**C# Variable**

1. A variable is a name of memory location.
2. It is used to store data.
3. Its value can be changed and it can be reused many times.
4. It is a way to represent memory location through symbol so that it can be easily identified.

* Decimal types > decimal
* Boolean types > True or false value, as assigned
* Integral types > int, char, byte, short, long
* Floating point types > float and double
* Nullable types > Nullable data types

**Rules for defining variables:**

1. A variable can have alphabets, digits and underscore.
2. A variable name can start with alphabet and underscore only. It can't start with digit.
3. No white space is allowed within variable name.
4. A variable name must not be any reserved word or keyword e.g. char, float etc.

**C# Data Types**

A data type specifies the type of data that a variable can store such as integer, floating, character etc.

A.Value Data Type

1. short, int, char, float, double etc
2. The value data types are integer-based and floating-point based. C# language supports both signed and unsigned literals.
3. There are 2 types: i. Predefined Data Types - such as Integer, Boolean, Float, etc.

ii. User defined Data Types - such as Structure, Enumerations, etc.

1. The memory size of data types may change according to 32 or 64 bit operating system.

B. Reference Data Type

1. String, Class, Object and Interface.
2. The reference data types do not contain the actual data stored in a variable, but they contain a reference to the variables.
3. If the data is changed by one of the variables, the other variable automatically reflects this change in value.
4. There are 2 types of reference data type:

i. Predefined Types - such as Objects, String.

ii. User defined Types - such as Classes, Interface.

C. Pointer Data Type : Pointers

1. The pointer in C# language is a variable, it is also known as locator or indicator that points to an address of a value.
2. & (ampersand sign) > Address operator > Determine the address of a variable.
3. \* (asterisk sign) > Indirection operator > Access the value of an address.

**C# Operators**

1. An operator is simply a symbol that is used to perform operations.
2. There can be many types of operations like arithmetic, logical, bitwise etc.
3. There are following types of operators to perform different types of operations in C# language.
4. Arithmetic Operators : +,-,\*,/,%
5. Relational Operators : <, <=, >, >=, ==, !=
6. Logical Operators : &&, ||, !
7. Bitwise Operators : &, |, <<, >>, ^, ~
8. Assignment Operators : =, +=, -=, \*=, /=, %=
9. Unary Operators : ++, --
10. Ternary(Conditional) Operators : ?:
11. Misc Operators :

**C# Keywords**

1. A keyword is a reserved word.
2. You cannot use it as a variable name, constant name etc.
3. In C# keywords cannot be used as identifiers.

However, if we want to use the keywords as identifiers, we may prefix the keyword with @ character.

1. Some identifiers which have special meaning in context of code are called as Contextual Keywords.

* A list of Contextual Keywords:

add group ascending descending dynamic from get

global alias into join let select set

partial (type) partial(method) remove orderby