8.Structure and Enumeration in C#.Net

8.1 Structures

Structures are value types and not reference types. They are similar to classes in many ways But as they do not require heap allocation and are allocated on a stack. A struct types can Declare constructors, constant, fields, methods, properties, operators and nested types.

Classes and structures has many resemblances and three differences as given Below.

- ❑ Structures are Value Type and Classes are Reference Type.
- ❑ Classes can be inherited but Structure can not be Inherited.
- ❑ Classes fields can be initialized but Structure fields can not be initialized.

```
struct <Identifier>
{
        //Body of the structure
}
```

```
struct Books
   {
      int ISBN;
      string AuthorName;
      string BookName;

public void Accept(int ISBN, string AuthorName, string BookName)
      {
         this.ISBN = ISBN;
         this.AuthorName = AuthorName;
         this.BookName = BookName;
      }

      public string Display()
      {
            return string.Format("Book ISBN={0} Author={1} and
            Name={2}",ISBN,AuthorName,BookName);
      }
   }
```

```
static void Main(string[] args)
    {
        Books mybook = new Books();
        mybook.Accept(123, "Donis Marsh", "C# 5.0");
        Console.WriteLine(mybook.Display());

        Console.ReadLine();
    }
```

Demo 8.1: How to use structure to manage records of Books in library.

8.2 Nested Structures:

```
struct <Identifier>
{
        //fields
       //methods
        public struct <Identifier>
        {
                //fields
                //methods
        }
}
```

Demo 8.2: How to use nested structure to form DateOfPublishing in Books Structure.

8.3 Enumerations:

An enumeration (enum) is a special form of value type. Which inherits from System.Enum and supplies as alternate name for an underlying primitive type. An EnumType has a name, underlying type and set of types(Int16,Int32,Int64).The fields are Static literal fields, each of which represents a constant.

```
enum <Identifier>
{
        //enum member=assigned constant
}
```

Demo 8.3: How to use enum to buld combination of RGB color format.

```
namespace StructAndEnum
{
   enum MyColors
   { red=120,green=100,blue=red }
   enum MyColors1
   {
      red=220,green=100,blue=150
  }
   enum MyColors3
   {
      red=MyColors.red,green=MyColors1.green,blue=100
   }}
```

Minutes of Chapter

- Intro. to Structures in C#.
- Nested Structure in C#.
- Intro. To Enumeration in C#.