

Assignment 1

- Course Name -

Visual Programming

- Course Code -

CSCI 22042

- Student Name -

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- Student Index Number -

CS-2019-025

Question 1 - Code

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Find_Prime
{
    internal class Program
    {
        static void Main(string[] args)
        {
            int num_start,num_end,num_of_divisor=0,max_divisor=0,max_divisor_number=0;

            //input numbers

            Console.WriteLine(" Enter the first number of Range ");
            num_start=int.Parse(Console.ReadLine());
            Console.WriteLine(" Enter the last number of Range ");
            num_end=int.Parse(Console.ReadLine());
            Console.WriteLine(" Prime Numbers ");

            //identify 1 or 2 are in this range

            if (num_start == 1)
            {
                num_start = 2;
            }
            if (num_start==2)
            {
                num_start = 3;
                Console.WriteLine("2 , ");
            }

            //check prime or not and number of divisors

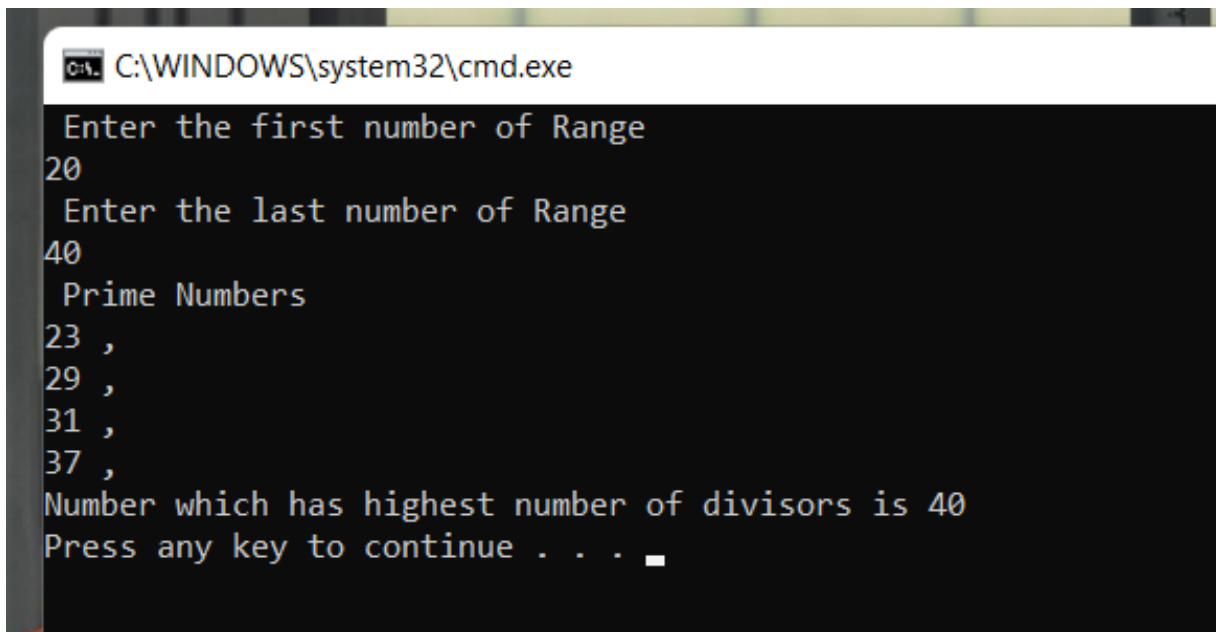
            for(int i=num_start;i<=num_end;i++)
            {
                bool prime_value = true;
                for (int j= 2; j < i; j++)
                {
                    if(i%j == 0)
                    {
                        num_of_divisor += 1;
                        prime_value = false;
                    }
                }
                if( prime_value )
                {
                    Console.WriteLine(i+" , ");
                }

                //update the number which has maximum number of divisors yet

                if (max_divisor<num_of_divisor)
                {
                    max_divisor_number = i;
                    max_divisor = num_of_divisor;
                }
            }
            Console.WriteLine("Number which has highest number of divisors is " +
max_divisor_number);
        }
    }
}
```

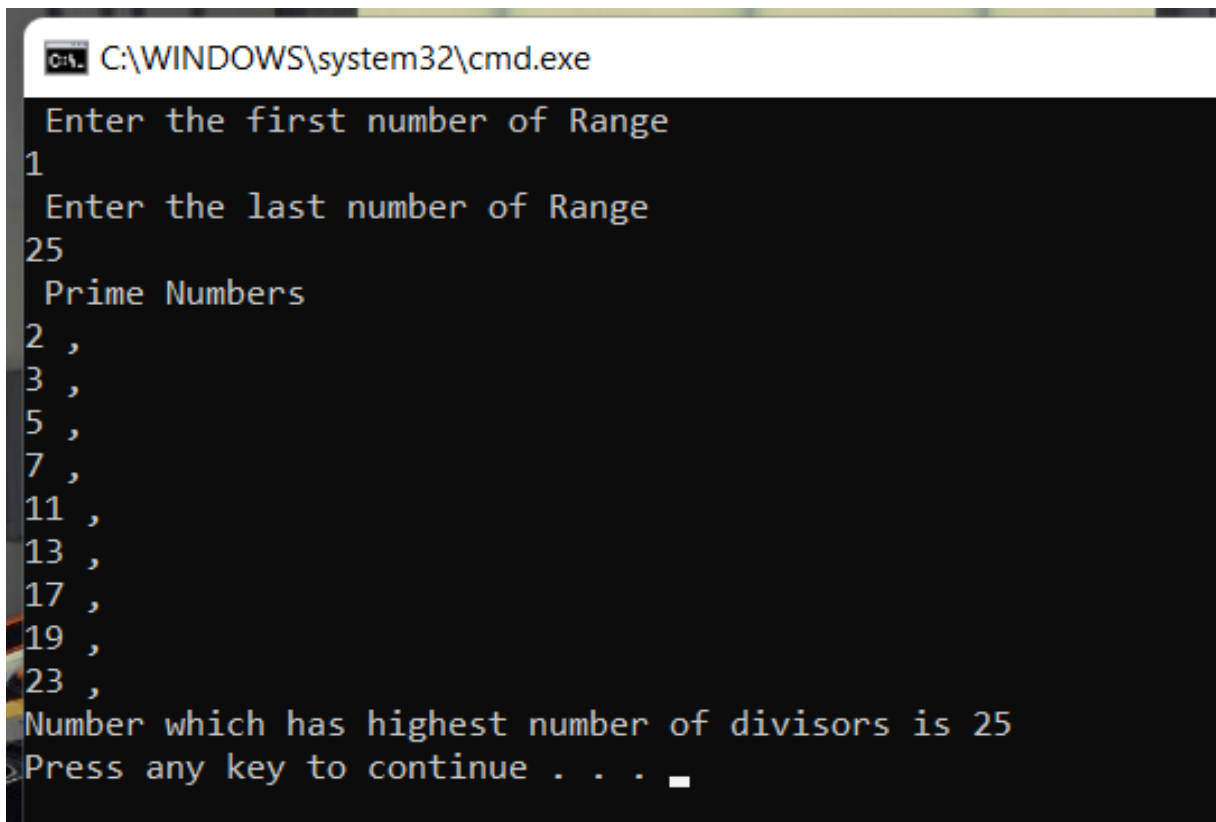
Working of Program

Example 1 - Enter 20 – 40 Range As input



```
C:\WINDOWS\system32\cmd.exe
Enter the first number of Range
20
Enter the last number of Range
40
Prime Numbers
23 ,
29 ,
31 ,
37 ,
Number which has highest number of divisors is 40
Press any key to continue . . .
```

Example 2 - Enter 1 – 25 Range As input



```
C:\WINDOWS\system32\cmd.exe
Enter the first number of Range
1
Enter the last number of Range
25
Prime Numbers
2 ,
3 ,
5 ,
7 ,
11 ,
13 ,
17 ,
19 ,
23 ,
Number which has highest number of divisors is 25
Press any key to continue . . .
```

Question 2 - Code

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace Hotel_Booking_System
{
    public partial class Form1 : Form
    {
        int available_single = 10, available_double=7, available_family=4, available_suite=2;
        double cost = 0;
        public Form1()
        {
            InitializeComponent();

            //total cost calculate method
            public double calculate_cost (int room_rate, int number_of_Days, int number_of_rooms, string
room_type)
            {
                cost = cost+(room_rate * number_of_Days * number_of_rooms);
                if (room_type == "Double" & number_of_Days > 5)
                {
                    cost = cost * 0.95;
                }
                if (room_type == "Suite" & number_of_Days > 5)
                {
                    cost = cost * 0.88;
                }
                return cost;
            }

            //clearn text after one selection
            public void clean_form_room_data()
            {
                Number_of_Days_text.Clear();
                Number_of_room_text.Clear();
                Room_type_combo.SelectedIndex = -1;
                Another_booking_combo.SelectedIndex = -1;
            }

            //exit button
            private void Exit_btn_Click(object sender, EventArgs e)
            {
                this.Close();
            }

            //calculate the price button
            private void button1_Click(object sender, EventArgs e)
            {
                string room_type, Another_room= "No" ;
                int room_rate = 0, number_of_rooms = 0, number_of_Days = 0;

                room_type = Room_type_combo.Text;
```

```

//Cheeck personal information
if (Name_text.Text == "" | Address_text.Text == "")
{
    MessageBox.Show("Enter your personal details correctly (Name and Address) ",
"Message", MessageBoxButtons.OK, MessageBoxIcon.Error);
}
else
{
    //exception handling number of days,rooms are not fill and invalid input
    try
    {
        number_of_rooms = int.Parse(Number_of_room_text.Text);
        number_of_Days = int.Parse(Number_of_Days_text.Text);
    }
    catch
    {
        MessageBox.Show("Form is incomplete or invalid input", "Message",
MessageBoxButtons.OK, MessageBoxIcon.Error);
    };
}
if (number_of_Days > 0)
{
    //select type of room
    switch (room_type)
    {
        case "Single":
            room_rate = 5000;

            //check availability of room
            if (number_of_rooms <= available_single)
            {
                available_single -= number_of_rooms;
                cost = calculate_cost(room_rate, number_of_Days, number_of_rooms,
room_type);
            }
            else
            {
                //rooms are not available message
                MessageBox.Show("Single Rooms are not Available at this moment",
"Message", MessageBoxButtons.OK, MessageBoxIcon.Warning);
            }
            break;

        case "Double":
            room_rate = 7500;
            if (number_of_rooms <= available_double)
            {
                available_double -= number_of_rooms;
                cost = calculate_cost(room_rate, number_of_Days, number_of_rooms,
room_type);
            }
            else
            {
                MessageBox.Show("Double Rooms are not Available at this moment",
"Message", MessageBoxButtons.OK, MessageBoxIcon.Warning);
            }
            break;

        case "Family":
            room_rate = 8000;
            if (number_of_rooms <= available_family)
            {

```

```

        cost = calculate_cost(room_rate, number_of_Days, number_of_rooms,
room_type);
        available_family -= number_of_rooms;
    }
    else
    {
        MessageBox.Show("Family Rooms are not Available at this moment",
"Message", MessageBoxButtons.OK, MessageBoxIcon.Warning);

    }
    break;

    case "Suite":
        room_rate = 12500;
        if (number_of_rooms <= available_suite)
        {
            cost = calculate_cost(room_rate, number_of_Days, number_of_rooms,
room_type);
            available_suite -= number_of_rooms;
        }
        else
        {
            MessageBox.Show("Suite Rooms are not Available at this moment",
"Message", MessageBoxButtons.OK, MessageBoxIcon.Warning);

        }
        break;
        //room type is not selected message
        default:
            MessageBox.Show(" Select Room Type", "Incomplete Form",
MessageBoxButtons.OK, MessageBoxIcon.Error);
            break;
    }
}
Cost_text.Text = Convert.ToString(Math.Round(cost, 2));

//Another booking for same user ( by default anoter room is set as "No" )

Another_room = Another_booking_combo.Text;
if (Another_room == "Yes")
{
    clean_form_room_data();
}

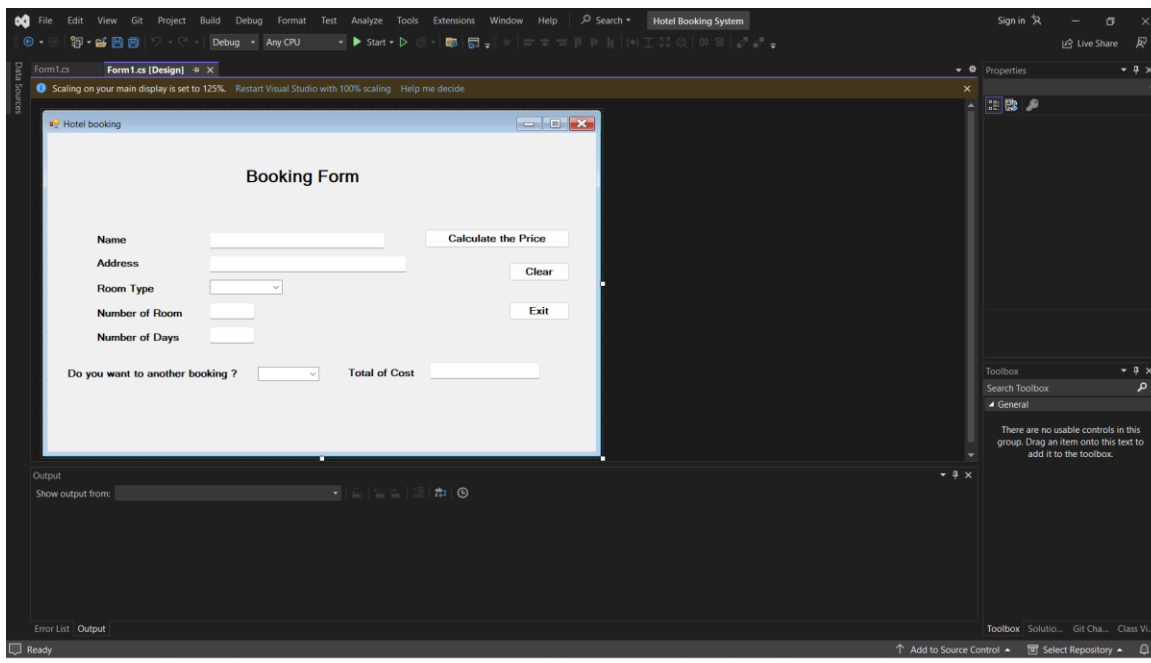
}

//clear button
private void Clear_btn_Click(object sender, EventArgs e)
{
    cost = 0;
    Cost_text.Clear();
    Name_text.Clear();
    Address_text.Clear();
    clean_form_room_data();
}

}
}

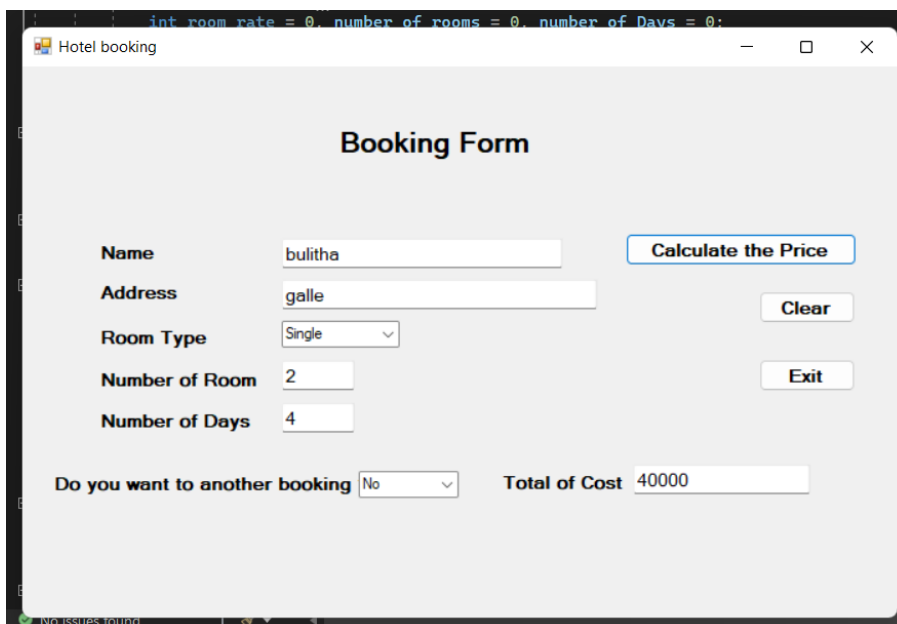
```

Design window Form –



Working of Programing Features

- Calculate total cost of customers and offer discount who stay more than 5 days in double room or suite room. (5% and 12% respectively)



Example 1 -

2 Single Rooms booking for 4 Days.

(Customers who stay more than 5 days in Suites or Double rooms are entitled for discounts)

The screenshot shows a 'Hotel booking' application window titled 'Booking Form'. It contains several input fields and buttons. The 'Name' field is filled with 'bulitha', 'Address' with 'galle', 'Room Type' is set to 'Double' (via a dropdown), 'Number of Room' is '1', and 'Number of Days' is '6'. A 'Calculate the Price' button is highlighted in blue. Below these fields, there is a 'Clear' button and an 'Exit' button. At the bottom, a label 'Do you want to another booking' is followed by a dropdown menu showing 'No', and a 'Total of Cost' field displaying '42750'.

Example 2 -

1 Double Room booking for 6 Days. (5% Discount is given)

The screenshot shows the same 'Hotel booking' application window, but with 'Room Type' set to 'Suite'. The 'Number of Room' remains '1' and 'Number of Days' remains '6'. The 'Calculate the Price' button is still highlighted. The 'Total of Cost' field now displays '66000'. The 'Do you want to another booking' dropdown still shows 'No'.

Example 3 -

1 Suite Room booking for 6 Days.
(12% Discount is given)

- Manage number of rooms and if all rooms are booked in some room category message box will appear.

The screenshot shows a Windows application window titled "Hotel booking" with a "Booking Form". The form contains the following fields and controls:

- Name:** Text box containing "bulitha".
- Address:** Text box containing "galle".
- Room Type:** Dropdown menu set to "Single".
- Number of Room:** Text box (empty).
- Number of Days:** Text box (empty).
- Buttons:** "Calculate the Price", "Clear", and "Exit".
- Do you want to another booking:** Text box (empty).

A "Message" dialog box is displayed in the foreground with a yellow warning icon and the text: "Single Rooms are not Available at this moment". The dialog has an "OK" button.

- Program can run for multiple booking for one person as long as he/she indicates it by selecting "Yes" for another booking.

The screenshot shows the same "Hotel booking" application window. The form fields are now filled as follows:

- Name:** "bulitha"
- Address:** "galle"
- Room Type:** "Single"
- Number of Room:** "2"
- Number of Days:** "2"
- Do you want to another booking:** Dropdown menu set to "Yes".
- Total of Cost:** Text box (empty).

The "Calculate the Price", "Clear", and "Exit" buttons are still present.

Example 4 -

(Step 1) -

Fill the form for 1st booking and Press "Calculate the Price" button

Booking Form

Name: bulitha

Address: galle

Room Type: Double

Number of Room: 1

Number of Days: 2

Do you want to another booking: No

Total of Cost: 20000

Buttons: Calculate the Price, Clear, Exit

(Step 2) -

Fill the form for 2nd booking.

Already Program display the Total of Cost for Previous booking (i.e. 1st booking)

Booking Form

Name: bulitha

Address: galle

Room Type: Double

Number of Room: 1

Number of Days: 2

Do you want to another booking: No

Total of Cost: 35000

Buttons: Calculate the Price, Clear, Exit

(Step 3) -

Then Click "Calculate the Price" button.

After that Program display the Total of Cost for all multiple bookings.

If you do not need any other booking Select "No" in the "Do you want to another booking" combo box.

- Clear button for erase all contents on textboxes.

Booking Form

Name:

Address:

Room Type:

Number of Room:

Number of Days:

Do you want to another booking:

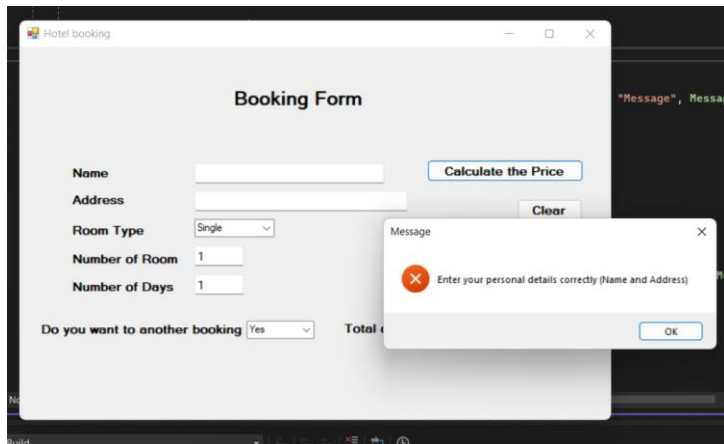
Total of Cost:

Buttons: Calculate the Price, Clear, Exit

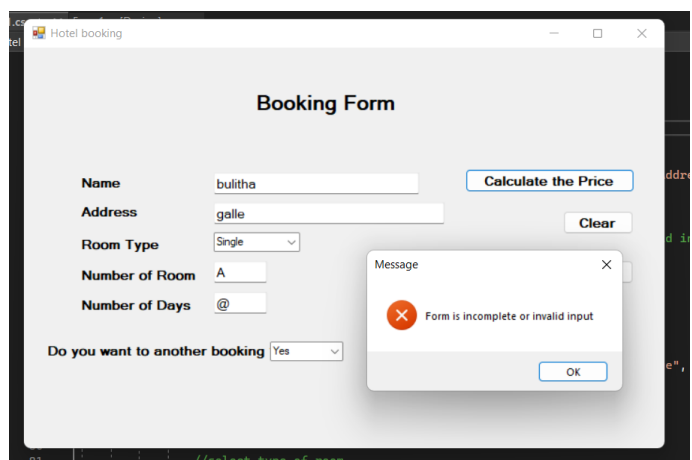
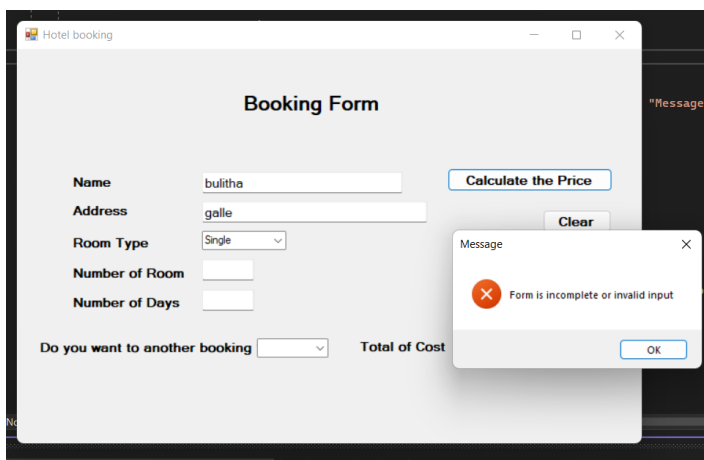
- Exit button for exit program.

Additional Features

- If some user not fill name and address (customer information) message box will appear.



- If some user not fill number of rooms or number of days or if user input invalid data (such as letters , symbols, emojis) message box will appear.
(exceptions are being also handled)



- If some user not select item in Another booking combo box, by default choice is get as "No"
- If some user not select item in Room type combo box, message box will appear.

