

Laboratory Exercise

Encapsulation and Methods

Objectives:

At the end of the exercise, the students should be able to:

- Learn the uses of Encapsulation with Methods.
- Calling of class.

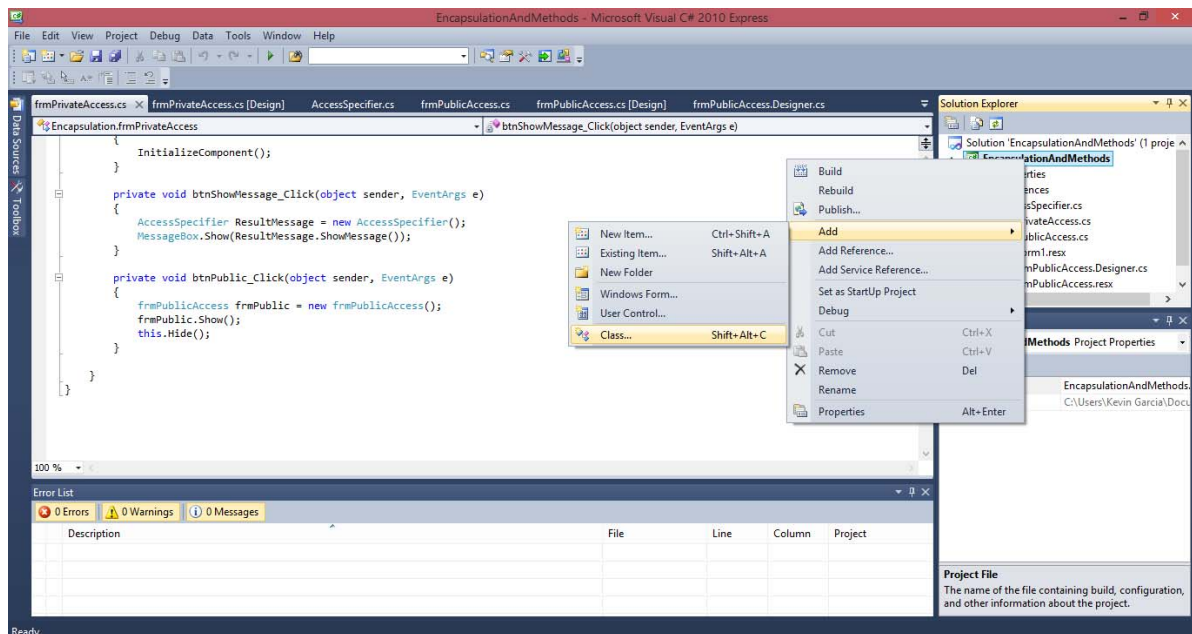
Materials:

- Flash drive
- PC with installed Microsoft Visual C# 2010 Express

Procedures:

Activity 1 Create a new project

1. Name your project as **EncapsulationAndMethods**
2. Select **Windows Forms Application**
3. Click **OK**.
4. From **Solution Explorer** add new **Class** and name it as **AccessSpecifier.cs**



5. Add the following code in the **AccessSpecifier Class**:

```
class AccessSpecifier
{
    // Pubic variable can be call to other class.
    public double FirstNumber;
    public double SecondNumber;
    // public Method
    public double ShowResult() {
        return FirstNumber + SecondNumber;
    }
}
```

```
}  
  
// private variable can be only use within the class otherwise use it in public method.  
private string Message;  
// public Method for private variable  
public string ShowMessage()  
{  
    Message = "this message is a private access";  
    return Message;  
}  
}
```

6. Change the Name of form1.cs to frmPublicAccess



7. Change the Text Property of frmPublicAccess to Public Access
8. Add 2 Textbox and change the Name Property:
 - a. textbox1 = txtFirstNumber
 - b. textbox2 = txtSecondNumber
9. Add 2 Labels and Change the Text Property:
 - a. label1 = First Number:
 - b. label2 = Second Number:
10. Add 2 Buttons and change the Name Property and Text Property:
 - a. Name Property
 - i. button1 = btnShowResult
 - ii. button2 = btnPrivate
 - b. Text Property
 - i. btnShowResult = Show Result
 - ii. btnPrivate = Go To Private Access
11. From Solution explorer Add new Form and Name it as frmPrivateAccess
12. Change the Text Property of frmPrivateAccess to Private Access
13. Add 2 Buttons and change the Name Property and Text Property:
 - a. Name Property
 - i. button1 = btnShowMessage
 - ii. button2 = btnPublic
 - b. Text Property
 - i. btnShowMessage = Show
 - ii. btnPublic = Go To Public Access

14. Add the following code in the **frmPublicAccess**:

```
private void btnShowResult_Click(object sender, EventArgs e)
{
    AccessSpecifier compute = new AccessSpecifier();

    if (txtFirstNumber.Text == String.Empty)
    {
        MessageBox.Show("First Number cannot be empty");
        txtFirstNumber.Focus();
        return;
    }
    if (txtSecondNumber.Text == String.Empty)
    {
        MessageBox.Show("Second Number cannot be empty");
        txtSecondNumber.Focus();
        return;
    }

    compute.FirstNumber = Convert.ToDouble(txtFirstNumber.Text);
    compute.SecondNumber = Convert.ToDouble(txtSecondNumber.Text);

    MessageBox.Show("The public result is: " + Convert.ToString(compute.ShowResult()));
}

private void btnPrivate_Click(object sender, EventArgs e)
{
    frmPrivateAccess frmPrivate = new frmPrivateAccess();
    frmPrivate.Show();
    this.Hide();
}
```

15. Add the following code in the **frmPrivateAccess** :

```
private void btnShowMessage_Click(object sender, EventArgs e)
{
    AccessSpecifier ResultMessage = new AccessSpecifier();
    MessageBox.Show(ResultMessage.ShowMessage());
}

private void btnPublic_Click(object sender, EventArgs e)
{
    frmPublicAccess frmPublic = new frmPublicAccess();
    frmPublic.Show();
    this.Hide();
}
```

16. Run the program and observe the difference between **private** and **public** access.