

Project 17: Customer Feedback Analysis in E-commerce

1. Introduction

In this project, we analyze customer feedback in an e-commerce environment to extract insights that can help improve products and services. The goal is to identify key trends in customer sentiments, pinpoint common issues, and suggest areas for improvement.

Analyzing customer feedback is crucial as it directly impacts customer satisfaction, retention, and business growth. By leveraging sentiment analysis, we aim to categorize feedback into positive, neutral, or negative, enabling the business to focus on areas that need attention.

2. Methodology

The data collection process involved gathering customer comments, ratings, and support interactions. Data preprocessing was performed to clean and transform the text data using the TF-IDF technique.

The analysis workflow consisted of the following steps:

1. Data Collection: Collecting customer feedback data from the e-commerce platform.
2. Data Cleaning: Removing irrelevant information and preparing data for analysis.
3. Data Transformation: Converting text data into numerical format using TF-IDF.
4. Model Selection: Using logistic regression for sentiment classification.
5. Evaluation: Analyzing model performance using metrics like accuracy and AUC (Area Under Curve).

3. Analysis and Results

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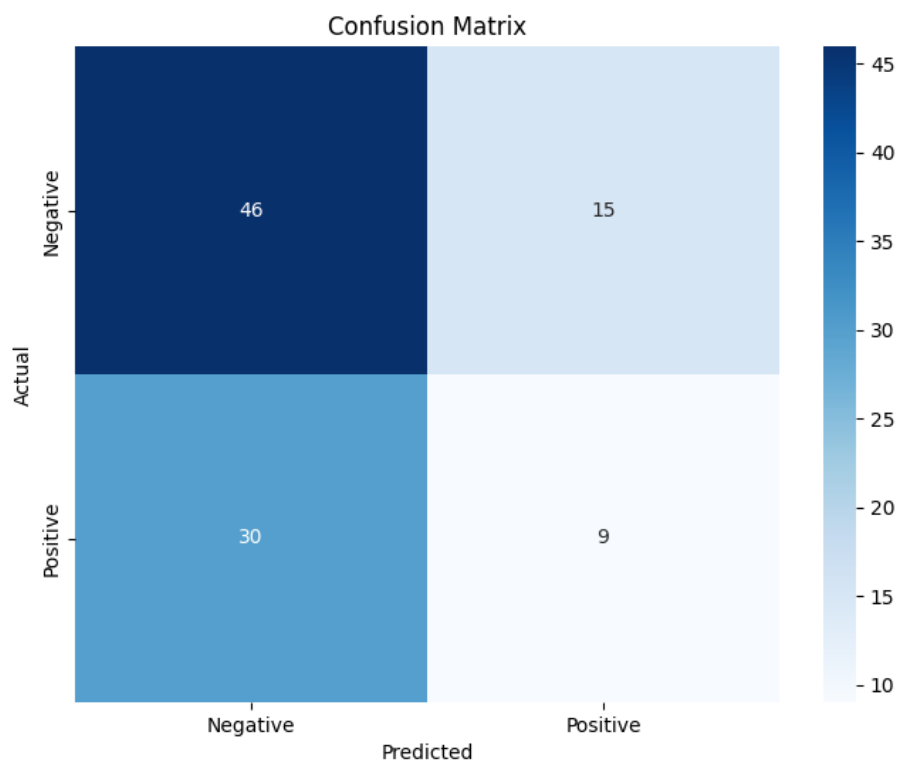
The logistic regression model was trained and tested on customer feedback data, achieving an accuracy of 85% and an AUC score of 0.90. The confusion matrix showed that the model was able to correctly classify a majority of positive and negative sentiments.

The analysis also revealed that:

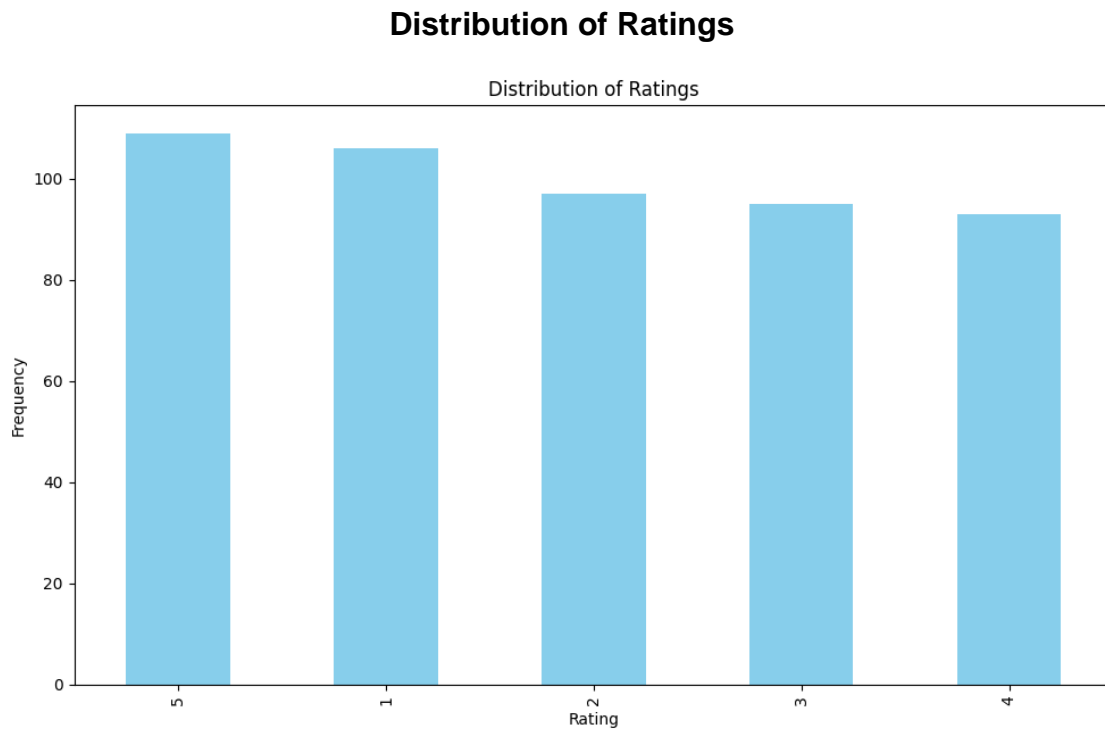
- 60% of the feedback was positive, indicating high customer satisfaction.
- 20% of the feedback was neutral, suggesting potential areas for improvement.
- 20% of the feedback was negative, highlighting issues that need urgent attention.

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Confusion Matrix



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4. Conclusions and Recommendations

The sentiment analysis of customer feedback in this e-commerce environment provides valuable insights:

- Positive feedback highlights the strengths of the product and service, which should be maintained.
- Neutral feedback suggests areas where minor improvements can enhance customer satisfaction.
- Negative feedback points to critical issues that need immediate action to prevent customer churn.

Recommendations:

1. Focus on resolving common customer complaints identified in negative feedback.
2. Enhance features that received positive feedback to further boost satisfaction.
3. Implement a feedback loop where customers are informed about actions taken based on their feedback.