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| TECHNICAL REPORT TEMPLATE |

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| Electrical & Computer Engineering & Computer Science (ECECS) |

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| SPRING 22 |  |



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| Introduction To Sentiment Analysis |  |

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| Executive Summary The Sentiment Analysis Web Application, developed using Flask and NLTK, offers users an intuitive platform to analyze tweet sentiments in real-time. Leveraging the VADER sentiment intensity analyzer, the project provides a user-friendly interface, modular code structure, and potential for future enhancements, making it a valuable tool for understanding public opinion and social media trends. | | |
| person at a table writing in a notebook with people around | | |
| **Team Members:**  **Name 1: Nuthan**  **Name 2: Jayakrishna**  **Name 3:** **Harshita**  **Name 4:** **Dwaraka** | **Questions?**  Contact : +1 2036758052 |  |

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| Technical Report |

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| **Title of Project**  **Introduction To Sentiment Analysis** |  |
| Highlights of Project1. Powerful Sentiment Analysis: The project leverages the VADER sentiment intensity analyzer from NLTK to provide accurate sentiment analysis of tweets, categorizing them as positive, neutral, or negative.2. User-Friendly Interface: With a simple and intuitive design, the web application ensures accessibility for users of all technical levels, allowing easy input of tweets for sentiment analysis.3. Future-Ready Design: The modular code structure and extensibility of the application lay the foundation for future enhancements, including real-time analysis and interactive visualizations, making it a versatile tool with long-term relevance.Submitted on:06/12/2023Submitted on: |

## 

## Abstract

This technical report describes the implementation of a Sentiment Analysis Web Application using Flask, a Python web framework, and the Natural Language Toolkit (NLTK) library. The application allows users to input a tweet, and it performs sentiment analysis to classify the tweet as positive, neutral, or negative. The sentiment analysis is conducted using the VADER sentiment intensity analyzer from NLTK.

## Project Objectives

## Here are two key project objectives:

**1. Develop a User-Friendly Sentiment Analysis Platform:**

**Objective**: Create an intuitive and user-friendly web application that allows users to input text data (tweets) and receive real-time sentiment analysis results.

**Rationale**: The primary goal is to build a platform accessible to users with varying technical backgrounds. The user interface should be simple, engaging, and efficient, ensuring a seamless experience for individuals interested in analyzing sentiments within text data without the need for extensive technical knowledge.

**2. Implement Accurate Sentiment Analysis Using NLTK and VADER:**

**Objective**: Employ the Natural Language Toolkit (NLTK) and the VADER sentiment intensity analyzer to accurately analyze the sentiment of input text data.

**Rationale**: The project aims to leverage established natural language processing tools for sentiment analysis. The NLTK library, with the VADER sentiment analyzer, provides a robust foundation for sentiment classification. The objective is to ensure accurate sentiment categorization, allowing users to trust and rely on the application for insightful analysis of text-based content.

Executive Summary

The Sentiment Analysis Web Application, developed with Flask and NLTK, offers a user-friendly interface for real-time sentiment analysis of tweets, providing valuable insights into public opinion and social media trends.

Introductory Section

Sentiment analysis involves determining the sentiment expressed in a piece of text, which can be valuable for understanding public opinion, customer feedback, and social media trends. This project focuses on creating a simple web application that utilizes Flask for web development and NLTK for sentiment analysis.

Review of available research

A good follow-up to the introductory section is a review of available relevant research on the subject matter. The length of the literature review section depends upon how contested the subject matter is. In instances where the vast majority of researchers have concluded in one direction, the literature review could be brief with citations for only the most influential authors on the subject. On the other hand, if the arguments are more nuanced with caveats aplenty, then you must cite the relevant research to offer adequate context before you embark on your analysis. You might use the literature review to highlight gaps in the existing knowledge, which your analysis will try to fill. This is where you formally introduce your research questions and hypothesis.

## Methodology

In the "**methodology" section**, you introduce the research methods and data sources you used for the analysis. If you have collected new data, explain the data collection exercise in some detail. You will refer to the literature review to bolster your choice for variables, data, and methods and how they will help you answer your research questions.

## Results Section

**The results section** is where you present your empirical findings. Starting with descriptive statistics, illustrative graphics, you will move toward formally testing your hypothesis.

In case you need to run statistical models, you might turn to regression models (or categorical analysis. You can also report results from other empirical techniques that fall under the general rubric of data mining. Note that many reports in the business sector present results in a more palatable fashion by holding back the statistical details and relying on illustrative graphics to summarize the results.

## Discussion

The results section is followed by the **discussion section**, where you craft your main arguments by building on the results you have presented earlier.

The "discussion section" is where you rely on the power of narrative to enable numbers to communicate your thesis to your readers. You refer the reader to the research question and the knowledge gaps you identified earlier. You highlight how your findings provide the ultimate missing piece to the puzzle.

Of course, not all analytics return a smoking gun. At times, more frequently than I would like to acknowledge, the results provide only a partial answer to the question and that, too, with a long list of caveats.

## Conclusion

## The Sentiment Analysis Web Application, crafted with the harmonious fusion of Flask and NLTK, not only provides an accessible interface for sentiment analysis but also exemplifies the seamless integration of web development and natural language processing. Its user-centric design, modularity, and extensibility make it a versatile tool with practical applications in diverse industries and a valuable educational resource for aspiring developers.

## Contributions/References

<https://towardsdatascience.com/sentimental-analysis-using-vader-a3415fef7664>

[https://github.com/cjhutto/vaderSentiment#about-the-scoring](https://github.com/cjhutto/vaderSentiment)

<https://youtu.be/uPKnSq6TaAk>