Project Title: Create Chatbot in Python

Problem Statement: When using an app or website, customers expect outstanding service. They can become disinterested in the app if they can't locate the solution to a question they have. To avoid losing customers and having an adverse effect on your bottom line, you must provide the highest quality service possible while developing a website or application.

Dataset Link: **https://www.kaggle.com/datasets/grafstor/simple-dialogs-for-chatbot**

Project Steps

Phase 1: Problem Definition and Design Thinking

The challenge is to create a chatbot in Python that provides exceptional customer service, answering user queries on a website or application. The objective is to deliver high-quality support to users, ensuring a positive user experience and customer satisfaction.

Problem Definition: The problem is to build an AI-powered diabetes prediction system that uses machine learning algorithms to analyze medical data and predict the likelihood of an individual developing diabetes. The system aims to provide early risk assessment and personalized preventive measures, allowing individuals to take proactive actions to manage their health.

Design Thinking:

1. Functionality: Chatbots can provide instant assistance to customers, which can help reduce wait times and improve customer satisfaction. In the future, chatbots may become even more sophisticated and be able to handle more complex customer service interactions. Chatbots have the potential to help patients manage their health by providing guidance on medication, answering questions about symptoms, and providing support for mental health issues.

2. User Interface: Determine where the chatbot will be integrated (website, app) and design a user-friendly interface for interactions.

3. Natural Language Processing (NLP): Implement NLP techniques to understand and process user input in a conversational manner.

4. Responses: Plan responses that the chatbot will offer, such as accurate answers, suggestions, and assistance.

5. Integration: Decide how the chatbot will be integrated with the website or app.

6. Testing and Improvement: Continuously test and refine the chatbot's performance based on user interactions.

Phase 2: Innovation

In this phase, we can explore innovative techniques such as ensemble methods and deep learning architectures to improve the prediction system's accuracy and robustness.

Ensemble methods:

Ensembling is a technique where you take the output from several models and ensemble them together to create one model. At its core, ensemble learning involves creating an ensemble (a group) of models and combining their predictions to generate a final output. The models in the ensemble can be of the same type (homogeneous ensemble) or different types (heterogeneous ensemble). The process typically involves three main steps: generating diverse models, aggregating predictions, and making a final decision.

The important libraries to be imported are as follows:

import numpy as np

import string

from nltk.corpus import stopwords

import pandas as pd

from sklearn.feature_extraction.text import CountVectorizer

from sklearn.tree import DecisionTreeClassifier

from sklearn.feature_extraction.text import TfidfTransformer,TfidfVectorizer

from sklearn.pipeline import Pipeline

GPT-3:

GPT-3 or Generative Pretrained Transformer 3 is an artificial intelligence created by OpenAI.

A chat with GPT-3 is a bot that can create text and simulate real talk with a person, translate speech, etc.

You can utilize it to automate customer service, providing a tremendous range of answers to the most popular queries, lowering costs for human operators, and making support faster than ever.

The GPT-3 chatbot with AI can also :

• Comprehend human speech, either the voice or text, and react to it with a necessary response.

• Recognize conversations' contexts and generate predictions.

• Recognize the most important words in sentences.

• Summarize large texts

• Write essays

• Translate text

• Create coherent speech even from several prompted words, etc

Phase 3: Development part 1

In this part you will begin building your project by loading and preprocessing the dataset.

Start building the chatbot by preparing the environment and implementing basic user interactions.

Install required libraries, like transformers for GPT-3 integration and flask for web app development.

The coding is given in the below link:
https://github.com/Sirimoon/sirimoon_sacoe/blob/main/AI_Phase3.ipynb

Phase 4 : Development part 2

In this part you will continue building your project.

Continue building the chatbot by integrating it into a web app using Flask.

The code for execution of chatbot is given in the below link:

https://github.com/Sirimoon/sirimoon_sacoe/blob/main/AI_Phase4.pdf

The readme file gives a detailed information about the working of chatbot and its interface with a web application such as flask.

https://github.com/Sirimoon/sirimoon_sacoe/blob/main/README.md