Object Oriented Programming

Lab one

1. Defining a Class

A class definition starts with the keyword class followed by the class name; and the class body enclosed by a pair of curly braces. Following is the general form of a class definition:

```
1.  <access specifier> class  class_name
2.  {
3.    // member variables  تعريف المتغيرات
4.    <access specifier> <data type> variable1;
5.    <access specifier> <data type> variable2;
6.    ...
7.    <access specifier> <data type> variableN;
8.
9.    // member methods  تعريف الدوال
10.   <access specifier> <return type> method1(parameter_list) {
11.     // method body
12.   }
13.   <access specifier> <return type> method2(parameter_list) {
14.     // method body
15.   }
16.   ...
17.   <access specifier> <return type> methodN(parameter_list) {
18.     // method body
19.   }
20. }
```

Note:

- Access specifiers specify the access rules for the members as well as the class itself. If not mentioned, then the default access specifier for a class type is **internal**. Default access for the members is **private**. See figure 1.
- Data type specifies the type of variable, and return type specifies the data type of the data the method returns, if any.
- To access the class members, you use the dot (.) operator.
- The dot operator links the name of an object with the name of a member.

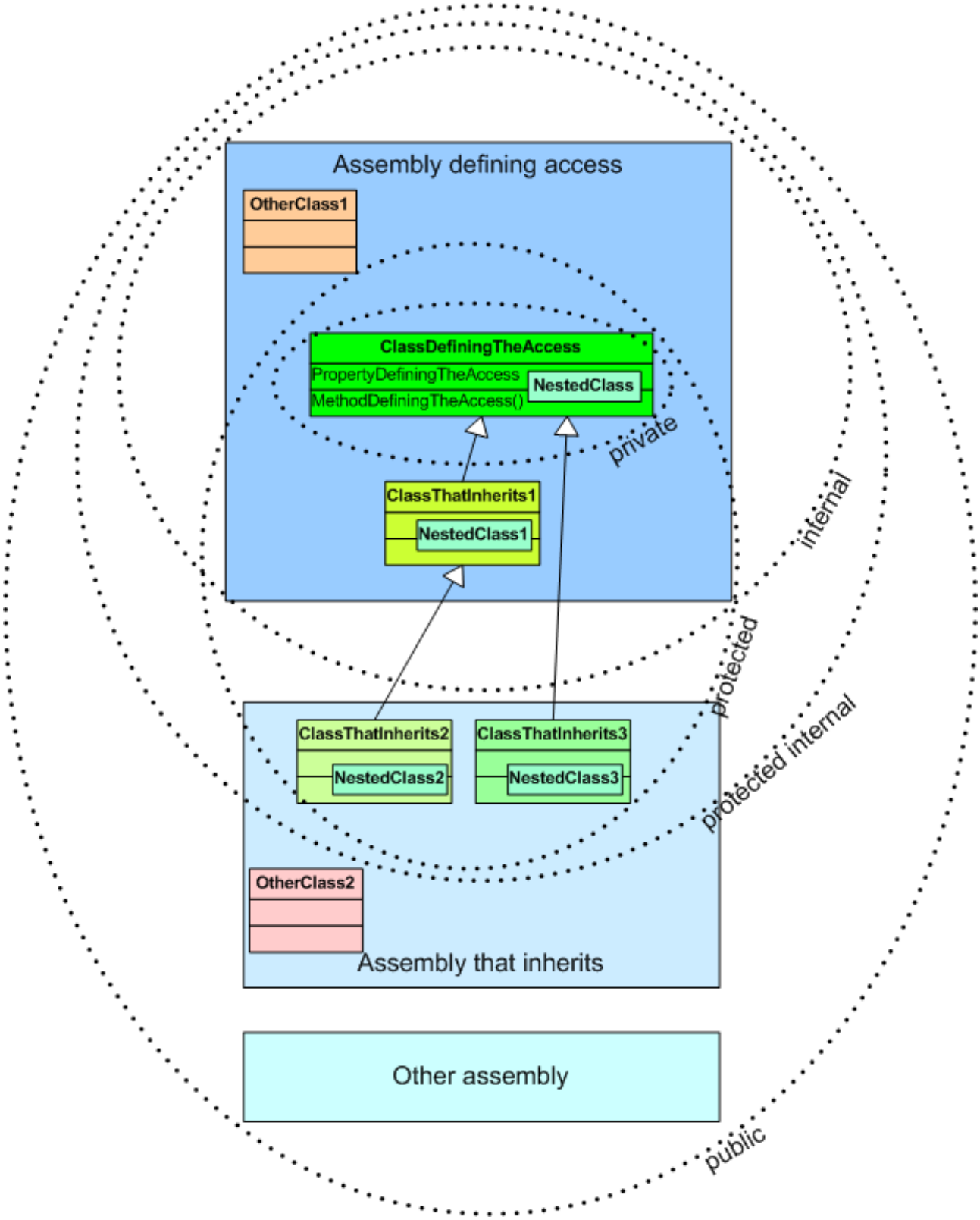
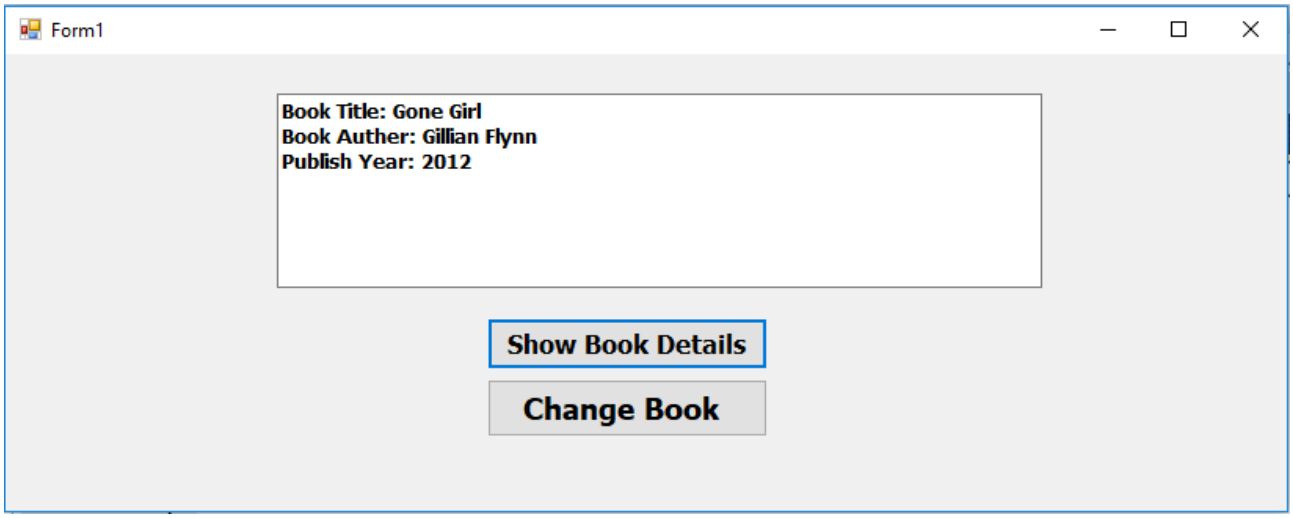

Assembly defining access
OtherClass1
ClassDefiningTheAccess
PropertyDefiningTheAccess
MethodDefiningTheAccess()
NestedClass
private
ClassThatInherits1
NestedClass1
internal
protected
protected internal
ClassThatInherits2
NestedClass2
ClassThatInherits3
NestedClass3
OtherClass2
Assembly that inherits
Other assembly
public

Figure 1

Example 1 :




```
1.  using System;
2.  using System.Collections.Generic;
3.  using System.ComponentModel;
4.  using System.Data;
5.  using System.Drawing;
6.  using System.Linq;
7.  using System.Text;
8.  using System.Windows.Forms;
9.
10. namespace lab_one_oop
11. {
12.     public partial class Form1 : Form
13.     {
14.         Book b1;
15.         public Form1()
16.         {
17.             InitializeComponent();
18.         }
19.
20.         private void button1_Click(object sender, EventArgs e)
21.         {
22.             b1 = new Book("Gone Girl", "Gillian Flynn", 2012);
23.             textBox1.Text =b1.printBookDetails();
24.
25.
26.         }
27.
28.         private void button2_Click(object sender, EventArgs e)
29.         {
30.             b1.setBookT("Your Dreams are Mine Now");
31.             b1.setBookA ("Ravinder Singh");
32.             b1.setYear (2014);
33.             textBox1.Text =b1.printBookDetails();
34.         }
35.     }
36. }
```

```
1.  using System;
2.  using System.Collections.Generic;
3.  using System.Linq;
4.  using System.Text;
5.  using System.Windows.Forms;
6.  namespace lab_one_oop
7.  {
8.     public class Book
9.     {
10.        private string bookTitle;
11.        private string bookAuther;
12.        private int year;
13.
14.        public Book()
15.        {
16.           bookTitle = "Gone Girl";
17.           bookAuther = "Gillian Flynn";
18.           year = 2012;
19.
20.        }
21.
22.        public Book(string bookTitle, string bookAuther, int year)
23.        {
24.           this.bookTitle = bookTitle;
25.           this.bookAuther = bookAuther ;
26.           this.year = year;
27.
28.        }
29.        public string getBookT()
30.        {
31.              return bookTitle;
32.        }
33.          public void setBookT(string title)
34.           {
35.              bookTitle = title;
36.           }
37.         public string getBookA()
38.         {
39.            return bookAuther;
40.         }
41.         public void setBookA(string auther)
42.         {
43.            bookAuther = auther;
44.         }
45.         public int getYear()
46.         {
47.            return year;
48.         }
49.         public void setYear(int y)
50.         {
51.            year = y;
52.         }
53.
54.         public string printBookDetails()
55.         {
56.            return "Book Title: " + bookTitle+Environment.NewLine+"Book Auther: "+bookAuther+Environmen
    t.NewLine +"Publish Year: "+year .ToString ();
57.         }
58.     }
59. }
```