**System Requirements Specification**

**1. Introduction**

1.1 Purpose

The purpose of this document is to provide a detailed overview of the requirements for the proposed sentiment analysis system.

1.2 Scope

The proposed system aims to perform sentiment analysis on social media data, with a focus on tweets, providing organizations and users with insights into public opinions and sentiments.

**2. Overall Description**

2.1 Product Perspective

The sentiment analysis system will be a standalone application that fetches and analyses social media data to determine sentiment.

2.2 Product Features

* Sentiment analysis of tweets.
* Categorization of sentiments into positive and negative.
* Visualization of sentiment distribution through charts (e.g., pie chart, bar graph).
* Ability to process a large volume of tweets efficiently.

2.3 User Classes and Characteristics

The primary users of the system are organizations and data analysts interested in understanding public sentiments on social media.

2.4 Operating Environment

The system should be compatible with common operating systems (Windows, Linux) and be accessible through a web interface.

**3. Functional Requirements**

**3.1 Data Collection**

**3.1.1 Description**

The system should fetch tweets from social media platforms or a specified data file for sentiment analysis.

**3.1.2 Acceptance Criteria**

The system should successfully retrieve and process a specified number of tweets within a reasonable time frame.

**3.2 Sentiment Analysis**

**3.2.1 Description**

Perform sentiment analysis on collected data, categorizing sentiments into positive and negative.

**3.2.2 Acceptance Criteria**

The system should accurately classify sentiments with a rate of at least 80% accuracy.

**3.3 Visualization**

**3.3.1 Description**

Present the sentiment distribution through graphical representation (e.g., pie chart, bar graph).

**3.3.2 Acceptance Criteria**

The visualization should be clear, intuitive, and accurately represent the distribution of positive and negative sentiments.

**3.4 Scalability**

**3.4.1 Description**

The system should handle a large volume of tweets efficiently without compromising performance.

**3.4.2 Acceptance Criteria**

The system should maintain acceptable response times even when processing a substantial number of tweets.

4. Non-Functional Requirements

**4.1 Performance**

**4.1.1 Description**

The system should provide timely responses for data collection, sentiment analysis, and visualization.

**4.1.2 Acceptance Criteria**

The response time for all system functionalities should be within 5 seconds.

**4.2 Usability**

**4.2.1 Description**

The user interface should be intuitive and user-friendly.

**4.2.2 Acceptance Criteria**

Users without specialized training should be able to perform sentiment analysis tasks after minimal training.

**4.3 Reliability**

**4.3.1 Description**

The system should be reliable and available for use during standard operating hours.

**4.3.2 Acceptance Criteria**

The system should have an uptime of at least 99% during standard operating hours.

4.4 Security

4.4.1 Description

The system should ensure the confidentiality and integrity of collected and analysed data.

4.4.2 Acceptance Criteria

Access to the system and its data should be restricted to authorized users.

5. Constraints

5.1 Technology Constraints

The system must be compatible with Python-based development frameworks and libraries.

5.2 Legal and Regulatory Constraints

The system should adhere to data protection laws and regulations governing the collection and analysis of social media data.

6. Future Enhancements

6.1 Web Application Development

Consideration for the development of a web-based application with improved user interfaces and real-time data analysis capabilities.

6.2 Multilingual Support

Incorporate support for sentiment analysis in multiple languages.