**Restaurant Seat Booking System**

**Problem Statement**

Develop a Restaurant Seat Booking System with a graphical user interface (GUI) that allows users to view restaurants, make table reservations, and manage their bookings. The system should maintain restaurant information and booking records through CSV files while providing functionalities for making and canceling reservations.

**System Requirements**

**1. Data Storage**

The system must maintain three CSV files:

1. **restaurants.csv**: Store restaurant information and table details
2. **users.csv**: Store registered user information
3. **bookings.csv**: Maintain reservation records

**2. Required Classes**

**2.1 Restaurant Class**

Represents individual restaurants in the system. **Required Attributes:**

* restaurant\_id (unique identifier)
* name
* cuisine\_type
* rating (out of 5)
* location
* total\_tables
* table\_configuration (e.g., 2-seater, 4-seater, etc.)
* opening\_hours
* closing\_hours

**Required Methods:**

* Constructor to initialize restaurant attributes
* get\_available\_tables(date, time, party\_size): Check table availability
* display\_restaurant\_info(): Format restaurant details for display
* check\_valid\_booking\_time(time): Verify if time is within operating hours
* Method to convert restaurant data to CSV format

**2.2 User Class**

Manages user information and their booking history. **Required Attributes:**

* user\_id (unique identifier)
* name
* email
* phone\_number
* current\_bookings (list of active reservations)

**Required Methods:**

* Constructor to initialize user attributes
* make\_reservation(restaurant\_id, date, time, table\_id, party\_size)
* cancel\_reservation(booking\_id)
* view\_booking\_history()
* Method to convert user data to CSV format

**3. GUI Requirements**

**3.1 Main Window**

* Title bar showing "Restaurant Booking System"
* Professional and intuitive interface
* Clear navigation between different sections

**3.2 Required Components**

1. **Restaurant Display Section:**
   * List view of all restaurants
   * Filters for cuisine type and rating
   * Search bar for restaurant name
   * Detailed view of selected restaurant
2. **Booking Section:**
   * Date and time selector
   * Party size input
   * Table selection interface
   * Booking confirmation form
3. **User Management Section:**
   * Current bookings display
   * Booking history
   * Cancellation interface

**4. Functional Requirements**

**4.1 Restaurant Display**

* Show all restaurants in a scrollable list
* Display for each restaurant:
  + Name
  + Cuisine type
  + Rating
  + Location
  + Operating hours
  + Available tables
* Filter and sort capabilities

**4.2 Booking Process**

1. **Table Selection:**
   * Select date and time
   * Enter party size
   * View available tables
   * Select specific table
2. **Booking Confirmation:**
   * Enter user details
   * Review booking details
   * Confirm reservation
   * Receive booking confirmation ID

**4.3 Cancellation Process**

* View current bookings
* Select booking to cancel
* Confirmation prompt
* Update availability