C# - BASIC SYNTAX

C# is an object-oriented programming language. In Object-Oriented Programming methodology, a program consists of various objects that interact with each other by means of actions. The actions that an object may take are called methods. Objects of the same kind are said to have the same type or, are said to be in the same class.

For example, let us consider a Rectangle object. It has attributes such as length and width. Depending upon the design, it may need ways for accepting the values of these attributes, calculating the area, and displaying details.

Let us look at implementation of a Rectangle class and discuss C# basic syntax –

Live Demo

```
using System;

namespace RectangleApplication {
   class Rectangle {

      // member variables
      double length;
      double width;

      public void Acceptdetails() {
         length = 4.5;
         width = 3.5;
      }
      public double GetArea() {
         return length * width;
      }
      public void Display() {
         Console.WriteLine("Length: {0}", length);
         Console.WriteLine("Width: {0}", width);
         Console.WriteLine("Area: {0}", GetArea());
      }
   }
   class ExecuteRectangle {
      static void Main(string[] args) {
         Rectangle r = new Rectangle();
         r.Acceptdetails();
         r.Display();
         Console.ReadLine();
      }
   }
}
```

When the above code is compiled and executed, it produces the following result –

```
Length: 4.5
Width: 3.5
Area: 15.75
```

The *using* Keyword

The first statement in any C# program is

```
using System;
```

The **using** keyword is used for including the namespaces in the program. A program can include multiple using statements.

The *class* Keyword

The **class** keyword is used for declaring a class.

Comments in C#

Comments are used for explaining code. Compilers ignore the comment entries. The multiline comments in C# programs start with /* and terminates with the characters */ as shown below –

```
/* This program demonstrates
The basic syntax of C# programming
Language */
```

Single-line comments are indicated by the '//' symbol. For example,

```
}//end class Rectangle
```

Member Variables

Variables are attributes or data members of a class, used for storing data. In the preceding program, the *Rectangle* class has two member variables named *length* and *width*.

Member Functions

Functions are set of statements that perform a specific task. The member functions of a class are declared within the class. Our sample class Rectangle contains three member functions: *AcceptDetails*, *GetArea* and *Display*.

Instantiating a Class

In the preceding program, the class *ExecuteRectangle* contains the *Main* method and instantiates the *Rectangle* class.

Identifiers

An identifier is a name used to identify a class, variable, function, or any other user-defined item. The basic rules for naming classes in C# are as follows –

- A name must begin with a letter that could be followed by a sequence of letters, digits 0 – 9 or underscore. The first character in an identifier cannot be a digit.
- It must not contain any embedded space or symbol such as? - + ! @ # % ^ & * [ ] { } . ; : " ' / and \. However, an underscore _ can be used.
- It should not be a C# keyword.

C# Keywords

Keywords are reserved words predefined to the C# compiler. These keywords cannot be used as identifiers. However, if you want to use these keywords as identifiers, you may prefix the keyword with the @ character.

In C#, some identifiers have special meaning in context of code, such as get and set are called contextual keywords.

The following table lists the reserved keywords and contextual keywords in C# –

Reserved Keywords						
abstract	as	base	bool	break	byte	case
catch	char	checked	class	const	continue	decimal
default	delegate	do	double	else	enum	event
explicit	extern	false	finally	fixed	float	for
foreach	goto	if	implicit	in	in *genericmodifier*	int
interface	internal	is	lock	long	namespace	new
null	object	operator	out	out *genericmodifier*	override	params
private	protected	public	readonly	ref	return	sbyte
sealed	short	sizeof	stackalloc	static	string	struct
switch	this	throw	true	try	typeof	uint
ulong	unchecked	unsafe	ushort	using	virtual	void
volatile	while					
Contextual Keywords						
add	alias	ascending	descending	dynamic	from	get
global	group	into	join	let	orderby	partial *type*
partial *method*	remove	select	set			