**PROJECT TITLE: CREATE CHATBOT IN PYTHON**

INTRODUCTION:

We are going to introduce "AI Chat-bot" which is created through Google's TensorFlow. We are trying to develop a universal system with the ability to help our customers in such a way that reduces time and human resources. A chatbot can be used anywhere a human is interacting with a computer system.

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.

PROBLEM DEFINITION:

The problem is to build an AI-powered diabetes prediction system that uses machine learning algorithms to analyse 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***

FUNCTIONALITY:

* This system aims to provide early risk assessment and personalized preventive measures to the individuals using this bot and helps to manage their health.
* ***Risk Assessment:***

The chatbot can ask users a series of questions about their lifestyle, family history, diet, exercise routine, and other relevant factors to assess their risk of developing diabetes. It can use a scoring system or algorithm to provide an estimate of their risk level.

* ***Health Data Monitoring:***

Users can input and track their health data, such as blood sugar levels, weight, and blood pressure, into the chatbot. The chatbot can help users visualize trends and offer recommendations based on their data.

* ***Diet and Nutrition Advice:***

Users can receive personalized dietary recommendations based on their health status, preferences, and dietary restrictions. The chatbot can suggest meal plans, recipes, and tips for managing blood sugar levels through nutrition.

* ***Exercise and Fitness Guidance:***

The chatbot can recommend exercise routines and physical activity tailored to the user's fitness level and health goals. It can also provide guidance on how exercise can help control blood sugar.

* ***Medication and Treatment Information:***

If a user has diabetes or is at high risk, the chatbot can offer information about medications, insulin management, and other treatment options. It can also remind users to take their medications as prescribed.

USER INTERFACE:

* ***Chat Interface:***

The main interface should feature a chat window where users can interact with the chatbot through text-based messages. The chatbot's responses should be displayed clearly in a conversation format.

* ***User Profile and Preferences:***

Include a section for users to create or update their profiles. This can include personal details (name, age), health information (current health status, medical history), and preferences (dietary restrictions, fitness goals).

* ***Dashboard:***

Provide a dashboard that gives users an overview of their health status and progress. This can include summaries of recent data inputs (e.g., blood sugar levels), upcoming appointments, and goal tracking.

* ***Data Input and Monitoring:***

Implement data input forms or widgets that allow users to log health-related data like blood sugar levels, weight, exercise, and diet. Users should be able to input data manually or integrate wearable devices and apps for automatic data syncing.

* ***Nutrition and Meal Planning:***

Offer a feature for meal planning and nutrition guidance. Users can input their dietary preferences and receive meal suggestions, recipes, and nutrition information. Include the ability to log food intake.

* ***Medication and Treatment:***

Include a section for users to manage their medications, set reminders for doses, and access information about their prescribed treatments.

NATURAL LANGUAGE PROCESSING (NLP):

* ***Intent Recognition:***

Use NLP to recognize user intents based on their messages. For example, the chatbot should be able to understand when a user is asking about diabetes symptoms, risk assessment, treatment options, or lifestyle recommendations.

* ***Entity Recognition:***

Identify relevant entities in user messages, such as dates (for scheduling appointments), medication names, food items, exercise types, and numerical values (e.g., blood sugar levels). This allows the chatbot to provide more accurate responses.

* ***Multi-language Support:***

Implement language detection and translation capabilities to cater to users who speak different languages. NLP can help in translating user queries and responses back and forth.

* ***Sentiment Analysis:***

Utilize sentiment analysis to gauge the emotional tone of user messages. This can help the chatbot respond with empathy and provide appropriate support, especially when users are discussing their health concerns.

RESPONSES:

* ***Risk Assessment Responses:***
* *Low Risk:* If a user is assessed as having a low risk of diabetes, the chatbot can provide reassuring messages and encourage them to maintain a healthy lifestyle.
* *Moderate Risk*: For users at moderate risk, the chatbot can suggest lifestyle modifications and regular monitoring of health parameters.
* *High Risk:* Users at high risk can receive recommendations for seeking medical advice, including scheduling an appointment with a healthcare provider.
* ***Diet and Nutrition Responses:***
* Offer dietary recommendations tailored to the user's profile and goals.
* Provide sample meal plans and recipes suitable for managing blood sugar levels.
* Explain the glycaemic index of foods and how it affects blood sugar.

TESTING AND IMPROVEMENT:

* ***Continuous Monitoring:***
* Implement monitoring tools to track the chatbot's performance and user interactions in real-time.
* Set up alerts for issues like system errors or unusual user behaviour.
* ***User Feedback Analysis:***
* Continuously collect and analyze user feedback through the chatbot interface, surveys, or feedback forms.
* Prioritize and address user-reported issues promptly.

FUTURE SCOPE:

This project can be used as WEB INTEGRATED chat bot. If the chatbot is to be furthered developed, this could be something to draw upon.

CONCLUSION:

In conclusion, applying design thinking to the development of a chatbot for a diabetes prediction system is a strategic approach that places users' needs and experiences at the forefront of the design process.