**C# Variable**

The variable in C# is nothing but a name given to a data value. In the above example, message is the name of the variable that stores the string data value "Hello World!!". As the name suggests, the contents of a variable can vary, i.e., you can change the value of a variable at any time.

In C#, a variable is always defined with a data type. The following is the syntax variable declaration and initialization.

Syntax:

<data type> <variable name>;

<datatype> <variable name> = <value>;

A variable can be declared and initialized later or it can be declared and initialized at the same time. In the following example, the first statement declares a variable called "message" without assigning any value to it. In the second statement, a value is assigned to the "message" variable.

Example: Variable declaration

string message;

// value can be assigned after it declared

message = "Hello World!!";

In the following example, variable is declared and initialized (a value is assigned to it) at the same time.

Example: Variable declaration & initialization

string message = "Hello World!!";

Multiple variables of the same data type can be declared and initialized in a single line separated by commas.

Example: Multiple variable declaration

int i, j, k, l = 0;

int amount, num;

The value of a variable can be assigned to another variable of the same data type. However, a value must be assigned to a variable before using it.

Example: Variable assignment

int i = 100;

int j = i; // value of j will be 100

The following example would give a compile time error because string value cannot be assigned to an int type variable.

Example: Invalid Variable Assignment

string message = "Hello World!!";

int i = message; // compile time error

You must assign a value to a variable before using it otherwise the compiler will give an error. For example, in the following code, we have declared a variable called i without assigning any value to it. If we then try to display the value of the variable on the console, we will get a compile time error.

Example: Invalid Variable Assignment

int i;

//Following will give compile time error: "Use of unassigned local variable 'i'"

int j = i;

Console.WriteLine(j);

Points to Remember:

* The variable is a name given to a data value.
* A variable holds the value of specific data type e.g. string, int, float etc.
* A variable can be declared and initialized later or declared & initialized at the same time.
* The value of a variable can be changed at any time throughout the program as long as it is accessible.
* Multiple variables can be defined separated by comma (,) in a single or multiple line until a semicolon (;).
* A value must be assigned to a variable before using it otherwise it will give compile time error.