Aspect-Based Sentiment Analysis for E-Commerce Product Reviews

Abstract:
Customer reviews are invaluable for e-commerce businesses, but manually analyzing them is time-consuming. This project proposes an **aspect-based sentiment analysis** (ABSA) system for analyzing e-commerce product reviews, allowing businesses to extract useful insights from customer feedback.

Methodology:
The system will first segment reviews into distinct **aspects** (e.g., product quality, delivery, price, customer service) using techniques like **dependency parsing** and **topic modeling**. For each aspect, **sentiment analysis** will be performed to determine the customer's opinion (positive, negative, neutral). **Pre-trained deep learning models** such as **BERT** will be fine-tuned on review datasets to classify sentiment at the aspect level.

Outcome:
The system will enable businesses to understand specific strengths and weaknesses of their products and services based on customer sentiment, facilitating targeted improvements and more effective marketing strategies. The expected outcome is more accurate customer feedback analysis, which will ultimately enhance product development and customer satisfaction.