A. Abinaya

1

INTRODUCTION TO C#

Introducing C#, Understanding .NET, overview of C#, Literals, Variables, Data Types,Operators, checked and unchecked operators, Expressions, Branching, Looping, Methods, implicit and explicit casting, Constant, Arrays, Array Class, Array List, String, String Builder, Structure, Enumerations, boxing and unboxing.

1.1 INTRODUCING C#

C# is Microsoft premier language for .Net development such as Enterprise applications, web applications, windows applications and embedded systems.

C# is intended to be a simple, modern, general-purpose, type-safe object-oriented programming language that enables programmers to quickly and easily build solutions for the Microsoft .NET platform.

1.1.1 C# Features

- C# is case-sensitive
- Very similar to Java :
  - 70% Java,
  - 10% C++,
  - 5% Visual Basic,
  - 15% new

As in Java

- Object-orientation (single inheritance)
- Interfaces
- Exceptions
- Threads

- Namespaces (like Packages)
- Strong typing
- Garbage Collection
- Reflection
- Dynamic loading of code

As in C++

- (Operator) Overloading
- Pointer arithmetic in unsafe code
- Some syntactic details

New Features

- Reference and output parameters
- Objects on the stack (structs)
- Rectangular arrays
- Enumerations
- Unified type system
- goto
- Versioning

1.1.2 Characteristics of C#

C# was developed to bring rapid development to C++ without sacrificing the power and control of C and C++.

C# provides various characteristics, which are:

Simple:

C# eliminates the use of tedious operators such as –>, :: and pointers. C# treats inter and Boolean as two different data types, which enable the compiler to recognize the use of = in place of = = with if statement.

Consistent:

C# supports only one integer and there is no limitation of range.

Modern:

C# contains various features necessary to develop web applications. Following are the features of C#:

- It provides automatic garbage collection.
- It provides robust security model.
- It provides decimal data type for financial application.
- It provides modern approach for debugging.
- It provides a rich intrinsic model for error handling.

Object Oriented:

C# supports all the features of object oriented language such as encapsulation, inheritance and polymorphism . It treats everything as an object and there are no global functions,variables and constants in C#.

Type Safe:

C# provides various type safe measures ,which are :

- Dynamically allocated objects and arrays are initialised to zero.
- Products an error message while using an uninitialised variable.
- Checks the range of an array and warns when the access goes out of bound.
- Unsafe casts are not allowed.
- Enforces overflow checking in arithmetic operations.

Versionable:

C# supports versioning that enables the existing applications to run versions with the help of new and override command.

Compatible:

C# contains the .NET specifications and therefore,allows inter operation with .NET languages.

Flexible:

C# does not support pointers but you may use pointers to manipulate the data of certain classes and methods by declaring them unsafe.