Intent Detection in Customer Queries for Automated Response Systems

Abstract:
Understanding customer intent is crucial for automated response systems in improving user interaction and satisfaction. This project aims to develop an **intent detection system** using **Natural Language Processing (NLP)** to automatically identify the intent behind customer queries and route them to the appropriate response or department.

Methodology:
The system will preprocess customer queries by performing **text normalization**, **tokenization**, and **lemmatization**. **Intent classification** will be carried out using deep learning models like **BERT** or **LSTM**, which will be trained on a large dataset of customer queries with labeled intents. The model will be further enhanced by employing **semantic similarity measures** to detect similar queries. The system will use **multi-class classification** to identify intents such as order inquiries, troubleshooting requests, and product recommendations.

Outcome:
The expected outcome is a highly accurate intent detection system capable of processing and categorizing customer queries in real time, leading to faster response times and more personalized customer service. The system will continuously improve through feedback loops, enhancing customer experience and reducing the need for human intervention.