



# DEVELOPMENT OF SOFTWARE APPLICATIONS- FALL 2022- HOMEWORK SUBMISSION REPORT

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TASK:

Restaurant Management

## 1) TASK 1

### DESCRIPTION OF THE EXERCISE

Design a .Net application by which a phone operator at a restaurant can manage table reservations:

- Can manage the tables at the restaurant, how many chair on each tables.. etc.
- Can list available tables (depending on the time)
- Can assembly reservation by setting the time of the arrival, the number of guests, and name of the person who books the table.
- Can list the daily menu

Besides the code, you should create a UML Use-Case diagram, UML Class diagram and 2 UML Sequence diagram.

## 2) TASK 2

### DESCRIPTION OF THE EXERCISE

First, the manager can list the available tables where there are 10 tables available with no reservations.

### SOLUTION

This function can see the non-booked tables and print them to see available rooms.

The code below is written in C#.

```
public void ListOfunBookedTables()
{
    int counter = 1;
    for (int i = 0; i < UnBookedTables.Length; i++)
    {
        Console.Write("Table number [" + UnBookedTables[i] + "] is available \t");
        if (counter == 2)
        {
            Console.WriteLine("\n");
            counter = 0;
        }
        counter++;
    }
}
```

I tested the solution by running the application. Below is a screenshot of the result. You can see there are 10 tables available.

```

Enter [1] to check table availability
Enter [2] to make new table reservation
Enter [3] to show information of each guest.
Enter [4] to close.

-----

1

Table number [1] is available   Table number [2] is available
Table number [3] is available   Table number [4] is available
Table number [5] is available   Table number [6] is available
Table number [7] is available   Table number [8] is available
Table number [9] is available   Table number [10] is available

*****
.....Restaurant manager app.....
Enter [1] to check table availability
Enter [2] to make new table reservation
Enter [3] to show information of each guest.
Enter [4] to close.

-----

```

### 3) TASK 3

#### DESCRIPTION OF THE EXERCISE

Then to make first reservation, the manager press number 2 and takes the guest name, phone number, table number, number of individuals, arrival date and number of hours he will stay.

#### SOLUTION, EXPLANATION

```

public void Booking()
{
    //Guest Name
    Console.WriteLine("Enter guest name :");
    GuestName = Console.ReadLine();
    Guest.BookingTables.Add(GuestName);

    //phone-number
    Console.WriteLine("Enter the guest phone-number :");
    PhoneNumber = Console.ReadLine();
    Guest.BookingTables.Add(PhoneNumber);

    //table number
    Console.WriteLine("Enter table number from 1 to 10 :");
    TableNumber = Convert.ToInt32(Console.ReadLine());
    while (!Table(TableNumber))
    {
        Guest.BookingTables.Add(TableNumber);
    }
}

```

```

    }

    //Number Of Guest
    Console.WriteLine("Enter total number of individuals :");
    NumberOfGuest = Convert.ToInt32(Console.ReadLine());
    Guest.BookingTables.Add(NumberOfGuest);

    Console.WriteLine("Enter arrival Date ");
    Console.WriteLine("Enter The Date in Format MM/DD/YYYY");
    DateTime ArrivalDateTime = Convert.ToDateTime(Console.ReadLine());
    Guest.BookingTables.Add(ArrivalDateTime);

    //number of hours he will stay
    Console.WriteLine("Enter number of hours the guest will spend :");
    NumberOfHours = Convert.ToInt32(Console.ReadLine());

    //leave date
    Guest.BookingTables.Add(ArrivalDateTime.AddHours(NumberOfHours));

    //All costs

    Guest.BookingRooms.Add(CostFunction(NumberOfHours, NumberOfGuest));
    Console.WriteLine("\n-----");

    Console.WriteLine("\n.....Reservation is done.....\n");
}

```

As you can see below, the receptionist will take the guest data and the reservation is done.

```

*****
.....Restaurant manager app.....
Enter [1] to check table availability
Enter [2] to make new table reservation
Enter [3] to show information of each guest.
Enter [4] to close.

-----

2

Enter guest name :

Enter the guest phone-number :
Hussein
Enter table number from 1 to 10 :
3
Enter total number of individuals :
5
Enter arrival Date
Enter The Date in Format MM/DD/YYYY
12/21/2022
Enter number of hours the guest will stay :
2

-----

.....Reservation is done.....

```

## 4) TASK 4

### DESCRIPTION OF THE EXERCISE

After making reservation, the manager can press 3 to show the guest information and also to display the total price.

### SOLUTION, EXPLANATION

To display the guest information and price if there is already reservation and calculate the price that depend on the number of individuals and hours.

```
public void ListOfBookedTables()
{
    int counter = 1;
    if (BookedTables.Count == 0)
    {
        Console.WriteLine("there are't any booked tables");
    }
    else
    {
        Console.WriteLine("Guest   name|P-number|Table   number|Number   of   guests|Arrival
date|leave date|Total price in Euro");
        Console.WriteLine("-----\n");
        for (int i = 0; i < BookedTables.Count; i++)
        {
            Console.Write(BookedTables[i] + "\t");
            if (counter == 7)
            {
                Console.WriteLine("\n");
                counter = 0;
            }
            counter++;
        }
    }
}

public double CostFunction(int numberOfHours, int numberOfGuests)
{
    double cost = numberOfHours * 100 * numberOfGuests;
    return cost;
}
```

As you can see below, the manager see the guest data and cost details when press 3.

```
*****
.....Restaurant manager app.....
Enter [1] to check table availability
Enter [2] to make new table reservation
Enter [3] to show information of each guest.
Enter [4] to close.

-----

3

Guest name|P-number|Table number|Number of guests|Arrival date|leave date|Total price in Euro
-----
          348948438      6      5      3/23/2022 12:00:00 AM  3/23/2022 3:00:00 AM  1500

*****
```

## 5) TASK 5

For testing purposes, I made a reservation for 2 tables, and check the table availability and the guest information details

### SOLUTION, EXPLANATION

The tables 2 and 6 are not available and also can display the array of each guest data information

```
1

Table number [1] is available   Table number [3] is available
Table number [4] is available   Table number [5] is available
Table number [7] is available   Table number [8] is available
Table number [9] is available   Table number [10] is available

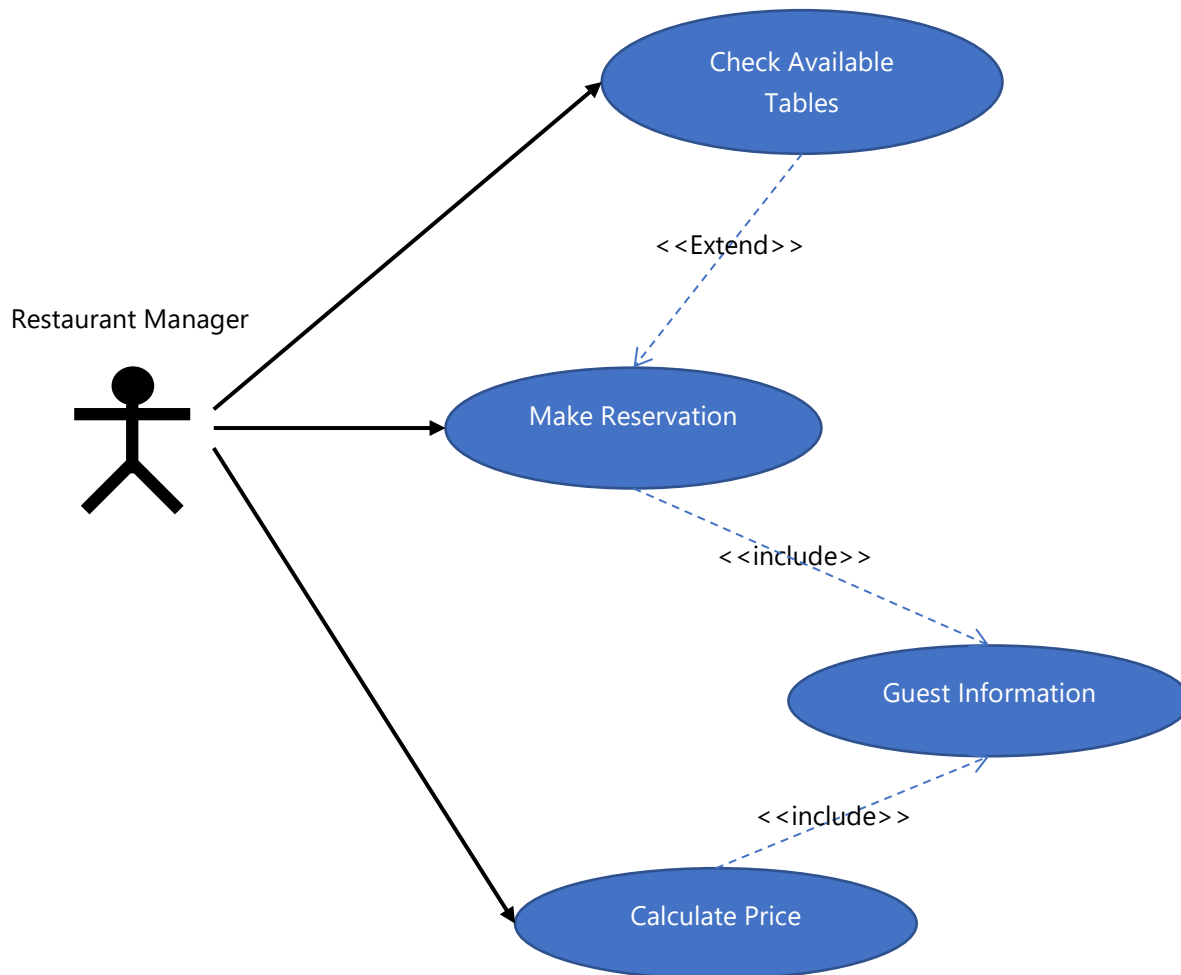
*****
.....Restaurant manager app.....
Enter [1] to check table availability
Enter [2] to make new table reservation
Enter [3] to show information of each guest.
Enter [4] to close.

-----

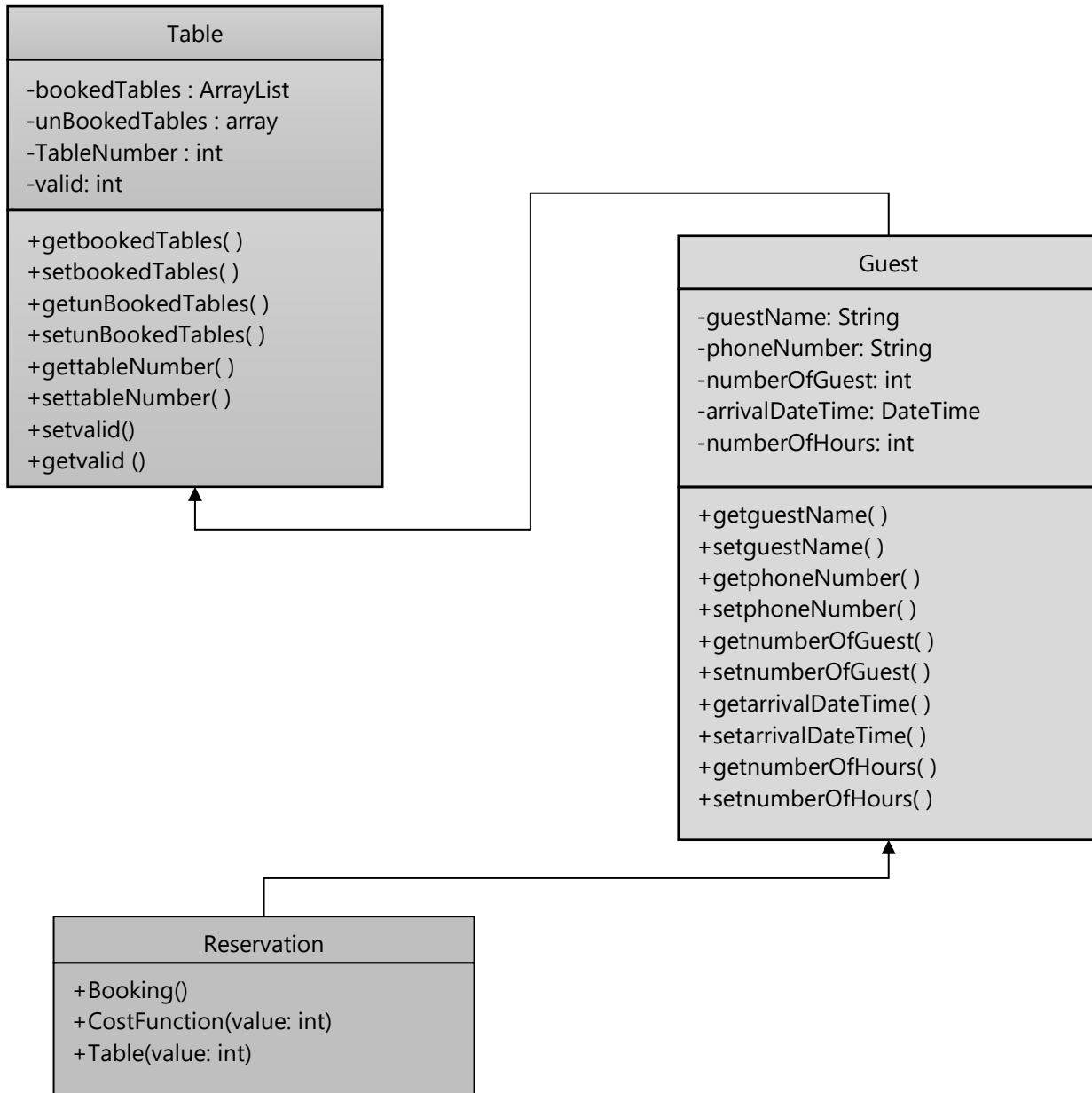
3

Guest name|P-number|Table number|Number of guests|Arrival date|leave date|Total price in Euro
-----
Hussein 71263563      2      3      12/12/2022 12:00:00 AM  12/12/2022 3:00:00 AM  900
Maya      27356623      6      6      12/9/2022 12:00:00 AM  12/9/2022 2:00:00 AM  1200
```

## 6) UML USE CASE DIAGRAM

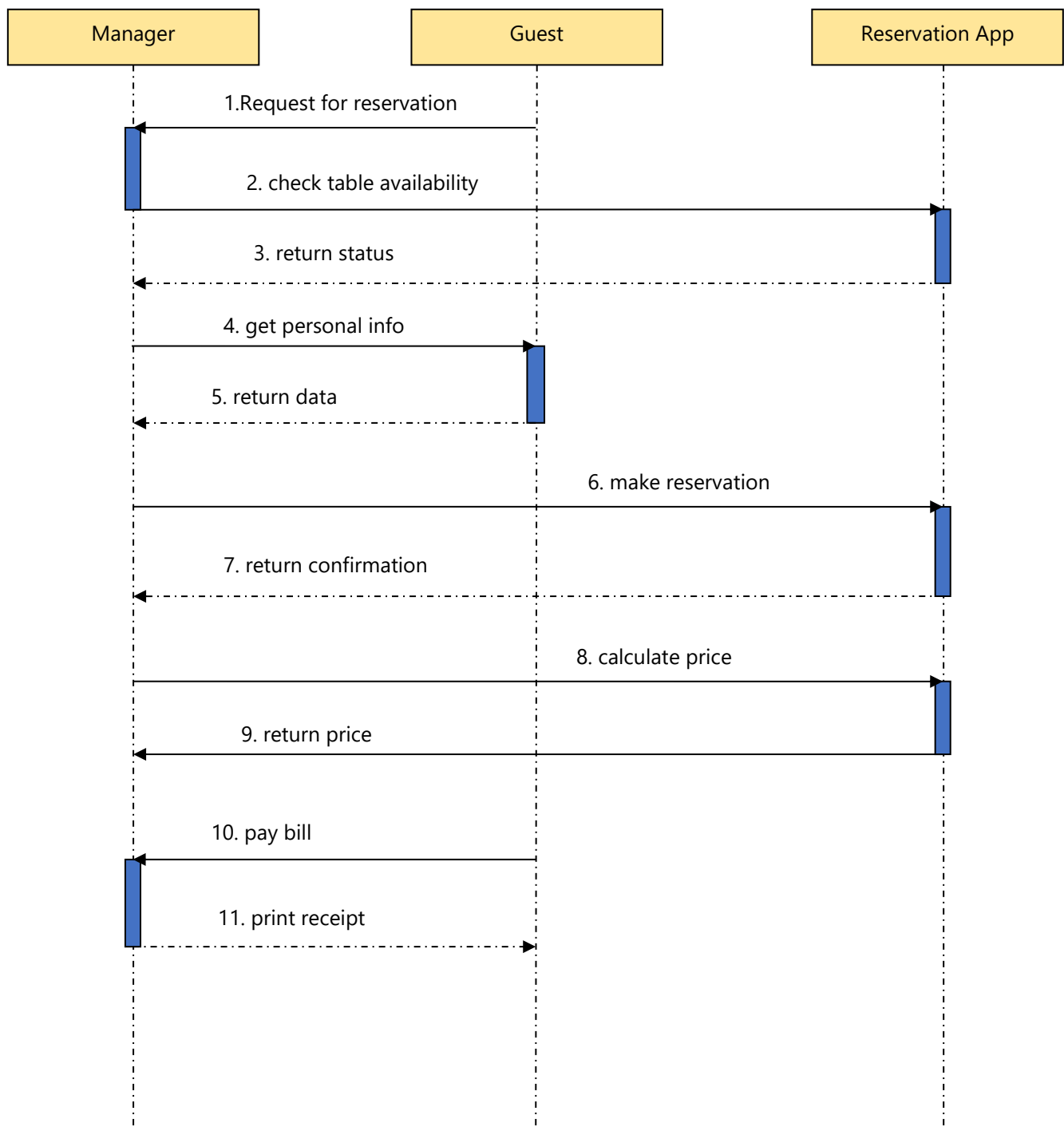


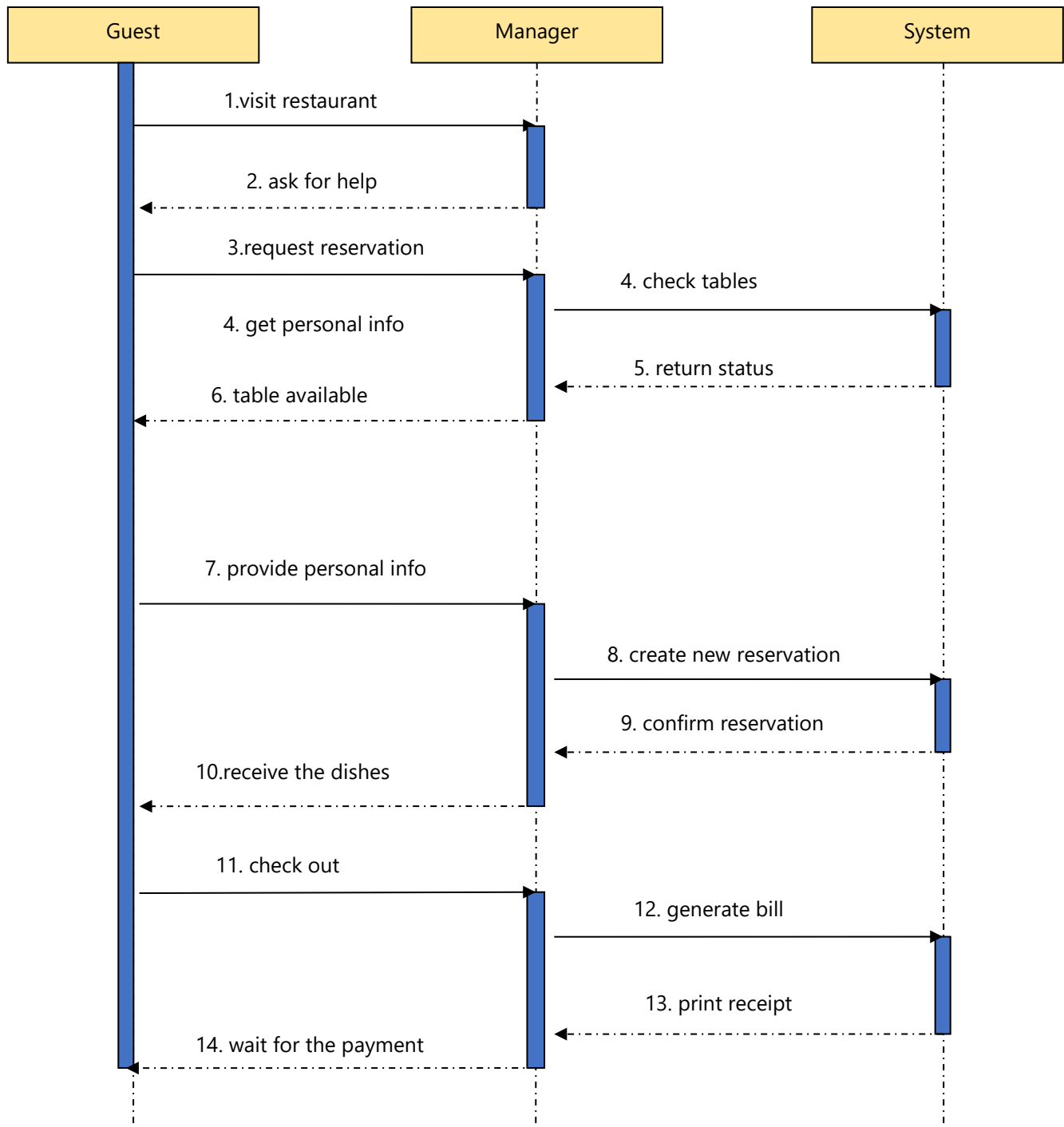
## 7) UML CLASS DIAGRAM





## 8) UML SEQUENCE DIAGRAMS





## 9) EXTRA WORK

You can find the source code on a GitHub link below,

<https://github.com/HusseinAlsultan/Restaurannt-Managment>