Customer Support Chatbot for E-Commerce Using NLP and Sentiment Analysis

Abstract:
As e-commerce businesses grow, the need for efficient, scalable customer support has become paramount. This project aims to create an **AI-powered customer support chatbot** using **Natural Language Processing (NLP)** and **Sentiment Analysis** to enhance user experience and streamline customer service operations.

Methodology:
The chatbot will use NLP techniques such as **text preprocessing**, **tokenization**, and **named entity recognition (NER)** to extract valuable information from customer queries. Sentiment analysis will be applied to assess the emotional tone of messages and tailor responses accordingly. The chatbot will be trained using large datasets of customer service interactions, allowing it to understand common issues such as order status, refunds, product inquiries, and troubleshooting. Machine learning algorithms like **support vector machines (SVM)** or **transformer models (BERT, GPT)** will be employed for advanced understanding and response generation.

Outcome:
The system will significantly reduce the response time to customer queries, improve customer satisfaction by offering personalized responses, and provide 24/7 support. As the chatbot learns over time, it will be able to handle more complex inquiries, reducing the need for human intervention and improving operational efficiency