EAST WEST UNIVERSITY
excellence in education

EWU CO PC
Striving for Excellence
East West University Computer Programming Club

Workshop
on
C# Programming: Learn to Build

Date :
Day 1 - 26, October 2018
Day 2 - 2, November 2018
Day 3 - 9, November 2018

Sponsored by:
YES
Young Engineers Society

Organized by :
East West University
Computer Programming Club

C#

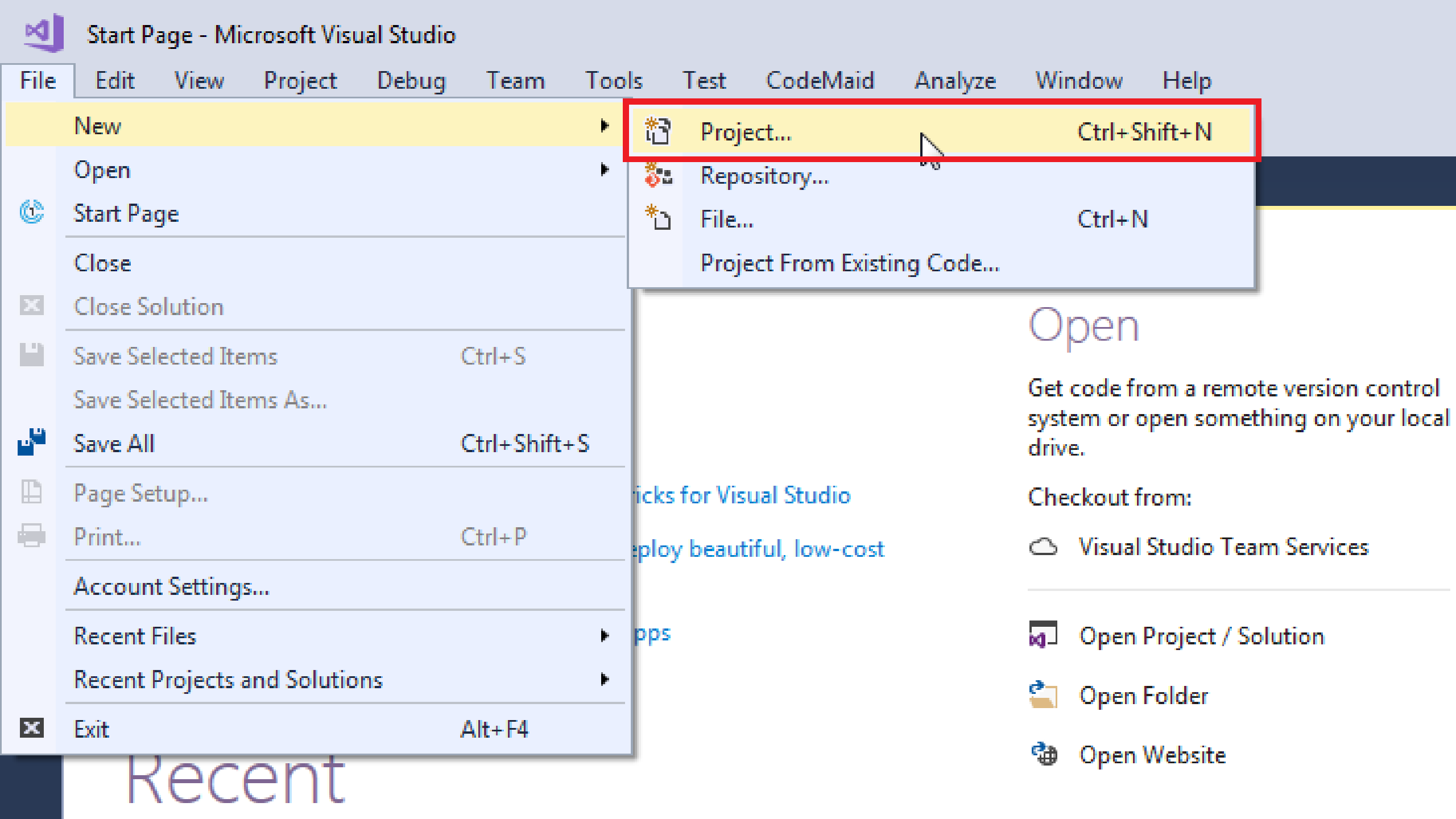
Day 1
Lecture1: Basic

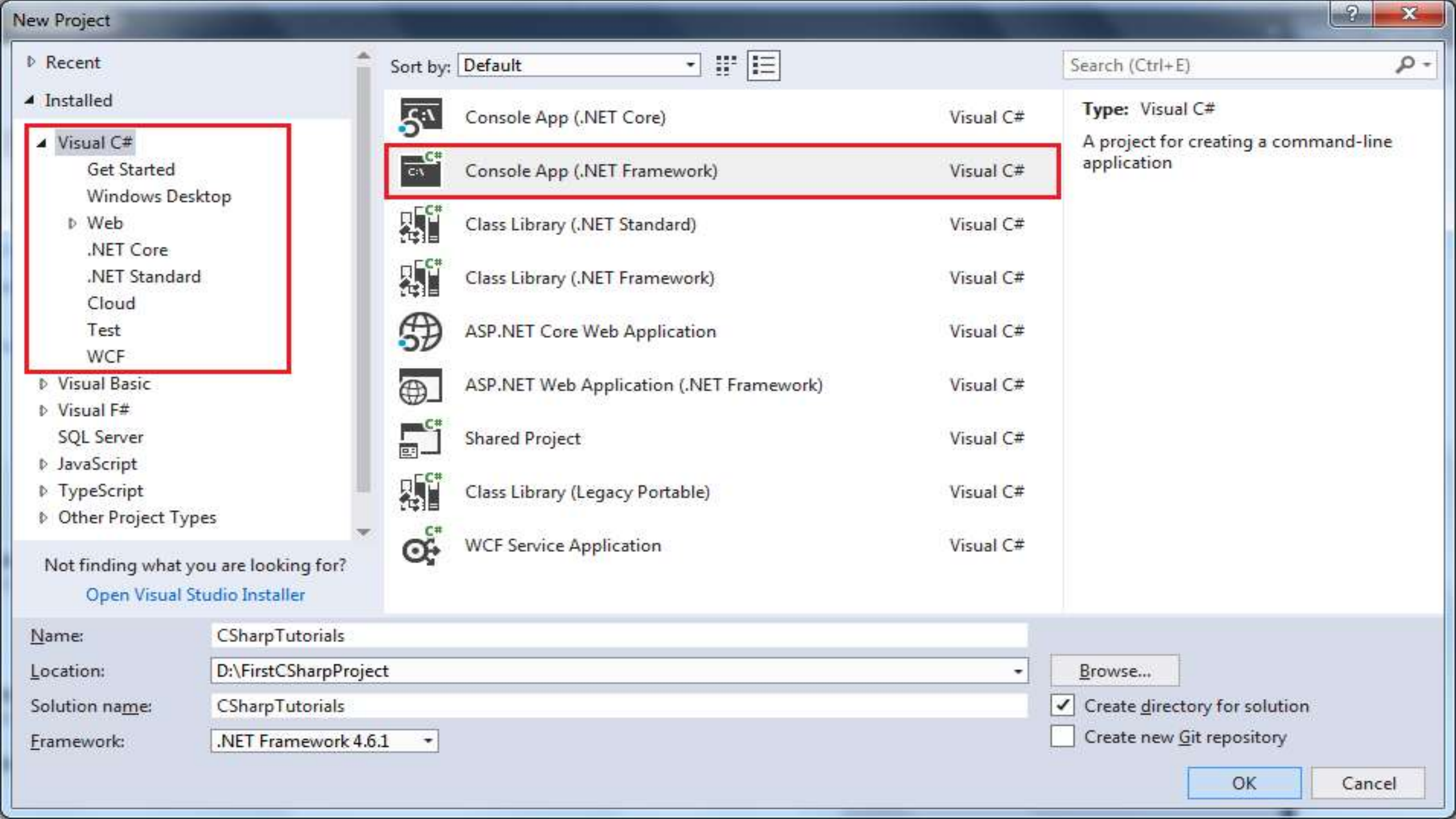
Version	.NET Framework	Visual Studio	Important Features
C# 1.0	.NET Framework 1.0/1.1	Visual Studio .NET 2002	› Basic features
C# 2.0	.NET Framework 2.0	Visual Studio 2005	› Generics › Partial types › Anonymous methods › Iterators › Nullable types › Private setters (properties) › Method group conversions (delegates) › Covariance and Contra-variance › Static classes
C# 3.0	.NET Framework 3.0\3.5	Visual Studio 2008	› Implicitly typed local variables › Object and collection initializers › Auto-Implemented properties › Anonymous types › Extension methods › Query expressions › Lambda expressions › Expression trees › Partial Methods
C# 4.0	.NET Framework 4.0	Visual Studio 2010	› Dynamic binding (late binding) › Named and optional arguments › Generic co- and contravariance › Embedded interop types
C# 5.0	.NET Framework 4.5	Visual Studio 2012/2013	› Async features › Caller information
C# 6.0	.NET Framework 4.6	Visual Studio 2013/2015	› Expression Bodied Methods › Auto-property initializer › nameof Expression › Primary constructor › Await in catch block › Exception Filter › String Interpolation
C# 7.0	.NET Core	Visual Studio 2017	› out variables › Tuples › Discards › Pattern Matching › Local functions › Generalized async return types › throw Expressions

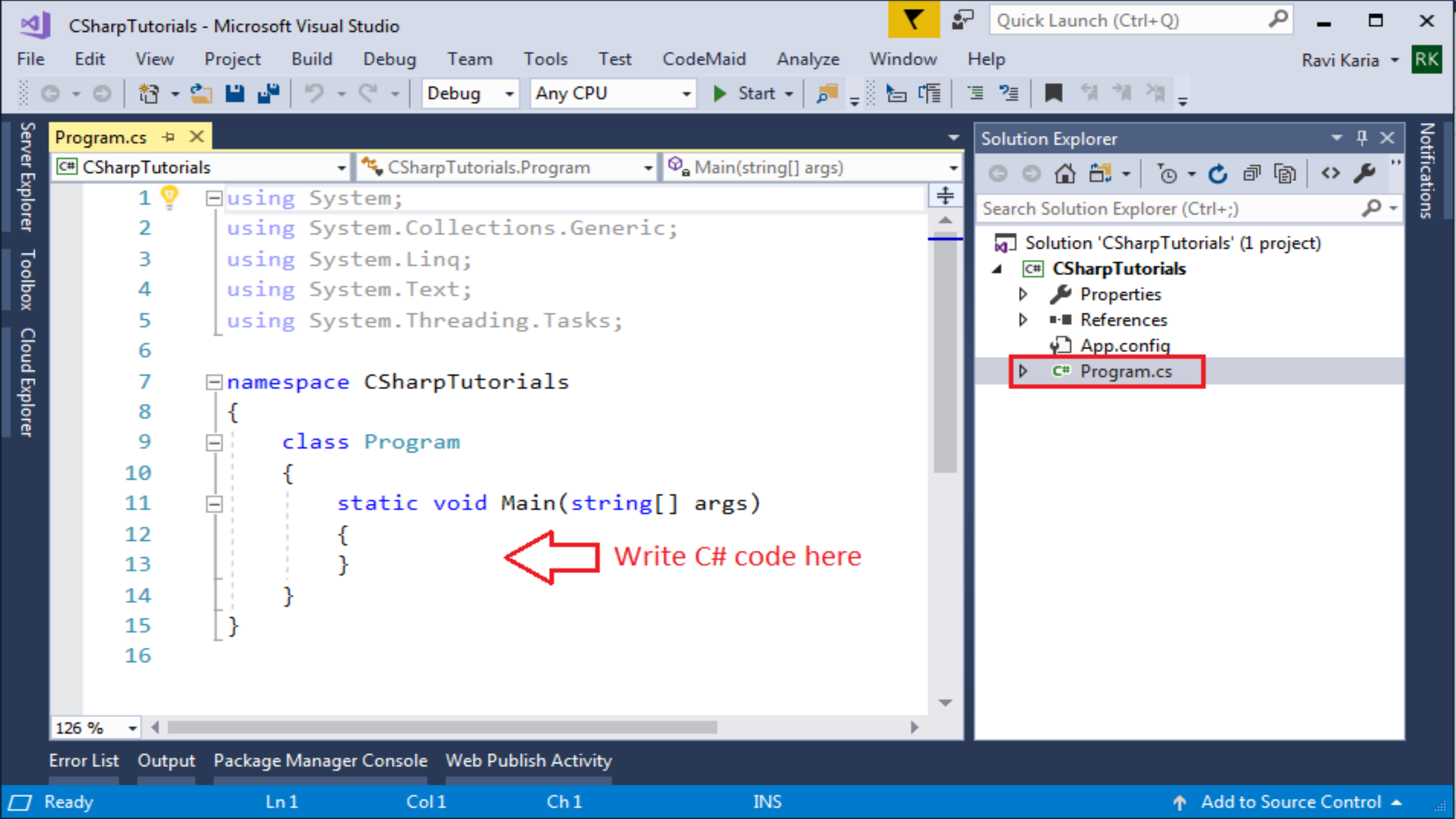
Environment

Tools required:

- The **.NET Framework** is a platform for building, deploying, and running different types of Web and Desktop based Applications & Web Services.
- **Common Language Runtime (CLR):** The .NET Framework contains a run-time environment known as CLR which runs the codes. It provides services to make the development process easy.
- **Framework Class Library(FCL):** It is a library of classes, value types, interfaces that provide access to system functionality.
- An **IDE (Integrated Development Environment)** is a tool that helps to write programs using different programming languages.


Start Page - Microsoft Visual Studio
File Edit View Project Debug Team Tools Test CodeMaid Analyze Window Help
New
Open
Start Page
Close
Close Solution
Save Selected Items Ctrl+S
Save Selected Items As...
Save All Ctrl+Shift+S
Page Setup...
Print... Ctrl+P
Account Settings...
Recent Files
Recent Projects and Solutions
Exit Alt+F4
Project... Ctrl+Shift+N
Repository...
File... Ctrl+N
Project From Existing Code...
Open
Get code from a remote version control system or open something on your local drive.
Checkout from:
Visual Studio Team Services
Open Project / Solution
Open Folder
Open Website
Recent


New Project
Recent
Installed
Visual C#
Get Started
Windows Desktop
Web
.NET Core
.NET Standard
Cloud
Test
WCF
Visual Basic
Visual F#
SQL Server
JavaScript
TypeScript
Other Project Types
Not finding what you are looking for?
Open Visual Studio Installer
Sort by: Default
Search (Ctrl+E)
Console App (.NET Core) Visual C#
Console App (.NET Framework) Visual C#
Class Library (.NET Standard) Visual C#
Class Library (.NET Framework) Visual C#
ASP.NET Core Web Application Visual C#
ASP.NET Web Application (.NET Framework) Visual C#
Shared Project Visual C#
Class Library (Legacy Portable) Visual C#
WCF Service Application Visual C#
Type: Visual C#
A project for creating a command-line application
Name: CSharpTutorials
Location: D:\FirstCSharpProject
Browse...
Solution name: CSharpTutorials
Create directory for solution
Framework: .NET Framework 4.6.1
Create new Git repository
OK
Cancel


CSharpTutorials - Microsoft Visual Studio
Quick Launch (Ctrl+Q)
File Edit View Project Build Debug Team Tools Test CodeMaid Analyze Window Help
Ravi Karia
Debug
Any CPU
Start
Server Explorer
Toolbox
Cloud Explorer
Program.cs
CSharpTutorials
CSharpTutorials.Program
Main(string[] args)
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Text;
5 using System.Threading.Tasks;
6
7 namespace CSharpTutorials
8 {
9 class Program
10 {
11 static void Main(string[] args)
12 {
13 }
14 }
15 }
16
Write C# code here
126 %
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'CSharpTutorials' (1 project)
CSharpTutorials
Properties
References
App.config
Program.cs
Notifications
Error List
Output
Package Manager Console
Web Publish Activity
Ready
Ln 1
Col 1
Ch 1
INS
Add to Source Control

Key Organizational Concepts in C#

C# is developed by Anders Hejlsberg at Microsoft in 2000 as a rival to Java.

- ***Programs***
- ***Namespaces***
- ***Types***
- ***member***

Topic

- C# Environment
- Basic Syntax
- Data Types
- Type Casting
- Variables
- Operators
- Decision Making
- Loops
- Methods
- Arrays
- String
- Class
- Static Keyword

Features of C#

- **simple, modern, object-oriented**
- **type-safe** programming language
- **component-oriented** programming
- **garbage collection**
- **exception handling**

Basic Syntax: Write()

```
using System;

namespace Basic_syntax
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("I’m Jannat Binta Alam. And you?");
        }
    }
}
```

Basic Syntax: Read()

```
using System;

namespace Basic_syntax
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("I'm Jannat Binta Alam. And you?");
            Console.Read();
        }
    }
}
```

Basic Syntax: Clear()

```
using System;

namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
            Console.Write("I’m Jannat Binta Alam. And you?");
            Console.Read();
            Console.Clear();
       }
    }
}
```

Comment

- **Single Line Comment**

// comment

- **Multiline Comment**

/* first line

last line ***/**

Your First Program

- Program Name: Hello Universe
- Author Name: Jannat Binta Alam
- Task: A Program to Print “Hello Universe”
- Date: 26th October, 2018: 8.30AM

  Or 26.10.2018:8.30AM

Problem Set

- Write a program to print “Hello Universe! –Your Name” in console.

Hello Universe!

```
using System;
class Hello
{
        static void Main()
        {
                Console.WriteLine("Hello Universe!");
                Console.ReadKey();
        }
}
```

Hello Universe!

```
class Hello
{
        static void Main()
        {
                System.Console.WriteLine("Hello Universe!");
                System.Console.ReadKey();
        }
}
```

Basic Syntax: BackgroundColor

```
using System;

namespace Basic_syntax
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.BackgroundColor = ConsoleColor.DarkBlue;
         }
     }
}
```

Basic Syntax: Read()

```
using System;

namespace Basic_syntax
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.BackgroundColor = ConsoleColor.DarkBlue;
            Console.Read();
        }
    }
}
```

Basic Syntax: WriteLine()

```
using System;

namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
            Console.BackgroundColor = ConsoleColor.DarkBlue;
            Console.WriteLine("C#: Learn to Build!");
            Console.Read();
       }
    }
}
```

Basic Syntax: BackgroundColor

```
using System;

namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
            Console.BackgroundColor = ConsoleColor.DarkBlue;
            Console.Clear();
            Console.WriteLine("C#: Learn to Build!");
            Console.Read();
       }
    }
}
```

Basic Syntax: ForegroundColor

```
using System;

namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
            Console.ForegroundColor = ConsoleColor.Green;
            Console.WriteLine("C#: Learn to Build!");
            Console.ReadKey();
       }
    }
}
```

Basic Syntax: Beep

```
using System;

namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
            Console.ForegroundColor = ConsoleColor.Green;
            Console.WriteLine("C#: Learn to Build!");
             Console.Beep(2100,1000);     //(int frequency, int millisecond)
            Console.ReadKey();
       }
    }
}
```

Basic Syntax: Color Variable

```
using System;
namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
           ConsoleColor col = Console.BackgroundColor;
           Console.Write(col);
       }
    }
}
```

Basic Syntax: Color Variable

```
using System;
namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
           Console.BackgroundColor = ConsoleColor.DarkBlue;
           ConsoleColor col = Console.BackgroundColor;
           Console.Write(col);
       }
    }
}
```

Basic Syntax: Color Variable

```
using System;
namespace Basic_syntax
{
    class Program
    {
        static void Main(string[] args)
        {
            ConsoleColor col = Console.ForegroundColor;
            Console.Write(col);
        }
    }
}
```

Basic Syntax: Color Variable

```
using System;
namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
           Console.ForegroundColor = ConsoleColor.Green;
           ConsoleColor col = Console.ForegroundColor;
           Console.Write(col);
       }
    }
}
```

Basic Syntax: Color Variable

```
using System;
namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
            ConsoleColor col = Console.BackgroundColor;
            ConsoleColor col1 = Console.ForegroundColor;
            Console.Write(col);
            Console.Write(col1);
            Console.Read();
       }
    }
}
```

Basic Syntax: CursorSize

```
using System;
namespace Basic_syntax
{
   class Program
   {
      static void Main(string[] args)
      {
           Console.CursorSize = 100; //range=1-100
           Console.ForegroundColor = ConsoleColor.DarkRed;
           Console.Write(("C#: Learn to Build!“);
       }
    }
}
```

Basic Syntax: SetWindowSize()

```
using System;
namespace Basic_syntax
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write(("C#: Learn to Build!“);
            Console.SetWindowSize(200, 50); //(width, height); max h=50.
         }
     }
}
```

This slide is provided as a course material in the workshop named "Workshop on C# Programming: Learn to Build".

Organized by-

East West University Computer Programming Club (EWUCoPC)

Prepared by-
Jannat Binta Alam
Campus Ambassador
Young Engineers Society (YES)
E-mail: jannat.cse.ewu@gmail.com