Faculty of Computing and Information Technology

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Restaurant Reservation application

CPIT-305

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Phase 2

Interaction Between Frames in the Restaurant Reservation application

Introduction

The application provides a user-friendly graphical user interface (GUI) built with Java Swing, allowing users to reserve tables, pre-order food, and view their reservation summaries. Each frame has a specific role and interacts logically with the others to ensure a smooth user experience.

Frames Overview

The application consists of the following frames:

1. **Main Menu Frame**:
    - The central navigation hub for the application.
    - Allows the user to navigate to other frames: **Table Reservation**, **Pre-order Food**, and **Reservation Summary**.
2. **Table Reservation Frame**:
    - Provides a form for users to input table reservation details such as name, contact number, date, time, number of guests, and table type.
3. **Food Ordering Frame**:
    - Displays a list of food items for the user to pre-order before arriving at the restaurant.
4. **Reservation Summary Frame**:
    - Displays a summary of the user's reservation and pre-order details.

Interaction Flow Between Frames

1. Main Menu Frame

- **Purpose**: The Main Menu serves as the starting point for the application. It should allow the user to access the other frames.
- **Components**:
  - Three buttons:
    - **Reserve a Table**: Opens the **Table Reservation Frame**.
    - **Pre-order Food**: Opens the **Food Ordering Frame**.
    - **View Reservation Summary**: Opens the **Reservation Summary Frame**.
- **Interaction**:
  - When launched, the application should display the Main Menu Frame first.
  - The user clicks on one of the buttons to navigate to the desired frame:
    - Clicking **Reserve a Table** opens the **Table Reservation Frame**.
    - Clicking **Pre-order Food** opens the **Food Ordering Frame**.
    - Clicking **View Reservation Summary** opens the **Reservation Summary Frame**.

2. Table Reservation Frame

- **Purpose**: The Table Reservation Frame should allow the user to reserve a table at the restaurant by filling out a form.
- **Components**:
  - Text fields for user input:
    - Name
    - Contact Number
    - Date
    - Time
    - Number of Guests
  - A dropdown menu for selecting the table type:
    - Options include **indoor** and **outdoor**.
  - Two buttons:
    - **Reserve**: Submits the reservation details.
    - **Back**: Returns to the Main Menu Frame.
- **Interaction**:
  - The user fills in the text fields with their reservation details.
  - The user selects the table type from the dropdown menu.
  - Clicking the **Reserve** button should submit the reservation.
  - Clicking the **Back** button should return the user to the Main Menu Frame.

3. Food Ordering Frame

- **Purpose**: The Food Ordering Frame should allow the user to pre-order food items before arriving at the restaurant.
- **Components**:
    - A list of food items, each represented by a checkbox:
        - **Pasta**
        - **Pizza**
        - **Burger**
    - Two buttons:
        - **Submit Order**: Submits the selected food items for pre-ordering.
        - **Back**: Returns to the Main Menu Frame.
- **Interaction**:
    - The user selects the desired food items by checking the corresponding checkboxes.
    - Clicking the **Submit Order** button should submit the selected items.
    - Clicking the **Back** button should return the user to the Main Menu Frame.

4. Reservation Summary Frame

- **Purpose**: The Reservation Summary Frame should display the details of the user's reservation and pre-order by entering the user's Reservation ID.
- **Components**:
    - A text area that lets you enter the user's Reservation ID and shows:
        - The user's reservation details including food items selected during the pre-ordering process.
- **Interaction**:
    - The frame should automatically fetch and display the reservation and pre-order details when entering the user's Reservation ID.
    - The user can view the details.

How the Frames Work Together

1. **Main Menu Frame**:
    - Acts as the central navigation hub for the application.
    - Provides buttons to navigate to the other frames.
2. **Table Reservation Frame**:
    - Allows the user to reserve a table by entering relevant information.
    - If the user clicks the **Back** button, they are returned to the **Main Menu Frame**.
3. **Food Ordering Frame**:
    - Allows the user to pre-order food items.
    - If the user clicks the **Back** button, they are returned to the **Main Menu Frame**.
4. **Reservation Summary Frame**:
    - Displays the combined information from the **Table Reservation Frame** and **Food Ordering Frame**.
    - This frame is accessed directly from the **Main Menu Frame** by clicking the **View Reservation Summary** button.

Phase 3– Final Implementation

In Phase 3, we focused on turning the system we planned and designed in Phase 2 into a fully working application. We used Java Swing to bring our UI design to life and connected the system to a MySQL database so that all reservation and food order data could be saved and retrieved in real-time.

One of the main updates was building the full interface for each function. We created three main frames: one for table reservations, one for food pre-orders, and one to view reservation summaries. Each frame follows the same style we designed earlier. These frames made the system feel organized and user-friendly.

We also added the database connection and made sure it works smoothly. Once the app starts, it connects to MySQL and sets up the necessary database and table if they’re not already there. This made testing and running the program a lot smoother. We also added checks for user input, like making sure the date and time formats are correct and that all fields are filled out before saving.

Overall, Phase 3 was about finishing the system and making it feel real. All the features we planned in Phase 2 are now working, and the system looks and behaves the way we imagined it. We were able to test everything, fix issues, and make sure the final result is something we’re happy with.

Team Contributions

- **Raya Al-Youbi** was mainly responsible for developing the Reserve a Table and View Summary functionalities. She built the full user interfaces for both features using Java Swing, handled the styling, and connected the input fields to the database logic. She also worked on displaying the reservation summary by fetching data based on reservation ID and formatting it clearly for the user. In addition, she contributed to creating a consistent layout and visual style across all frames.

- **Aseel Alnefaie** worked on setting up the database structure and building the DatabaseHelper class that handles the connection to MySQL and the creation of the database and reservations table. She also supported the backend of the Reserve a Table functionality by helping write and test the SQL insert statement.

- **Layan Baasoor** focused on the Pre-order Food functionality. She designed the form where users can enter their reservation ID and select food items, and implemented the logic to update the reservation with the selected dishes. Layan also tested all the features in the system, checking inputs, validating error messages, and helping refine the design and layout based on usability.