Submitted By: Hershika Jain [jhershika29@gmail.com, 9870709402]
Language Used : Python

```python
from datetime import datetime

class Restaurant:
    def __init__(self, name, city, area, cuisine, rating, cost_for_two,
is_veg):
        self.name = name
        self.city = city
        self.area = area
        self.cuisine = cuisine
        self.rating = rating
        self.cost_for_two = cost_for_two
        self.is_veg = is_veg
        self.slots = []

    def add_slot(self, start_time, end_time):
        self.slots.append((start_time, end_time))

    def find_available_slots(self, start_time, end_time):
        available_slots = []
        for slot in self.slots:
            if slot[0] >= start_time and slot[1] <= end_time:
                available_slots.append(slot)
        return available_slots

class BookingSystem:
    def __init__(self):
        self.restaurants = []

    def register_restaurant(self):
        print("Enter restaurant details:")
        name = input("Name: ")
        city = input("City: ")
        area = input("Area: ")
        cuisine = input("Cuisine: ")
        rating = float(input("Rating (1-5): "))
        cost_for_two = float(input("Cost for two: "))
        is_veg = input("Vegetarian (True/False): ").lower() == 'true'

        restaurant = Restaurant(name, city, area, cuisine, rating,
cost_for_two, is_veg)
        self.restaurants.append(restaurant)
        print(f"Restaurant '{name}' registered successfully.")

    def add_slots(self):
        print("\nEnter slot details:")
        restaurant_name = input("Restaurant name: ")
        start_time_str = input("Start time (YYYY-MM-DD HH:MM): ")
        end_time_str = input("End time (YYYY-MM-DD HH:MM): ")
```

```python
        try:
            start_time = datetime.strptime(start_time_str, "%Y-%m-%d %H:%M")
            end_time = datetime.strptime(end_time_str, "%Y-%m-%d %H:%M")
        except ValueError:
            print("Invalid datetime format. Please use YYYY-MM-DD HH:MM.")
            return

        for restaurant in self.restaurants:
            if restaurant.name == restaurant_name:
                restaurant.add_slot(start_time, end_time)
                print(f"Slot added for '{restaurant_name}' from {start_time}
to {end_time}.")
                return

        print(f"No restaurant found with name '{restaurant_name}'.")

    def search_restaurants(self):
        print("\nEnter search criteria (leave blank for any):")
        name = input("Name: ").strip()
        city = input("City: ").strip()
        area = input("Area: ").strip()
        cuisine = input("Cuisine: ").strip()
        min_rating = float(input("Minimum rating (1-5): ").strip() or 0)
        is_veg = input("Vegetarian (True/False): ").strip()

        filtered_restaurants = []
        for restaurant in self.restaurants:
            if (not name or restaurant.name.lower() == name.lower()) and \
                (not city or restaurant.city.lower() == city.lower()) and \
                (not area or restaurant.area.lower() == area.lower()) and \
                (not cuisine or restaurant.cuisine.lower() == cuisine.lower())
and \
                (restaurant.rating >= min_rating) and \
                (is_veg.lower() == 'true' and restaurant.is_veg or
                 is_veg.lower() == 'false' and not restaurant.is_veg or
                 is_veg == ''):
                filtered_restaurants.append(restaurant)

        if filtered_restaurants:
            print("\nSearch results:")
            for restaurant in filtered_restaurants:
                print(f"- {restaurant.name} | {restaurant.city} |
{restaurant.area} | Cuisine: {restaurant.cuisine} | Rating:
{restaurant.rating} | Cost for two: {restaurant.cost_for_two} | Veg:
{restaurant.is_veg}")
        else:
            print("No restaurants found matching the criteria.")
```

```python
    def book_table(self):
        print("\nEnter booking details:")
        restaurant_name = input("Restaurant name: ")
        start_time_str = input("Start time (YYYY-MM-DD HH:MM): ")
        end_time_str = input("End time (YYYY-MM-DD HH:MM): ")
        number_of_people = int(input("Number of people: "))

        try:
            start_time = datetime.strptime(start_time_str, "%Y-%m-%d %H:%M")
            end_time = datetime.strptime(end_time_str, "%Y-%m-%d %H:%M")
        except ValueError:
            print("Invalid datetime format. Please use YYYY-MM-DD HH:MM.")
            return

        restaurants = [r for r in self.restaurants if r.name.lower() ==
restaurant_name.lower()]

        if not restaurants:
            print(f"No restaurant found with name '{restaurant_name}'.")
            return

        selected_restaurant = restaurants[0]  # Assuming first restaurant from
search result

        available_slots = selected_restaurant.find_available_slots(start_time,
end_time)

        if not available_slots:
            print("No available slots for the requested time.")
            return

        # Assuming we're booking the first available slot
        selected_slot = available_slots[0]  # This could be further refined
based on business rules

        # Confirm booking
        if selected_slot[0] == start_time and selected_slot[1] == end_time:
            print(f"Table booked at {selected_restaurant.name} for
{number_of_people} people from {start_time} to {end_time}.")
        else:
            print("Booking failed. Slot might be unavailable or already
booked.")

    def show_restaurants(self):
        print("\nRegistered Restaurants:")
        for restaurant in self.restaurants:
```

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```python
            print(f"- {restaurant.name} | {restaurant.city} |
{restaurant.area} | Cuisine: {restaurant.cuisine} | Rating:
{restaurant.rating} | Cost for two: {restaurant.cost_for_two} | Veg:
{restaurant.is_veg}")

# Example usage with user input
if __name__ == "__main__":
    booking_system = BookingSystem()

    while True:
        print("\nWelcome to the Restaurant Booking System")
        print("1. Register Restaurant")
        print("2. Add Booking Slot")
        print("3. Search Restaurants")
        print("4. Book Table")
        print("5. Show Registered Restaurants")
        print("6. Exit")

        choice = input("Enter your choice (1-6): ").strip()

        if choice == '1':
            booking_system.register_restaurant()
        elif choice == '2':
            booking_system.add_slots()
        elif choice == '3':
            booking_system.search_restaurants()
        elif choice == '4':
            booking_system.book_table()
        elif choice == '5':
            booking_system.show_restaurants()
        elif choice == '6':
            print("Exiting Restaurant Booking System. Goodbye!")
            break
        else:
            print("Invalid choice. Please enter a number between 1 and 6.")
```

Terminal:

(base) C:\Users\Asus\vsPythonPrac> c: && cd c:\Users\Asus\vsPythonPrac &&
c:\Users\Asus\anaconda3\python.exe c:\Users\Asus\.vscode\extensions\ms-python.debugpy-
2024.6.0-win32-x64\bundled\libs\debugpy\adapter\..\..\debugpy\launcher 58070 --
C:\Users\Asus\vsPythonPrac\RestaurantBooking_Hershika.py

Submitted By: Hershika Jain [jhershika29@gmail.com, 9870709402]
Language Used : Python

Welcome to the Restaurant Booking System

1. Register Restaurant

2. Add Booking Slot

3. Search Restaurants

4. Book Table

5. Show Registered Restaurants

6. Exit

Enter your choice (1-6): 1

Enter restaurant details:

Name: Toscano

City: Bangalore

Area: Indiranagar

Cuisine: Italian

Rating (1-5): 4.2

Cost for two: 1500

Vegetarian (True/False): False

Restaurant 'Toscano' registered successfully.

Welcome to the Restaurant Booking System

1. Register Restaurant

2. Add Booking Slot

3. Search Restaurants

4. Book Table

5. Show Registered Restaurants

6. Exit

Enter your choice (1-6): 2

Enter slot details:

Restaurant name: Toscano

Start time (YYYY-MM-DD HH:MM): 2024-06-23 20:00

End time (YYYY-MM-DD HH:MM): 2024-06-23 21:00

Submitted By: Hershika Jain [jhershika29@gmail.com, 9870709402]
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Slot added for 'Toscano' from 2024-06-23 20:00:00 to 2024-06-23 21:00:00.

Welcome to the Restaurant Booking System

1. Register Restaurant

2. Add Booking Slot

3. Search Restaurants

4. Book Table

5. Show Registered Restaurants

6. Exit

Enter your choice (1-6): 3

Enter search criteria (leave blank for any):

Name: Toscano

City: Bangalore

Area: Indiranagar

Cuisine: Italian

Minimum rating (1-5): 4

Vegetarian (True/False): False

Search results:

- Toscano | Bangalore | Indiranagar | Cuisine: Italian | Rating: 4.2 | Cost for two: 1500.0 | Veg: False

Welcome to the Restaurant Booking System

1. Register Restaurant

2. Add Booking Slot

3. Search Restaurants

4. Book Table

5. Show Registered Restaurants

6. Exit

Enter your choice (1-6): 1

Enter restaurant details:

Submitted By: Hershika Jain [jhershika29@gmail.com, 9870709402]
Language Used : Python

Name: Desi Tadka

City: Delhi

Area: Hauz khas

Cuisine: Indian

Rating (1-5): 4

Cost for two: 900

Vegetarian (True/False): True

Restaurant 'Desi Tadka' registered successfully.

Welcome to the Restaurant Booking System

1. Register Restaurant

2. Add Booking Slot

3. Search Restaurants

4. Book Table

5. Show Registered Restaurants

6. Exit

Enter your choice (1-6): 5

Registered Restaurants:

- Toscano | Bangalore | Indiranagar | Cuisine: Italian | Rating: 4.2 | Cost for two: 1500.0 | Veg: False

- Desi Tadka | Delhi | Hauz khas | Cuisine: Indian | Rating: 4.0 | Cost for two: 900.0 | Veg: True

Welcome to the Restaurant Booking System

1. Register Restaurant

2. Add Booking Slot

3. Search Restaurants

4. Book Table

5. Show Registered Restaurants

6. Exit

Enter your choice (1-6): 4

Submitted By: Hershika Jain [jhershika29@gmail.com, 9870709402]
Language Used : Python

Enter booking details:

Restaurant name: Desi Tadka

Start time (YYYY-MM-DD HH:MM): 2024-06-23 20:00

End time (YYYY-MM-DD HH:MM): 2024-06-23 21:00

Number of people: 4

No available slots for the requested time.

Welcome to the Restaurant Booking System

1. Register Restaurant

2. Add Booking Slot

3. Search Restaurants

4. Book Table

5. Show Registered Restaurants

6. Exit

Enter your choice (1-6): 4

Enter booking details:

Restaurant name: Ironhill

Start time (YYYY-MM-DD HH:MM): 2024-06-27 21:00

End time (YYYY-MM-DD HH:MM): 2024-06-27 22:00

Number of people: 3

No restaurant found with name 'Ironhill'.

Welcome to the Restaurant Booking System

1. Register Restaurant

2. Add Booking Slot

3. Search Restaurants

4. Book Table

5. Show Registered Restaurants

6. Exit

Enter your choice (1-6):