Software Requirements Specification

for

Twitter Sentiment Analysis for User Feedback

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Table of Contents

1. Introduction

1.1 Purpose

The purpose of this project is to build a system that will provide an analysis of the public views on a particular show from the Twitter tweets and judge the sentiment of the people regarding that subject.

1.2 Product Scope

The system will be helpful to companies hosting shows on television or internet to understand how well their show is doing in the market by user views. They can analyse how their actors and/or episodes have impacted positively or negatively on their viewers.

1.3 Overview

This project of analysing sentiments of tweets comes under the domain of “Pattern Classification” and “Data Mining”. It would heavily rely on techniques of “Natural Language Processing” in extracting the significant phrases from tweets and on “Machine Learning” techniques for accurately classifying their sentiments.

2. Overall Description

2.1 User Characteristics

- Typical Users, such as digital marketers, who want to use this system for analyzing the public views
- Advanced/Professional Users, such as engineers or researchers, who want to use the system for more demanding public sentiment analysis.
- Programmers who are interested in working on the project by further developing it or fix existing bugs

2.2 Assumptions and Dependencies

The system is developed in Python and therefore requires Python to be installed on the user's system. The latest stable version of Twitter Sentiment Analysis requires Python version 3 or higher. This applies to Windows and Linux users.

3. Functional Requirements

- System should be able to process new tweets stored in database after retrieval.
- System should be able to classify each tweet by using extraction of phrases and polarity.
- System should represent a graphical view for visual understanding and list the users that tweeted it according to their location.
- System should provide an UI to let the company select and search the sentiments for a show/actor with ease.

3.1 External Interface Requirements

3.1.a Software Interfaces

The system is developed in Python and therefore requires Python to be installed on the user's system. The latest stable version of Twitter Sentiment Analysis requires Python version 3 or higher. It makes use of the Twitter API and requires the user to have a registered account with the same. The system is connected to Elasticsearch database that uses cloud for storage of the tweets. The graphic visualisation is done with the help of Kibana that comes along with Elasticsearch.

3.1.b Communications Interfaces

The system requires an internet connection to install new plugins, update already installed ones and update some of its components (APIs, modules etc.).

4. System Features

This section demonstrates the system's most prominent features and explains how they can be used and the results they will give back to the user.

4.1 Graph Visualization

The sentiments can be viewed in a Pie graph indicating the number of tweets that are sensed as positive, negative or neutral.

4.2 Filters

The tweets can be searched by entering the keyword in the search box and there is provision to filter them out according to their location and language.

4.3 Data Table

The users that have tweeted is collected and displayed here in decreasing order of the number of individual tweets so forging can be identified and avoided.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The system can collect and process a large number of tweets with an efficient speed and space. The graphs update dynamically.

5.2 Security Requirements

The system does not have any security requirements and thus any type of user can use it without any additional privileges.

5.3 Software Quality Attributes

The system provides the users with both simple and advanced features. Due to its well designed and easy to use interface it can be used by both experts and typical users.