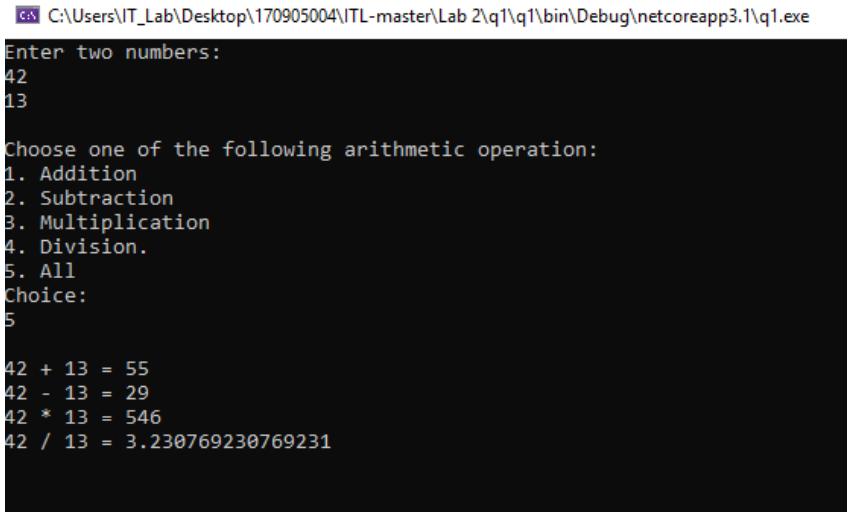
1. **Write a simple console application to perform arithmetic operations**

Code:

```
using System;

namespace q1
{
    class Program
    {
        static void Main(string[] args)
        {
            int num1, num2;

            //Input
            Console.WriteLine("Enter two numbers: ");
            int.TryParse(Console.ReadLine(), out num1);
            int.TryParse(Console.ReadLine(), out num2);
            Console.WriteLine("\nChoose one of the following arithmetic operation:");
            Console.WriteLine("1. Addition\n2. Subtraction\n3. Multiplication\n4. Division.\n5.
All\nChoice: ");

            //Input of choice
            int option = Convert.ToInt32(Console.ReadLine());

            //Switch case for the choice of arithmetic operation
            switch (option)
            {
                case 1: Console.WriteLine("\n{0} + {1} = {2}", num1, num2, num1 + num2);
                        break;
                case 2: Console.WriteLine("\n{0} - {1} = {2}", num1, num2, num1 - num2);
                        break;
                case 3: Console.WriteLine("\n{0} * {1} = {2}", num1, num2, num1 * num2);
                        break;
                case 4: Console.WriteLine("\n{0} / {1} = {2}", num1, num2, (double)num1 / num2);
                        break;
                case 5: Console.WriteLine("\n{0} + {1} = {2}\n{0} - {1} = {3}\n{0} * {1} = {4}\n{0} / {1} =
{5}", num1, num2, num1 + num2, num1 - num2, num1 * num2, (double)num1 / num2);
                        break;
                default: Console.WriteLine("\nChoose a valid option");
                        break;
            }
            Console.Read();
        }
    }
}
```

Output:



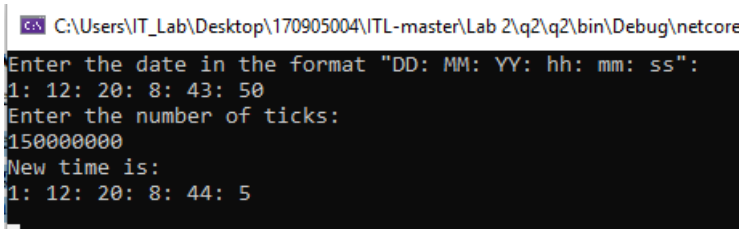
2. **Write a Console C# program to realise DateTime.Add member function without using DateTime/TimeStamp instances. The inputs to the program are valid date (in the format "DD: MM: YY: hh:mm:ss") and # of ticks (range from 10000000 - 999999999999) which have to be accepted from the user. The output will be a number which is generated by adding the ticks to the given date. (Note: 1 tick = 100 nano secs)**

Code:

```
using System;

namespace q2
{
    class Program
    {

        static bool isLeapYear(int year)
        {
            // If a year is multiple of 400, then it is a leap year
            if (year % 400 == 0)
                return true;

            // Else If a year is multiple of 100, then it is not a leap year
            if (year % 100 == 0)
                return false;

            // Else If a year is multiple of 4, then it is a leap year
            if (year % 4 == 0)
                return true;
            return false;
        }

        static int NumOfDays(int month, int year)
        {
            switch (month)
            {
                case 2: if (isLeapYear(year))
                        {
                            return 29;
                        }
                        else
                            return 28;
                case 1: case 3: case 5: case 7: case 8: case 10: case 12: return 31;
                default: return 30;
            }
        }

        static void Main(string[] args)
        {
            //Input
            Console.WriteLine("Enter the date in the format \"DD: MM: YY: hh: mm: ss\": ");
            string dateTime = Console.ReadLine();
            Console.WriteLine("Enter the number of ticks: ");
            long ticks;
            long.TryParse(Console.ReadLine(), out ticks);

            //Check if "ticks" is in range
            if (ticks<10000000 || ticks > 999999999999)
            {
                Console.WriteLine("Not valid. Enter ticks within the range 10000000 and 999999999999");
                return;
            }

            //Convert ticks to seconds
            int seconds = Convert.ToInt32(ticks * Math.Pow(10.0, -7.0));

            //Convert the date taken as input to an integer array
```

```
            string[] arr = dateTime.Split(": ");
            int[] dateArray = Array.ConvertAll(arr, int.Parse);

            //Calcuate new date
            int minutes = 0, hours = 0, days = 0;

            //If new ss is greater than 60, add it to minutes. The input will always be 1 second or more
due to the contraint check.
            if (seconds + dateArray[5] >= 60)
            {
                minutes = (seconds + dateArray[5]) / 60;
                dateArray[5] = (seconds + dateArray[5]) % 60;
            }
            else
                dateArray[5] += seconds;

            //If new mm is greater than 60, add it to hours.
            if (minutes>0 && minutes + dateArray[4] >= 60)
            {
                hours = (minutes + dateArray[4]) / 60;
                dateArray[4] = (minutes + dateArray[4]) % 60;
            }
            else
                dateArray[4] += minutes;

            //If new hh is greater than 24, add it to days.
            if (hours > 0 && hours + dateArray[3] >= 24)
            {
                days = (hours + dateArray[3]) / 24;
                dateArray[3] = (hours + dateArray[3]) % 24;
            }
            else
                dateArray[3] += hours;

            //If new days is greater than 1, add it to DD. The ticks will never be greater than a day due
to the constraint check.
            //Check if adding day changes month
            if (days>=1)
            {
                int numOfDays = NumOfDays(dateArray[1], dateArray[2]);
                if (days + dateArray[0] > numOfDays)
                {
                    dateArray[0] = 01;
                    if (dateArray[1] + 1 >= 12)
                    {
                        dateArray[1] = 01;
                        dateArray[2] = (dateArray[2] + 1) % 100;
                    }
                }
                else
                    dateArray[0] += days;
            }

            Console.WriteLine(String.Join(": ", dateArray));
        }
    }
}
```

Output:

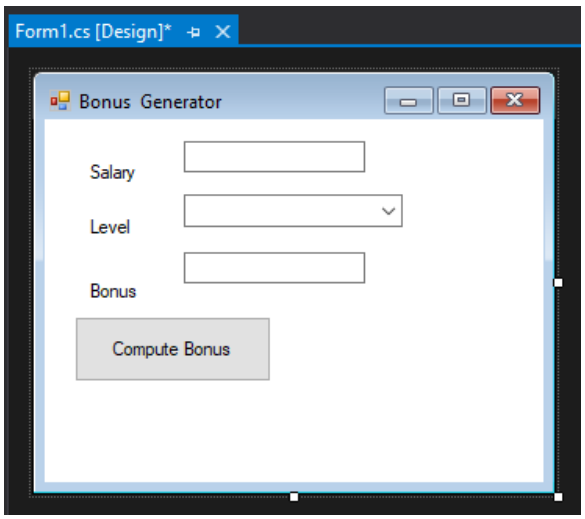


3. **Develop a simple C# windows application to compute the bonus to be paid to an employee based on his performance level using a function. Use TextBox to input 20 Salary and ComboBox to select performance level. (Performance Level1 = 0.1 * Salary, Level2 to Level4 = 0.09*Salary, Level5 to Level7 = 0.07 * Salary, Level8 to Level10 = 0.05 * Salary)**

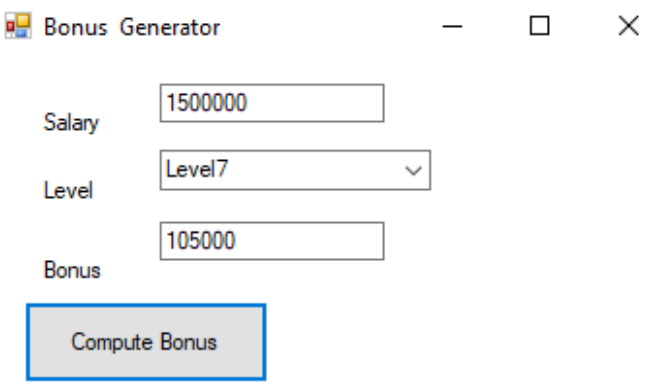
Code:

```
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 q3
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            double salary;
            double.TryParse(textBox1.Text, out salary);
            string level = comboBox1.SelectedItem.ToString();

            if (level == "Level1")
                textBox2.Text = (0.1 * salary).ToString();
            else if (level == "Level2" || level == "Level3" || level == "Level4")
                textBox2.Text = (0.09 * salary).ToString();
            else if (level == "Level5" || level == "Level6" || level == "Level7")
                textBox2.Text = (0.07 * salary).ToString();
            else
                textBox2.Text = (0.05 * salary).ToString();
        }
    }
}
```

Designer View:



Output:



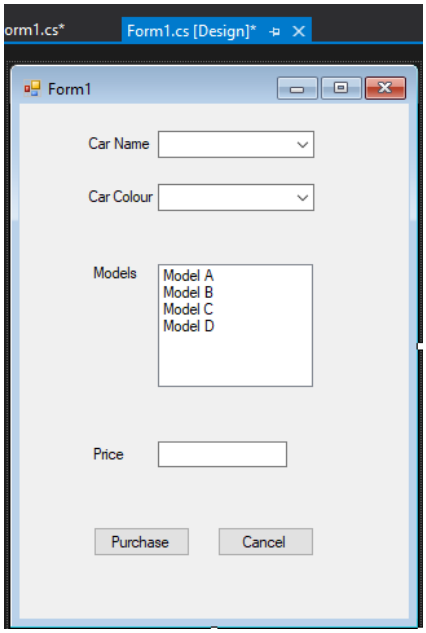
(Designer view included with code as it is a windows application and does not have code for the design)

4. **The form should contain two dropdownlist for car names and colours.It should also contain a listbox for Model and textbox Price. On clicking the "Purchase" button, display the message "ThankYou for purchasing" and on clicking "Cancel", clear the selections made.**

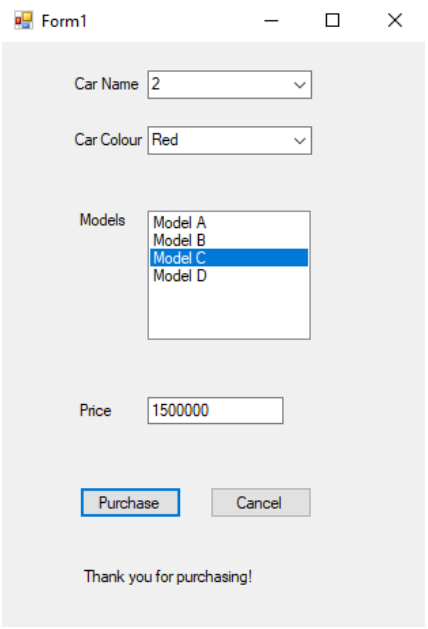
Code:

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

namespace q4
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            label5.Text = "Thank you for purchasing!";
        }

        private void button2_Click(object sender, EventArgs e)
        {
            comboBox1.SelectedIndex = -1;
            comboBox2.SelectedIndex = -1;
            listBox1.SelectedIndex = -1;
        }
    }
}
```

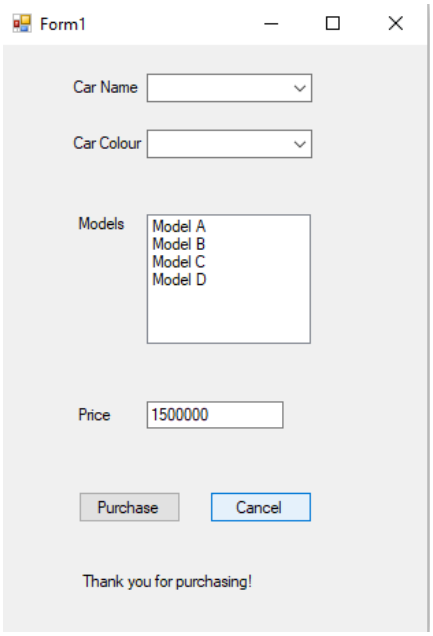
Designer View:



Output:



a) On Clicking "Purchase" button



b) On clicking "Cancel" button

(Designer view included with code as it is a windows application and does not have code for the design)