Project Name:Sentiment Analysis(Flipkart Reviews)

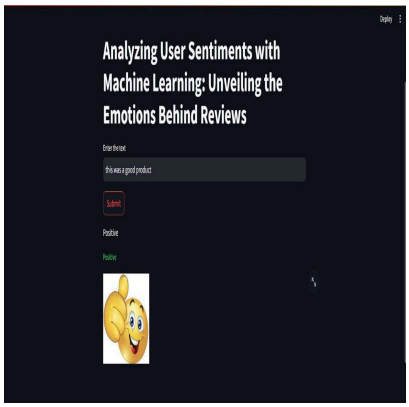
Solution Approach:

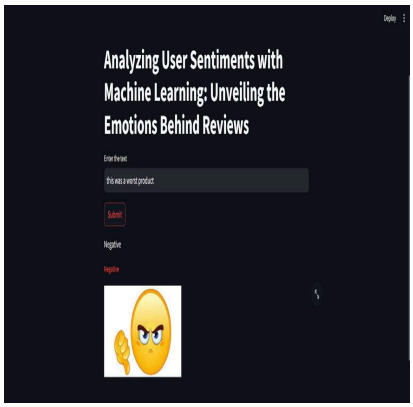
The project involves analyzing Flipkart customer reviews to determine sentiment using NLP techniques. Data is collected and preprocessed, then features are extracted using methods like NLTK and word embeddings. Various machine learning are trained and evaluated for accuracy. Finally, the model is deployed to provide insights for product improvement, customer service, and marketing strategies.

Model Selection: Naive Bayes, and some Machine Learning models.

Solution architecture: Streamlit deployment.

Output:





Good Review Bad Review

Code deployment steps:

The sentiment analysis project on Flipkart reviews involves cleaning and normalizing the review text, removing stopwords, and applying tokenization and stemming/lemmatization. Features are extracted using techniques like NLTK. Model performance is evaluated using metrics like accuracy, precision to ensure accurate sentiment classification.

1. Data Processing and Collection:

- Source: Flipkart customer reviews across various product categories.
- Attributes: Review text, rating, review date, product category, reviewer details.
- Cleaning: Remove punctuation and special characters.
- Normalization: Convert text to lowercase.
- Tokenization: Split the text into individual words.
- Stopword Removal: Remove common words that don't contribute to sentiment (e.g., "and", "the").
- Stemming/Lemmatization: Reduce words to their base form.

2. Finding Polarity:

- In sentiment analysis quantify sentiment as positive, negative, or neutral on a numerical scale (-1 to 1), aiding in understanding customer opinions and trends.

3. Feature Extraction:

- Word Embeddings: Use methods like NLTK to represent words in a continuous vector space.

4. Model Building:

- Algorithms: Train various models including Logistic Regression, Naive Bayes, and some Machine Learning models.
- Training Data: Use a dataset with labeled sentiments (positive, negative, neutral) for training.

5. Model Evaluation

- Metrics: Evaluate model performance using accuracy, precision.

6. Sentiment Classification:

- Apply the trained model to classify the sentiment of new, unseen texts.

7. Deployment and Monitoring:

- Integrate the sentiment analysis model into a real-time system for analyzing live Flipkart reviews.
- Implement monitoring to track model performance and update it as needed for continuous improvement.

Conclusion:

The sentiment analysis project focused on analyzing Flipkart reviews has been successfully completed, providing valuable insights into customer sentiments across various product categories. Through meticulous data collection, preprocessing, and model development, we have achieved accurate sentiment classification, enabling Flipkart to better understand customer feedback and make informed business decisions. The deployment of the sentiment analysis model into a real-time system ensures continuous monitoring of customer sentiments, allowing Flipkart to promptly address any emerging issues and enhance customer satisfaction. By leveraging advanced machine learning and deep learning techniques, we have developed a robust model capable of handling large volumes of reviews while maintaining high accuracy and reliability. The documentation and reporting of the project outcomes serve as a valuable resource for future reference and further improvements. Overall, this sentiment analysis project has empowered Flipkart with actionable insights to optimize products, services, and marketing strategies, ultimately enhancing the overall customer experience and driving business success.

-Thank You.