RKIT

SOFTWARE PVT. LTD.

Module 1(understanding document)

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1. Visual studio 2019 IDE overview

1.1 Different types of window

(a) Solution Explorer (Ctrl + Alt + L)

- It contains relatable files and folders of the project.
- You can navigate to any file and folder through solution explorer.

(b) Properties Window (F4)

- By using this window you can view the properties of selected files and folders or project and solution.

(c) Team Explorer (Ctrl + M)

- By using this window you can connect to your version control system like git or any other and work on the team project.

(d) Server Explorer (Ctrl + Alt + S)

- This window use for connect your application with database.

(d) Editor Window

- This window displays the file content, where we can edit the code.

(e) Toolbox Window (Ctrl + Alt + X)

- Toolbox contain the controls that you can add to the project like windows form application.

1. Visual studio 2019 IDE overview

1.2 Solution, Project (Ctrl + Shift + O)

- At the start page of visual studio 2019 there is a availability of the option **Open a project or solution** by clicking that option you can open a existing project or solution from your local directories.

1.3 Code editor features

- In the code editor there is search box from where we can find the things.
- There is error and warning marks in code editor by that we can easily catch the error.
- It shows brace matching.
- Number of lines are available.

2.1 Windows Application

- This is the type of the application which runs on the windows platform.
- It has a Graphical User Interface.
- This type of application contains different controls like button, radio button, checkbox, text box etc.

2.2 Class Library

- There is already availability of the class library in .net framework which includes namespaces, classes and methods.
- In Visual Studio we can also create our own class library which contains some special methods which we can use in another program by including them.

2.3 Web Application

- Web application is something which we can run on any system on web server through web browser.
- ASP.NET is a framework to develop web application on visual studio.

1 What is Namespace?

- Namespace contains classes and their methods.
- By including that namespace in another program we can use that namespace's classes and their method.

3.2 What is class?

- A class is a one type of template or blueprint of the program.
- A class contains related variables and methods.

3.3 Variable and Method Declaration

(a) variable

- Variable is one type of container which contains the data.
- There is availability of different types of data to indicate particular type of data you need to put the datatype before the variable name

(b) Method

- Method is a one type of block which contains the lines of code.
- Whenever we want to use that block of code we can call that method

4.1 Program Flow

- The normal flow of the program, when the program runs the code is executed from the top of the program to the bottom
- Main method is the entry point of the program.
- If we want to change the flow of the program we can use different control statements like Continue, Break, Goto etc.

4.2 Understanding Syntax

- The first statement of any C# program is: **using namespace** where using keyword is used to include namespace in the program.
- You can include more than one namespaces
- After that there is a namespace of your program.
- After the namespace there is a class which contains the data and methods.
- Another thing that always available in c# program is **Main** method.
- Every C# statement ends with the semicolon.

5.1 Understanding structure of solution

- Extension of the solution file is **.sln**
- Solution file can contain one or more related project.
- When we open the solution in Visual Studio, it automatically load all the projects which solution contains.
- Solution file contain some of the files named Assemblyinfo.cs, App.config,Refrences.

5.2 Understanding structure of project

(a) Windows application

- Windows application is the application which runs on the windows platform.
- When we create this type of application editor window shows the form, in the form we can add controls using Toolbox window.

(b) Class Library.

- The extension of the file is .DLL
- By adding the reference this file in another project you can use the methods of this program in another program.

(c) Web application

- This type of application runs on web server.
- There is a index.cshtml file where we can edit our home page.

5.3 Extension

- .sln -> solution file
- .cs -> c# file
- .csproj -> c# project file
- .dll -> class library file
- .designer.cs -> form design file

6.1 Base datatype

- Datatype specifies that which type of data variable can store.
- There is a availability of several type of datatype

(a) Int (size= 4 bytes)
(b) long (size= 8 bytes)
(d) float (size= 4 bytes)
(e) double (size= 4 bytes)
(f) decimal (size= 16 bytes)
(g) Char (size= 2 bytes)
(h) String (size= 2 bytes per character)
(i) Bool (size= 1 byte)

6.2 Datatype Conversion

- When we want to assign the value of one datatype to another datatype it's called datatype conversion
- There is two type of datatype conversion.

(1) Implicit

In this conversion we can only assign the value of smaller datatype to the larger datatype

(2) Explicit

- When we want to assign the value of larger datatype to smaller datatype then we need to do the explicit conversion.

6.3 Boxing/ Unboxing

(a) Boxing

- When we convert value type to object type it's known as boxing.
- When we box the value CLR will convert it to the object type and that object give the reference of the value in heap memory

(b) Unboxing

- In unboxing we convert object to value type.

This unboxing conversion is explicit conversion

7. Understanding decision making & statements

. 7.1 If else

- This is the decision making statement.
- There is a condition, if the given condition is true than if block will execute otherwise else block will execute

7.2 Switch

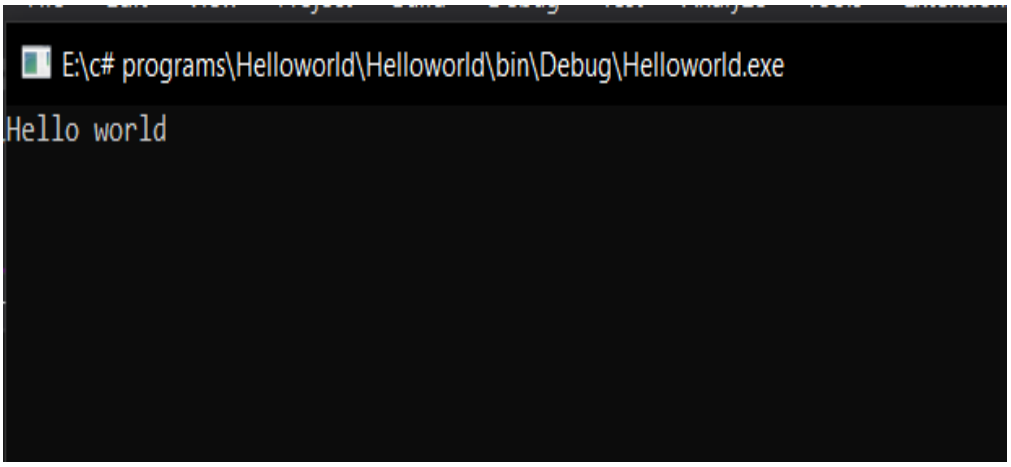
- In switch statement there is availability of multiple sections called cases.
- The expression of switch statement is checked for different cases and whichever case matches with expression that will execute
- .There is also default case if expression does not match with any case than default case will execute

Programs of Module 1

- **Program 1: Hello world**

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

namespace Helloworld
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Hello world");
            Console.ReadLine();
        }
    }
}
```

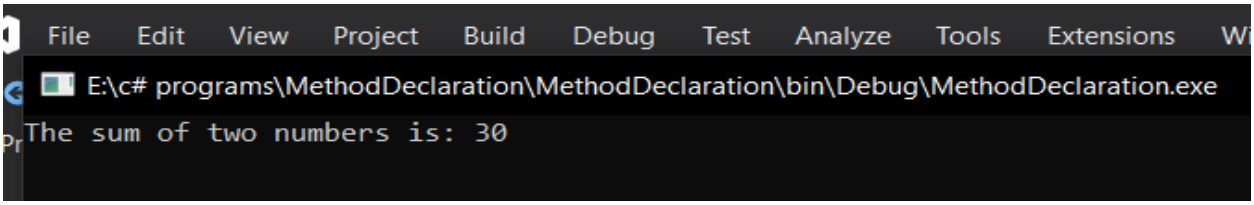
- **Output**



- **Program 2: Method declaration**

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

namespace MethodDeclaration
{
    class Mymethod
    {
        public int sum (int x, int y)
        {
          return x+y;
        }
        static void Main(string[] args)
      {
            Mymethod m1 = new Mymethod();
            int Addition = m1.sum(10,20);
            Console.WriteLine("The sum of two numbers is:
" + Addition);
            Console.ReadLine();
        }
    }
}
```

- **Output**

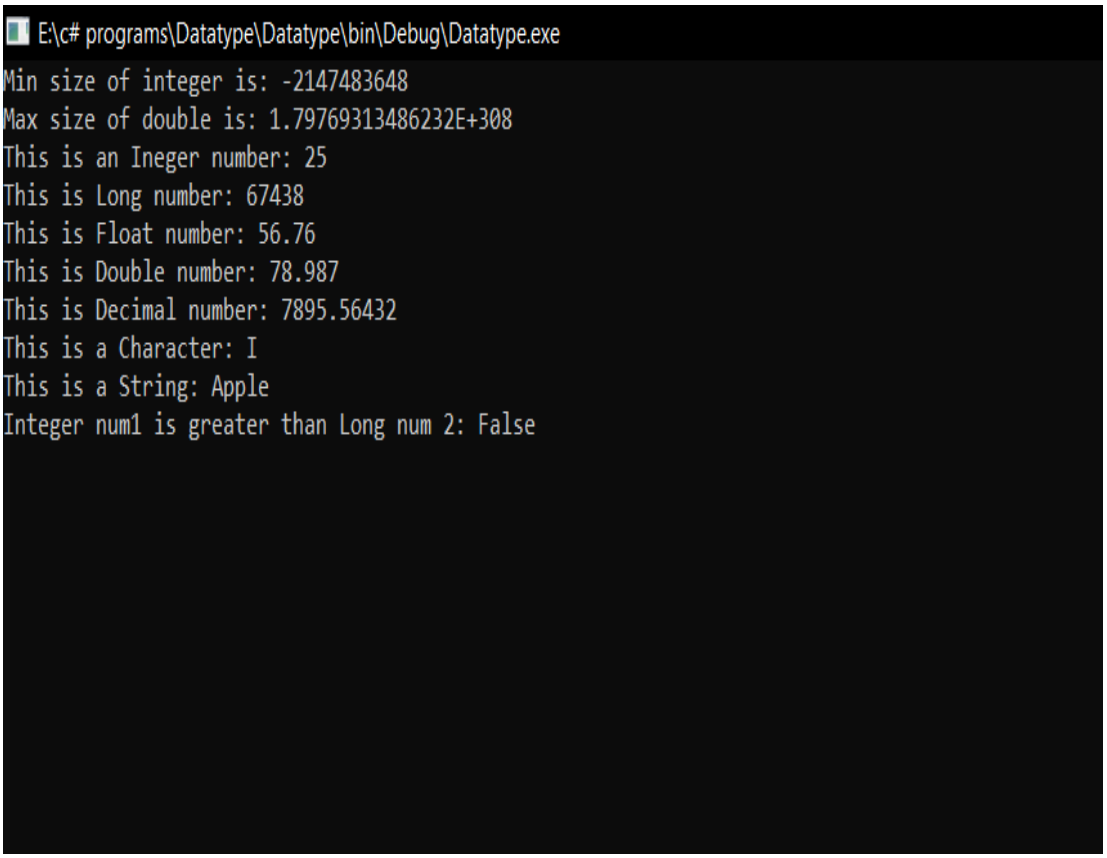


Program 3: Datatype

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

namespace Datatype
{
    class Program
    {
        static void Main(string[] args)
        {
            //Base Datatypes
            int num1 = 25;
            long num2 = 67438;
            float num3 = 56.76f;
            double num4 = 78.987;
            decimal num5 = 7895.56432m;
            char a = 'I';
            string s1 = "Apple";
            bool b = (num1 > num2);

            //Check the size of datatype
            Console.WriteLine("Min size of integer is: " +
int.MinValue);
            Console.WriteLine("Max size of    double is: " +
double.MaxValue);

                Console.WriteLine("This is an Integer number:
{0}", num1);
            Console.WriteLine("This is Long number: {0}",
num2);
                Console.WriteLine("This is Float number:
{0}", num3);
```

```
                Console.WriteLine("This is Double number:
{0}", num4);
            Console.WriteLine("This is Decimal number: {0}",
num5);
            Console.WriteLine("This is a Character: {0}",
a);
            Console.WriteLine("This is a String: {0}", s1);
            Console.WriteLine("Integer num1 is greater than
Long num 2: "+b);
            Console.ReadLine();
        }
    }
}
```

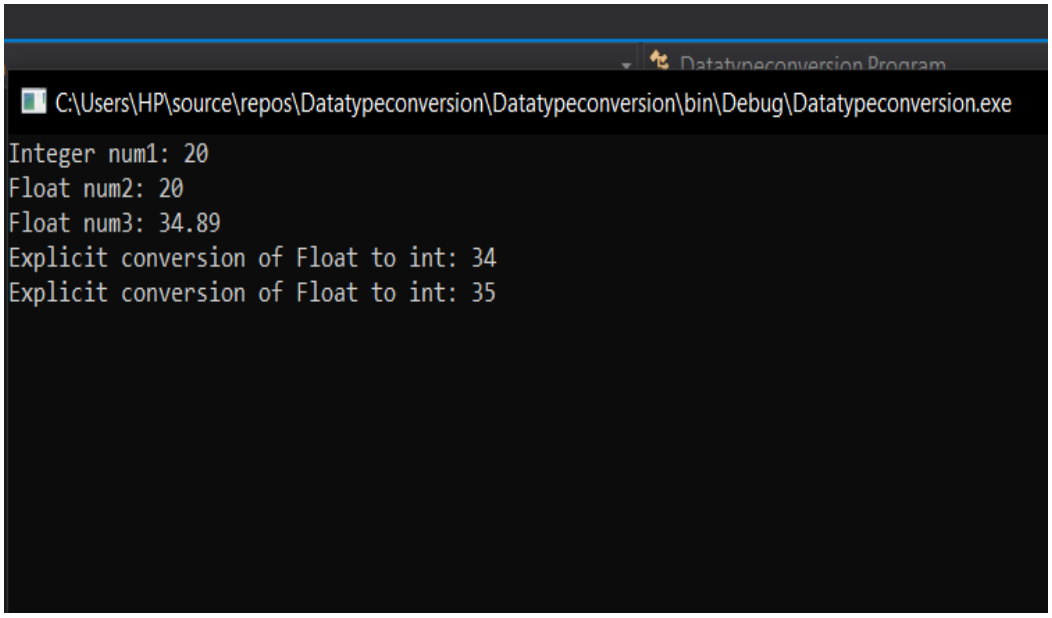
- **Output**



Program 4: Type Conversion

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Runtime.Remoting.Metadata.W3cXsd2001;
using System.Text;
using System.Threading.Tasks;

namespace Datatypeconversion
{
    class Program
    {
        static void Main(string[] args)
        {
            //implicit
            int num1 = 20;
            float num2 = num1;

            //explicit
            float num3 = 34.89f;
            int num4 = (int)num3;
            int num5 = Convert.ToInt32(num3);

            Console.WriteLine("Integer num1: " + num1);
            Console.WriteLine("Float num2: " + num2);
            Console.WriteLine("Float num3: " + num3);
            Console.WriteLine("Explicit conversion of Float
to int: " + num4);
            Console.WriteLine("Explicit conversion of Float
to int: " + num5);
            Console.ReadLine();



        }
    }
}
```

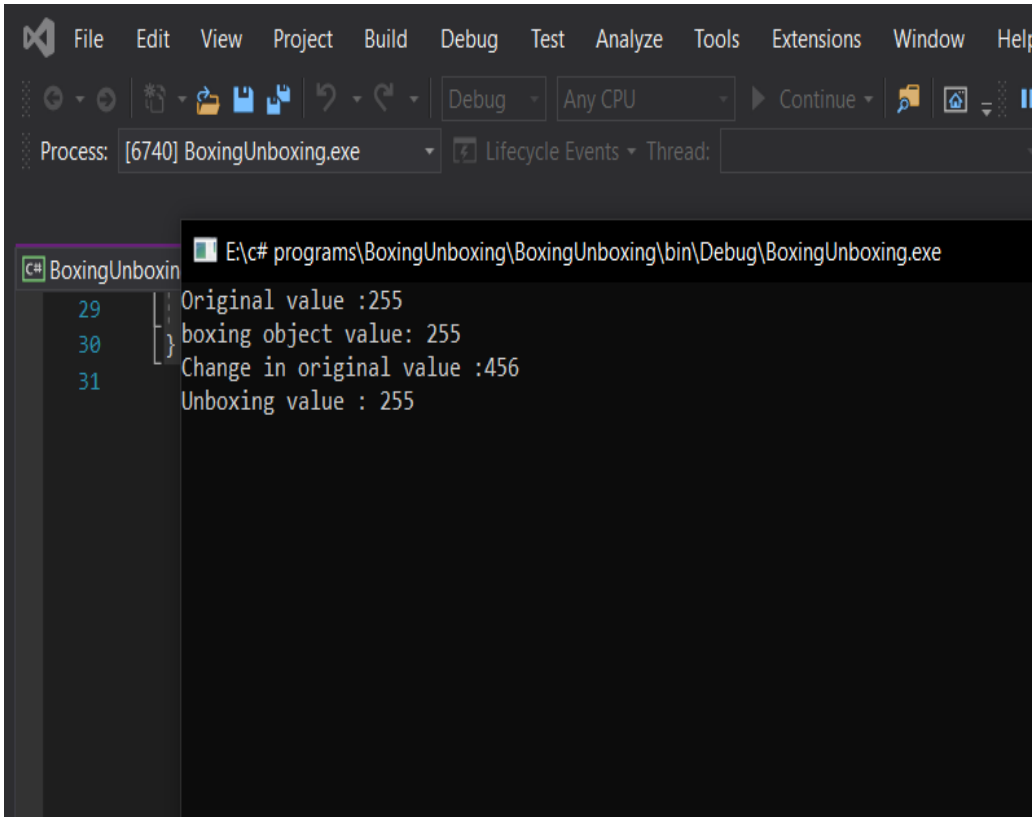
- **Output**


C:\Users\HP\source\repos\Datatypeconversion\Datatypeconversion\bin\Debug\Datatypeconversion.exe
Integer num1: 20
Float num2: 20
Float num3: 34.89
Explicit conversion of Float to int: 34
Explicit conversion of Float to int: 35

Program 5: Boxing Unboxing

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

namespace BoxingUnboxing
{
    class Program
    {
        static void Main(string[] args)
        {
            //boxing
            int num1 = 255;
            Console.WriteLine("Original value :" + num1);
            object obj = num1;
            Console.WriteLine("boxing object value: " +
obj);
            num1 = 456;
            Console.WriteLine("Change in original value :" +
num1);
            //Unboxing
            int num2 = (int)obj;

            Console.WriteLine("Unboxing value : " + num2);
            Console.ReadLine();
        }
    }
}
```

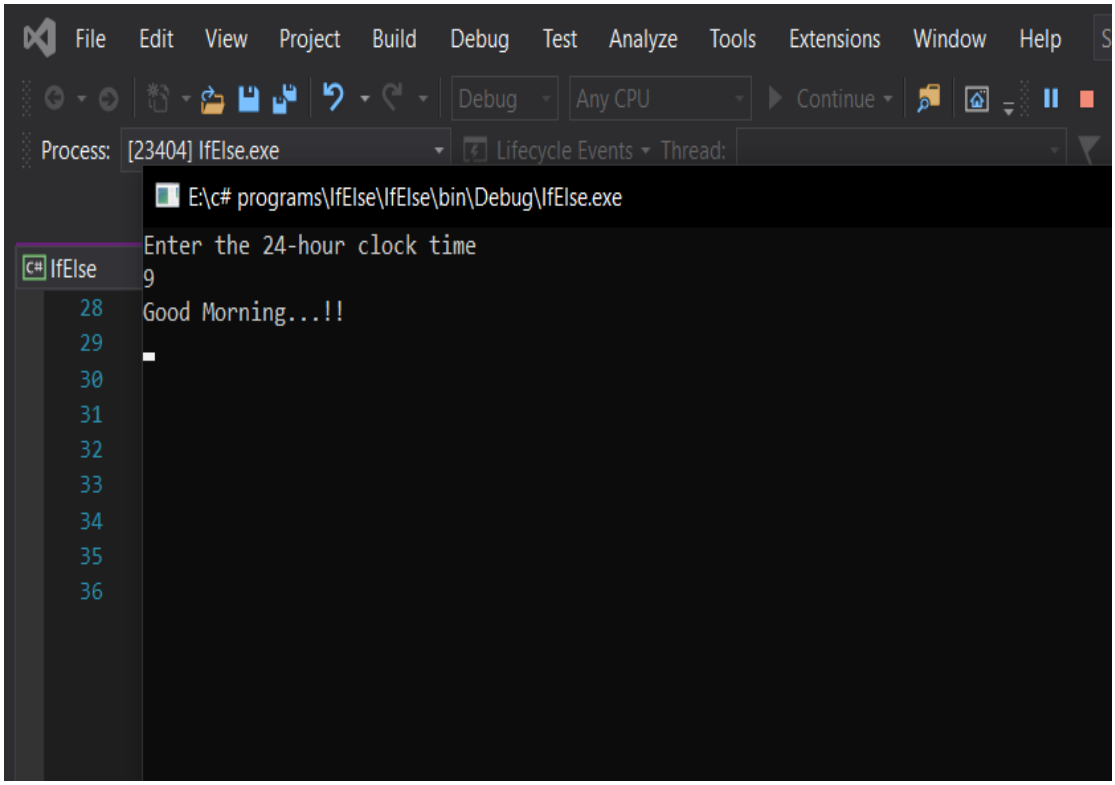
- **Output**


File Edit View Project Build Debug Test Analyze Tools Extensions Window Help
Debug
Any CPU
Continue
Process: [6740] BoxingUnboxing.exe
Lifecycle Events
Thread:
BoxingUnboxin
29
30
31
}
E:\c# programs\BoxingUnboxing\BoxingUnboxing\bin\Debug\BoxingUnboxing.exe
Original value :255
boxing object value: 255
Change in original value :456
Unboxing value : 255

Program 6: IfElse

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Runtime.Remoting.Messaging;
using System.Text;
using System.Threading.Tasks;

namespace IfElse
{
    class Program
    {
        static void Main(string[] args)
        {

            Console.WriteLine("Enter the 24-hour clock
time");
            int time = int.Parse(Console.ReadLine());

            if ( time >= 5 && time <= 12)
            {
                Console.WriteLine("Good Morning...!!");
            }
            else if(time >12 && time <= 18)
            {
                Console.WriteLine("Good Afternoon...!!");
            }
            else
            {
                Console.WriteLine("Good Evening..!!");
            }

            Console.ReadLine();

        }
    }
}
```

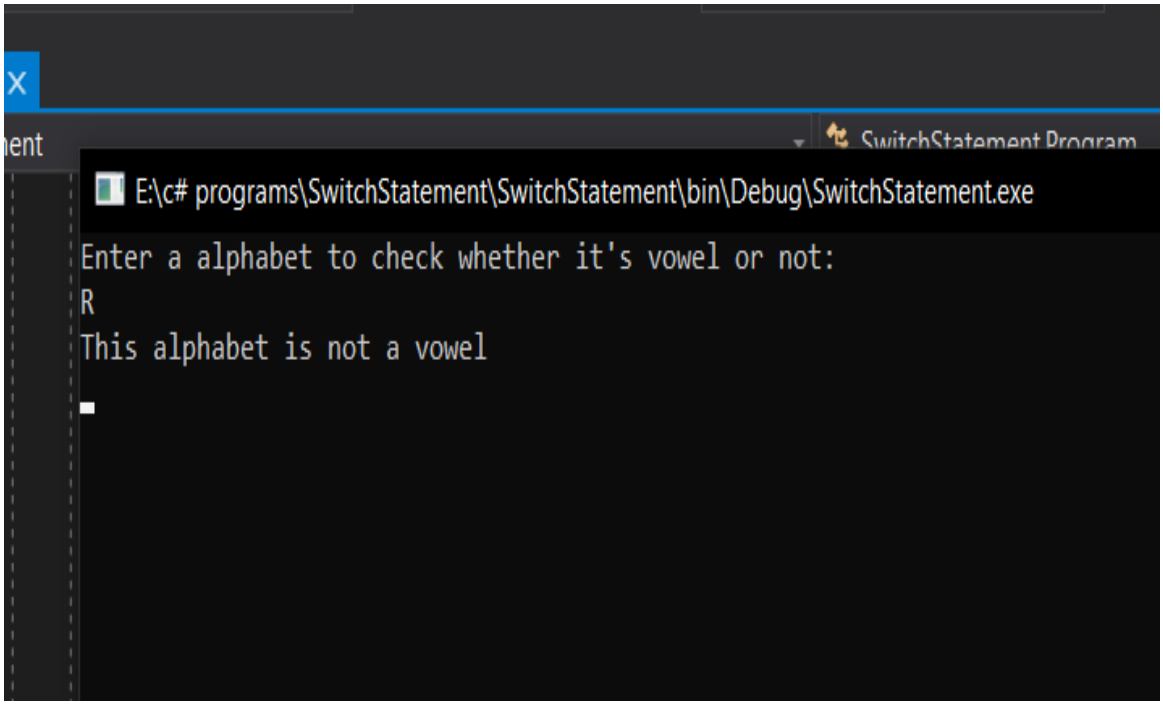
- **Output**


File Edit View Project Build Debug Test Analyze Tools Extensions Window Help
Debug
Any CPU
Continue
Process: [23404] IfElse.exe
Lifecycle Events
Thread:
E:\c# programs\IfElse\IfElse\bin\Debug\IfElse.exe
IfElse
Enter the 24-hour clock time
9
Good Morning...!!
28
29
30
31
32
33
34
35
36

Program 7: Switch

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

namespace SwitchStatement
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter a alphabet to check
whether it's vowel or not: ");
            char ch =
Convert.ToChar(Console.ReadLine().ToLower());

            switch(ch)
            {
                case 'a':
                case 'e':
                case 'i':
                case 'o':
                case 'u':
                    Console.WriteLine("This alphabet is
vowel");
                    break;
                default:
                    Console.WriteLine("This alphabet is not
a vowel");
                    break;

            }
            Console.ReadLine();
        }
    }
}
```

- **Output**


E:\c# programs\SwitchStatement\SwitchStatement\bin\Debug\SwitchStatement.exe
Enter a alphabet to check whether it's vowel or not:
R
This alphabet is not a vowel

Program 8: Class Library

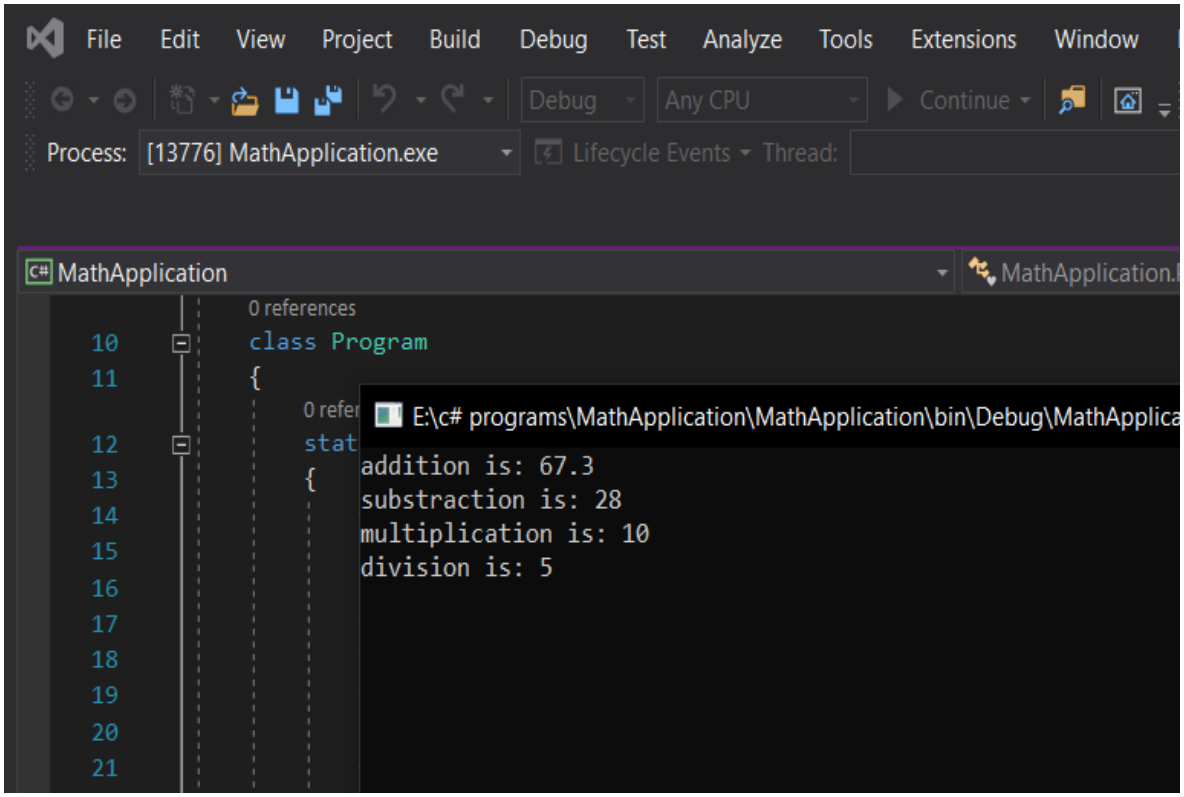
Create a class library

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

namespace MathLibrary
{
    public class Class1
    {
        public float addition(float a, float b)
        {
            return a + b;
        }
        public float subtraction(float a, float b)
        {
            return a - b;
        }
        public float multiply(float a, float b)
        {
            return a * b;
        }
        public float division(float a, float b)
        {
            return a / b;
        }
    }
}
```

Use of the class library in the program

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

namespace MathApplication
{
    class Program
    {
        static void Main(string[] args)
        {
            Class1 math = new Class1();

            float addition = math.addition(34.32f, 32.98f);
            float substract = math.subtraction(84, 56);
            float multiplication = math.multiply(5, 2);
            float division = math.division(10, 2);

            Console.WriteLine("addition is: " + addition);
            Console.WriteLine("substraction is: " +
substract);
            Console.WriteLine("multiplication is: " +
multiplication);
            Console.WriteLine("division is: " + division);
            Console.ReadLine();

        }
    }
}
```

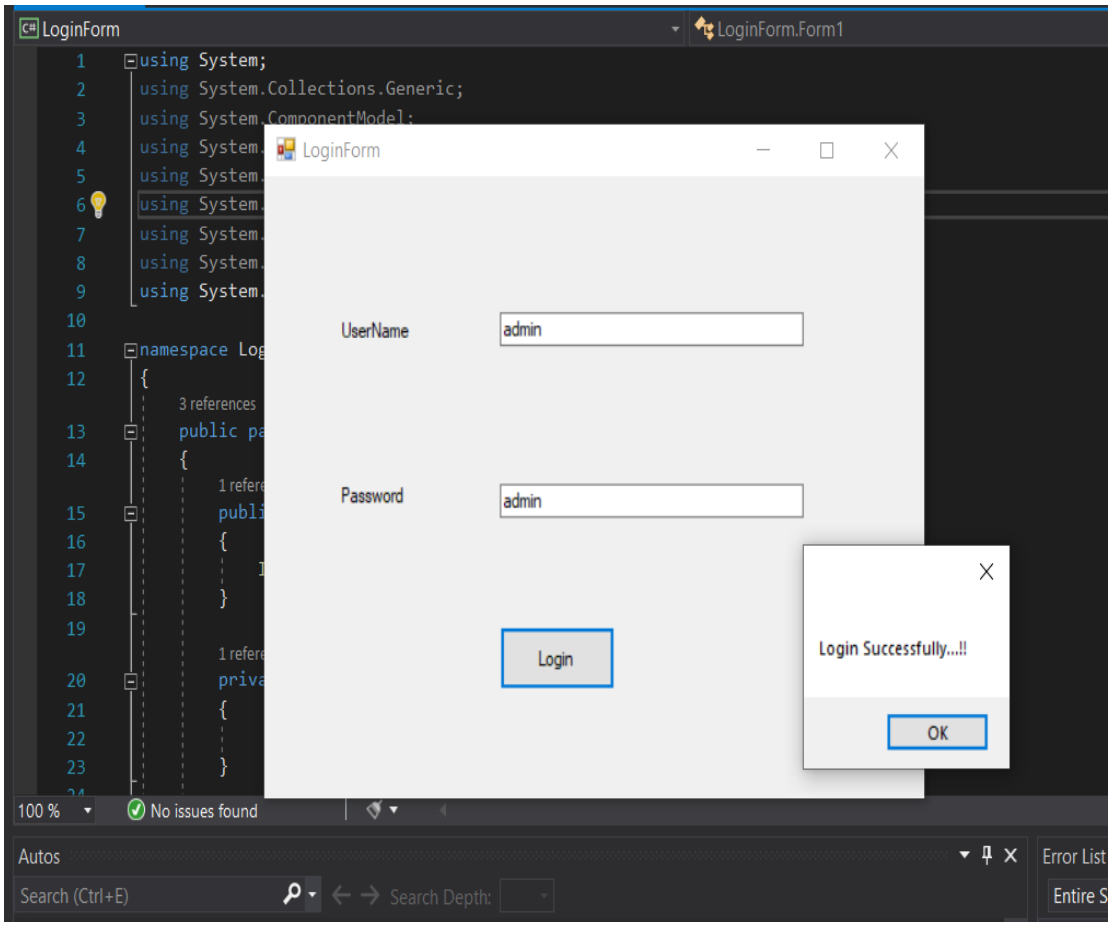
- **Output**


File Edit View Project Build Debug Test Analyze Tools Extensions Window
Debug
Any CPU
Continue
Process: [13776] MathApplication.exe
Lifecycle Events
Thread:
MathApplication
0 references
class Program
{
E:\c# programs\MathApplication\MathApplication\bin\Debug\MathApplica
addition is: 67.3
substraction is: 28
multiplication is: 10
division is: 5

Program 9: Windows application

```
using System;
using System.Windows.Forms;

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

        private void label1_Click(object sender, EventArgs
e)
        {

        }

        private void btnLogin_Click(object sender, EventArgs
e)
        {
            string user, pass;
            user = txtUser.Text;
            pass = txtPass.Text;
            if(user=="admin" && pass=="admin")
            {
                MessageBox.Show("Login Successfully...!!");
            }
            else
            {
                MessageBox.Show("Incorrect username or
password..!!");
            }
        }
    }
}
```

- **Output**


LoginForm
LoginForm.Form1
using System;
using System.Collections.Generic;
using System.ComponentModel;
namespace Log
3 references
public pa
1 refere
publi
1 refere
priva
LoginForm
UserName
admin
Password
admin
Login
Login Successfully...!!
OK
100 %
No issues found
Autos
Search (Ctrl+E)
Search Depth:
Error List
Entire S