

The Superior University

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| Semester: 4th | Section: BSAI 4A | Department: |
| Submitted To: | Total Marks: | Date: |

**Lab 10**

**Task: Create any of the following Chatbot (GUI using Flask), develop its "Flask -> HTM:" based front-end**

1. **Introduction**:
   * Introduce the project (Restaurant Info Chatbot).
   * Mention the purpose: To build a chatbot that interacts with users and provides restaurant-related information such as menu, specials, hours, location, and reservation.
2. **Overview of Code Structure**:
   * **Backend (Flask)**: Describe the Flask application and the routes (/ for the main page and /chat for handling user queries).
   * **Database Models**: Explain the four database models used (Menu, OperatingHours, Reservations, Locations).
     + Why these models are used: To store restaurant data like menu items, operating hours, reservation information, and location details.
     + Key fields in each model (e.g., name, category, price in the Menu model).
   * **Chatbot Logic**: Explain the restaurant\_bot\_response function.
     + The logic behind interpreting user input (searching for menu items, checking specials, etc.).
     + How the function queries the database and forms appropriate responses.
3. **Frontend (HTML/JS)**:
   * **HTML Layout**: Describe the structure of the index.html file.
     + **Chatbox**: Where the chat interface is displayed.
     + **Hint Box**: Provides helpful instructions to users.
     + **Input and Button**: Where users enter their queries.
   * **JavaScript**:
     + Function appendMessage(): Adds messages to the chat.
     + Function sendMessage(): Sends the user input to the server and fetches the chatbot’s response.
     + How the data is sent to the Flask backend via AJAX (using fetch), and the response is displayed on the frontend.
4. **Running the Code**:
   * **Setting Up**: Instructions for setting up the database and running the Flask app.
   * **Database**: How db.create\_all() creates tables based on models.
   * **How Flask Works**: Describe the process of receiving a message, processing it in the backend, and returning a response to the user.
   * **Interacting with the Chatbot**: Explain how the chatbot is able to handle different queries (menu, hours, reservation).
5. **How It Works**:  
   When the user sends a query, the message is captured by JavaScript and sent to the Flask backend. The backend processes the query by checking the database for relevant information and returns a response, which is displayed in the chatbox.
6. **Sample Output**:

