Instagram Review Sentiment Analysis

Project Overview

The **Instagram Review Sentiment Analysis** project performs sentiment analysis on Instagram reviews using the VADER (Valence Aware Dictionary and sentiment Reasoner) sentiment analysis tool. The goal is to categorize user reviews into three sentiment categories: **Positive**, **Negative**, and **Neutral**. This analysis helps to understand the overall sentiment of the reviews, providing insights into how users feel about specific content on Instagram. The results are visualized to make it easier to interpret the sentiment distribution.

Features

- **Load and Analyze Reviews**: The project reads Instagram reviews from a CSV file and analyzes each review's sentiment using VADER.
- **Sentiment Categorization**: Reviews are categorized into **Positive**, **Negative**, or **Neutral** based on the compound score generated by VADER.
- **Review Statistics**: The number of reviews in each sentiment category is displayed.
- **Save Results**: The sentiment analysis results, including the categorized reviews, are saved to a new CSV file for further analysis or reference.
- **Visual Representation**: The sentiment distribution is visualized using Seaborn and Matplotlib, providing an easy-to-understand graphical view of the results.

Sentiment Categorization Logic

1. **VADER Sentiment Scores**: The VADER model assigns a sentiment score to each review. This score includes four key components:
    - **Positive**: The proportion of the text that conveys positive sentiment.
    - **Negative**: The proportion of the text that conveys negative sentiment.
    - **Neutral**: The proportion of the text that conveys neutral sentiment.
    - **Compound**: The overall sentiment score that ranges from -1 (most negative) to +1 (most positive).
2. **Categorization Rules**:
    - If the **compound score** is **>= 0.05**, the review is considered **Positive**.
    - If the **compound score** is **<= -0.05**, the review is considered **Negative**.
    - If the **compound score** is between **-0.05 and 0.05**, the review is considered **Neutral**.

Script Workflow

1. **Read the CSV File**: The script loads the CSV file containing the reviews. The file is expected to have a column named review_description where the review texts are stored.

2. **Sentiment Analysis**: For each review, the VADER sentiment analysis tool computes a sentiment score. Based on the compound score, each review is categorized into **Positive**, **Negative**, or **Neutral**.
3. **Store and Display Results**:
    - The number of reviews in each sentiment category is counted and displayed.
    - The results are saved to a new CSV file with the added sentiment labels.
4. **Visualization**:
    - The distribution of the sentiment categories is visualized using a **count plot** in Seaborn. The plot displays the number of reviews in each sentiment category, making it easier to interpret the overall sentiment of the reviews.

Visual Representation of Results

- A bar plot is generated to visualize the number of reviews in each sentiment category. The plot uses color coding:
    - **Positive**: Green
    - **Negative**: Red
    - **Neutral**: Gray
- This visual representation helps to quickly understand the distribution of sentiments across the reviews.

Visualization:

A bar chart showing the sentiment distribution, with the number of **Positive**, **Negative**, and **Neutral** reviews.

Conclusion

The Instagram Review Sentiment Analysis project offers a comprehensive way to analyze the sentiment behind Instagram reviews. By leveraging VADER, it accurately categorizes reviews, enabling users to gain insights into the overall sentiment trends. Additionally, the results are presented visually, making it easy to interpret and share findings.

Acknowledgements

This project utilizes the following tools and libraries:

- **VADER Sentiment Analysis** from the nltk library
- **pandas** for data manipulation
- **Seaborn** and **Matplotlib** for data visualization