Revolutionizing customer support with an intelligence chatbot for automated assistance

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Github Repository Link:

https://github.com/sanjai220/513523106046-phase-2-team-9.git

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1. Problem Statement

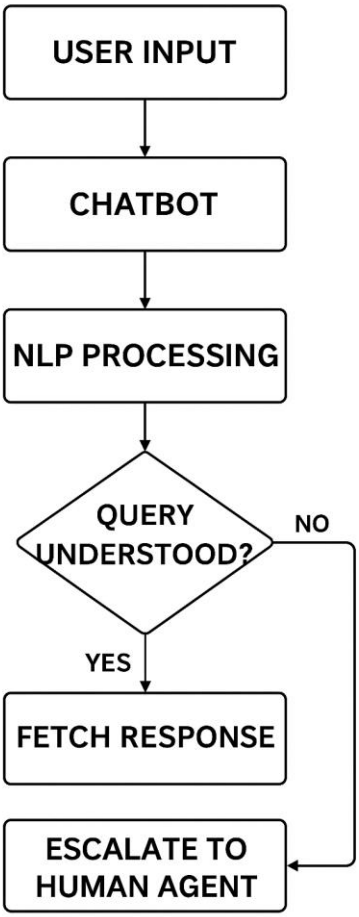
Revolutionizing customer support with an intelligence chatbot for automated assistance

2. Project Objectives

The system will reduce human workload, operational costs, and improve user satisfaction. It will be capable of handling multiple customers simultaneously with personalized interactions. The project also focuses on seamless integration with existing customer service platforms.

3. Flowchart of the Project Workflow

The project workflow begins with user input, which is processed by the chatbot using NLP to understand the query. Based on the intent, the chatbot fetches relevant responses or escalates complex issues to human agents.



4. Data Description

The project utilizes chatbot data including user queries, response logs, and interaction history to train and improve automated assistance. NLP techniques are applied to analyze, classify, and respond accurately to diverse customer inputs.

5. Data Preprocessing

Data Cleaning: Ensuring that the data used to train the chatbot is accurate, consistent, and error-free

DataTransformation : Data transformation involves converting raw data into a suitable format that the chatbot can understand

FeatureEngineering : This involves creating meaningful features from raw data that can help the chatbot better understand user queries

DataAugmentation : Involves creating synthetic data to increase the variety of input the chatbot can handle, especially when training data is limited

6. Exploratory Data Analysis (EDA)

1. Understanding Customer Query Patterns: EDA helps identify frequently asked questions and common issues by analyzing trends in customer interactions.

2. Detecting Anomalies: It uncovers unusual customer behavior or outlier queries that might indicate gaps in the chatbot's knowledge base.

3. Visualizing Intent Distribution: EDA provides visual insights into the distribution of user intents, helping improve intent classification models.

4. Improving Data Quality: It reveals missing, inconsistent, or biased data, enabling better preparation before training the chatbot

7. Feature Engineering

Feature engineering in chatbot development involves extracting key elements like intent, sentiment, and keywords from customer queries to enhance understanding and These features help the chatbot deliver accurate, context-aware responses, improving the overall user experience

8. Model Building

Model building involves training machine learning algorithms of preprocessed chatbot data to understand and respond to customer queries and a well-built model ensures accurate intent detection, enabling the chatbot to provide relevant and efficient support

9. Visualization of Results & Model Insights

Visualization of results helps interpret chatbot performance through metrics like accuracy, confusion matrix, and intent classification chartsand the Model insights reveal strengths and weaknesses, guiding improvements in response accuracy and user satisfaction.

10. Tools and Technologies Used

Tools and technologies like Python, TensorFlow, scikit-learn, and Rasa are used to build, train, and deploy intelligent chatbots,These tools support tasks such as data preprocessing, model development, natural language understanding, and integration with support platforms

11. Team Members and Contributions

1.R. Priyadharshini - Data cleaning

2.M.Pugazhyenthi- EDA

3.E. Raghul- Feature engineering

4. A. Rahul Krishna - Model development

5.K. Sanjayb-+Documentation and reporting