# C# - Overview

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C# is a modern, general-purpose, object-oriented programming language developed by Microsoft and approved by European Computer Manufacturers Association (ECMA) and International Standards Organization (ISO). C# was developed by Anders Hejlsberg and his team during the development of .Net Framework.

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C# is designed for Common Language Infrastructure (CLI), which consists of the executable code and runtime environment that allows use of various high-level languages on different computer platforms and architectures. The following reasons make C# a widely used professional language −

* It is a modern, general-purpose programming language
* It is object oriented.
* It is component oriented.
* It is easy to learn.
* It is a structured language.
* It produces efficient programs.
* It can be compiled on a variety of computer platforms.
* It is a part of .Net Framework.

# Strong Programming Features of C#

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Although C# constructs closely follow traditional high-level languages, C and C++ and being an object-oriented programming language. It has strong resemblance with Java, it has numerous strong programming features that make it endearing to a number of programmers worldwide. Following is the list of few important features of C# −

* Boolean Conditions
* Automatic Garbage Collection
* Standard Library
* Assembly Versioning
* Properties and Events
* Delegates and Events Management
* Easy-to-use Generics
* Indexers
* Conditional Compilation
* Simple Multithreading
* LINQ and Lambda Expressions
* Integration with Windows

# Creating Hello World Program

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A C# program consists of the following parts −

* Namespace declaration
* A class
* Class methods
* Class attributes
* A Main method
* Statements and Expressions
* Comments

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Let us look at a simple code that prints the words "Hello World" −

using System;

namespace HelloWorldApplication {

class HelloWorld {

static void Main(string[] args) {

/\* my first program in C# \*/

Console.WriteLine("Hello World");

Console.ReadKey();

}

}

}

6

When this code is compiled and executed, it produces the following result −

Hello World

# C# - Basic Syntax

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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.

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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 −

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();

}

}

}

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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