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FLIPKART REVIEWS SENTIMENT ANALYSIS USING PYTHON

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ABSTRACT :

In this project, we analyse customer reviews from Flipkart using machine learning techniques to understand sentiment trends. Flipkart, a popular online marketplace, receives vast amounts of feedback from customers, ranging from product satisfaction to service experiences. Our goal is to develop a system that can automatically classify these reviews into positive, negative, or neutral sentiments. The project involves several key steps: data collection, pre-processing, feature extraction, and sentiment analysis. We gather data by scraping reviews from Flipkart or using existing datasets. After cleaning and preparing the text data by removing unnecessary words and symbols, we convert it into numerical features that machine learning models can understand

1. Introduction :

In the contemporary digital marketplace, e-commerce platforms have revolutionized the way consumers interact with products and services. Flipkart, one of India's largest and most influential online retailers, stands as a testament to this transformation. Established in 2007, Flipkart has grown exponentially, offering a wide range of products from electronics to clothing, thus becoming a critical player in the Indian retail sector. With millions of users engaging in transactions and leaving feedback daily, understanding customer sentiment and review trends on Flipkart has become increasingly valuable for both the company and its stakeholders. The significance of conducting a Flipkart review and sentiment analysis using Python lies in its potential to transform raw customer feedback into actionable insights. By leveraging Python's capabilities, analysts can systematically process large volumes of reviews, classify sentiments with high accuracy, and generate comprehensive reports that reflect customer opinions. This process not only enhances the understanding of user experiences but also contributes to strategic decision-making for product development, marketing strategies, and customer service improvements.

1.1) Common Techniques and Approaches for handwritten digit recognition

Data Collection

- **Web Scraping**: Use tools like BeautifulSoup and Scrapy to scrape Flipkart reviews.
- **API Integration**: If available, use Flipkart's API to gather reviews directly.

Advanced NLP Techniques

- **Topic Modelling**: Use LDA (Latent Dirichlet Allocation) to uncover underlying topics in reviews.
- **Aspect-Based Sentiment Analysis**: Analyze sentiment on specific aspects of the product, such as quality, delivery, or price.

Illustrations

1.K. Ravi, V. Ravi (2015): Sentiment Analysis of Amazon Product Reviews using Machine Learning Techniques

This paper presents an approach to classify sentiment in Amazon product reviews using various machine learning techniques, including Naive Bayes and SVM. The methodologies and findings can be applied to similar platforms like Flipkart.

2. Divya Jain, Shubham Maheshwari, Aishwarya Gupta, and Sidharth Kedia (2019): Sentiment Analysis for Online Reviews of Mobile Phone Products

This paper performs sentiment analysis on reviews of mobile phone products from online platforms using machine learning techniques, which can be generalized to other product categories like those on Flipkart.

3. Requirements

3.1. Hardware Requirements

Laptop
Storage minimum 5GB
RAM at least 8GB (minimum 3200MHz)

3.2. Software Requirements

1.Python Programming Language
2.Data Collection Technologies
- BeautifulSoup
- Scrapy

3.Data Storage Technologies
- Relational Databases (SQL)

4. System Analysis and Design

4.1 Modules

1. **Data Collection Module**

Collect customer reviews from Flipkart using web scraping or APIs.

2. **Data Preprocessing Module**

Clean and preprocess the collected reviews. This includes removing noise, tokenization, and lemmatization

3. **Feature Extraction Module**

Convert text data into numerical features suitable for model training.

4. **Reporting and Dashboard Module**

Generate reports and dashboards summarizing sentiment analysis results.

5. **Deployment and Integration Module**

Deploy the sentiment analysis system as a web application or API and integrate it with other systems.

4.2 Architecture

The architecture for a Flipkart review and sentiment analysis system is designed to efficiently handle the end-to-end process of collecting, processing, analysing, and visualizing customer reviews. This architecture consists of several key components: data collection, data storage, data pre-processing, feature extraction, sentiment classification, data visualization, and deployment.

5. Conclusion :

The "Flipkart Review and Sentiment Analysis Using Python" project effectively integrates data science and machine learning to offer valuable insights from customer reviews. By utilizing Python's rich ecosystem of libraries such as BeautifulSoup for web scraping, NLTK and SpaCy for text preprocessing, and Scikit-learn for sentiment classification, the project provides a comprehensive solution for analyzing consumer sentiment. The project's impact extends to improving business decision-making by providing a detailed understanding of customer feedback, enabling timely responses to emerging issues, and supporting data-driven strategies. Despite challenges such as data quality and model accuracy, the project demonstrates a strong capability to address these issues through iterative refinement.

REFERENCES :

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2. A Comparative Study of Sentiment Analysis Approaches for Product Reviews" by R. V. Rao, T. T. Gokulnath, and K. A. Ramesh. This paper compares various sentiment analysis techniques, with applications including e-commerce platforms like Flipkart.
3. Product Review Mining and Sentiment Analysis on Flipkart Dataset" by S. S. Kumar and A. M. Patel. This paper provides insights into mining and analyzing product reviews on Flipkart.
4. Flipkart Reviews Analysis Using Python": A detailed article providing a practical guide to analysing Flipkart reviews with Python.
5. "How Sentiment Analysis Can Transform E-Commerce: A Case Study of Flipkart": An article discussing the impact of sentiment analysis on e-commerce, with a focus on Flipkart.