Sentiment Analysis of Student Feedback

User Manual

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Project Overview

This project focuses on the analysis of anonymized student feedback through the application of Natural Language Processing (NLP). By using sentiment analysis, the system categorizes student comments into Positive, Neutral, or Negative sentiments. These results are visualized through a Power BI dashboard, offering college administrators actionable insights to guide improvements in course structure and instruction.

System Requirements

- Python 3.8 or higher
- Jupyter Notebook
- Power BI Desktop (free version)
- GitHub (optional, for source code access)

How to Run the Sentiment Analysis Notebook

Step 1: Install Required Packages

Use the command below to install all dependencies: pip install -r requirements.txt

Step 2: Execute the Notebook

1. Launch Jupyter Notebook
2. Open notebook/sentiment_analysis.ipynb

3. Run all cells sequentially

The notebook performs the following tasks:

- Cleans text data (removes punctuation, lowers case)
- Tokenizes using spaCy
- Removes stopwords and applies lemmatization
- Conducts sentiment analysis with VADER
- Outputs a final .csv for use in Power BI

Using the Power BI Dashboard

Step 1: Open the Dashboard

1. Launch Power BI Desktop
2. Open the file at: powerbi/student_feedback_dashboard.pbix

Step 2: Explore the Dashboard

The single-page dashboard contains:

- Pie chart showing sentiment distribution
- Bar chart of sentiment by course
- Bar chart of sentiment by delivery mode
- Table showing the most recent feedback entries

Filtering options include:

- Course name
- Sentiment classification
- Delivery mode

While a second dashboard page for detailed feedback was initially planned, it was excluded to maintain a clean, focused design for this one-semester dataset. This decision is documented in the final report.

Output Location

The final CSV containing processed feedback and sentiment labels can be found at:

data/student_feedback_dataset.csv

Notes

- All data used in this project is synthetic and anonymized.
- A database was deemed unnecessary; using .csv files with Power BI aligns with common academic/profeessional reporting workflows.