes Support Vector Machine (SVM) for classification.
- GUI built with Tkinter for user interaction.

Objective and Scope

Objective:

- To create a tool that accurately predicts the sentiment of a given text.

Scope:

- Focus on binary classification: Positive and Negative sentiments.
- Applicable to various domains like product reviews, social media posts, etc.

Methodology

1. **Data Collection:**

   -Import data from 'sentiment.csv'.

2. **Data Preprocessing:**

   - Tokenization,removing stopwords,and lemmatization.

3. **Feature Extraction:**

   - Use TF-IDF Vectorizer to convert text to numerical features.

4. **Model Training:**

   - Train SVM classifier with linear kernel.

5. **GUI Development:**

   - Build a user-friendly interface using Tkinter.

6. **Prediction:**

   - Predict sentiment based on user input.

Hardware and Software Requirments

Hardware:

- Standard PC with at least 4GB RAM

Software:

- Python 3.x
- Libraries: scikit-learn, pandas, nltk, tkinter
- Anaconda (for managing packages)
- IDE: VS Code or any Python-supported IDE

Technologies

Programming Language:

- Python

Libraries:

- scikit-learn for machine learning
- nltk for natural language processing
- pandas for data manipulation
- tkinter for GUI development

Machine Learning Algorithm:

- Support Vector Machine (SVM)

Testing Techniques

Model Validation:

- Cross-validation
- Confusion matrix to evaluate model performance

GUI Testing:

- User input validation
- Checking response accuracy

Integration Testing:

- Ensure smooth interaction between GUI and backend model

Project Contribution

Innovation:

- Combining SVM with a GUI for real-time sentiment analysis.

User Experience:

- Simple and interactive interface for end-users.

Applicability:

- Can be extended to multiple languages and more complex sentiment analysis.

Educational Value:

- Demonstrates practical implementation of machine learning concepts.