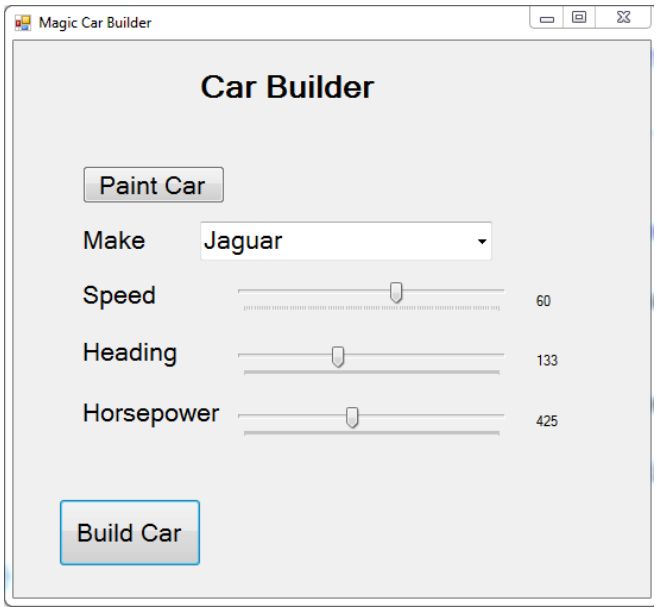
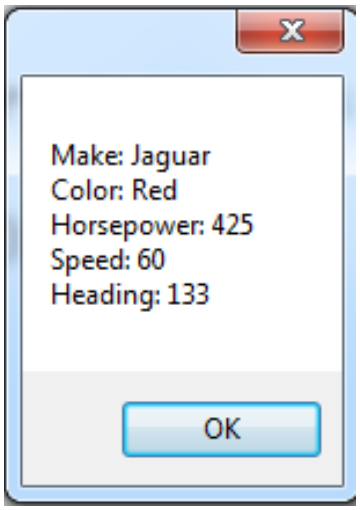
Name: **Session :**
Programming II
Lab Exercise 5/9/2022

In this lab you will create an Automobile class. When you have completed this lab, you are to submit the source code and a screen shot of your running application.

Creating and Automobile Class
In this exercise, you will create an Automobile class. You will use this class later in an Automobile Construction Factory. On your form you will have the ability to choose color, make, initial speed, and direction of travel (use compass angles).

1. Create an empty Windows Forms application





2. Add a class (Automobile) to you project. You will use this to put your class definition that is public.
3. In your class definition, define five private properties:

```
private Color myColor;
private string myMake;
private int mySpeed;
private int myHeading;
private int myHP;
```

4. In your class definition, write a constructor sub to initialize the private properties:

```
public Automobile()
{
   myColor = Color.Black;
   myMake = "";
   mySpeed = 0;
   myHeading = 0;
   myHP = 0;
}

public Automobile(Color color, string make, int s, int h, int hp)
{
   myColor = color;
   myMake = make;
   mySpeed = s;
   myHeading = h;
   myHP = hp;
}
```

5. Now write public get methods for each private member (getColor, getMake, getSpeed, getHeading, getHP).
6. Now write public set methods for each private member (setColor, setMake, setSpeed, setHeading, setHP).
7. Now add the appropriate controls to your form that allow you to select the color, make, speed, heading and HP.
8. Add a button that creates your automobile and add the following code to the btnBuild_Click event handler:

```
//Declare variables
string make, temp;
int speed, heading, hp;
string message = "";

//Get car info
make = cboMake.SelectedItem.ToString();
speed = Convert.ToInt32(trkSpeed.Value);
heading = Convert.ToInt32(trkHeading.Value);
hp = Convert.ToInt32(trkHP.Value);

//Update Automobile object
myCar.setMake(make);
myCar.setSpeed(speed);
myCar.setHeading(heading);
myCar.setHP(hp);
temp = myCar.getColor().ToString();
```

```
            //Create Automobile information object
            message += "Make: " + myCar.getMake() + Environment.NewLine;
            message += "Color: " + temp.Substring(7, temp.Length - 8) +
    Environment.NewLine;
            message += "Horsepower: " + myCar.getHP().ToString() +
    Environment.NewLine;
            message += "Speed: " + myCar.getSpeed().ToString() +
    Environment.NewLine;
            message += "Heading: " + myCar.getHeading().ToString();

            //Display Autombile object information
            MessageBox.Show(message);

            //Reset all values
            trkSpeed.Value = 0;
            trkHeading.Value = 0;
            trkHP.Value = 0;
            cboMake.Text = "";
            temp = "";
```

9. Add a button that will "paint" your car. I used a ColorDialog control to select color. Add the following code to the btnPaint_Click event handerl:

```
            //Set the color of the car using ColorDialog
            colorDialog1.ShowDialog();
            color = colorDialog1.Color;
            myCar.setColor(color);
```

10. Add the following code to the trkSpeed_Scroll event handler:

```
            //Set the speed
            lblSpeed.Text = trkSpeed.Value.ToString();
```

11. Add the following code to the trkHeading_Scroll event handler:

```
            //Set the heading
            lblHeading.Text = trkHeading.Value.ToString();
```

12. Add the following code to the trkHeading_Scroll event handler:

```
            //Set the horsepower
            lblHP.Text = trkHP.Value.ToString();
```