Introduction to Variables in C++

- Variables in C++ acts as a memory location, it is nothing but the name of the container or element that stores the data or values that are being used in the program later or in execution.

- It can be defined using the combination of letters digits, or special symbols like underscored(_), defined by using the data types like **char**, int, float, double.

- Variables can be anything except the reserved keywords, the first letters of the variables must start with the letter only.

Note:

➔ Variable are the most part of any programming language, any programming language is incomplete without a variable, additionally without usage of variables program cannot operate. Hence variables are known for the **backbone of the programming language**.

➔ To define variables we need to specify the type for the variable

➔ To define variables we need to specify the type for the variable. Type can be anything: **int, double, char, float, long int, short int etc.**

  - int is used to store integer value i.e. **5, 19, 519, 1000.**
  - Char is used to storing the character or string i.e. a, educate.
  - Float is used to store the float values like **2.3, 3.679, 9.45.**
  - Long int is used to store **long integer values**

How to Declare Variables in C++ Language?

➔ Variable can be declared first before starting with programs. The syntax for declaration of a variable is as follows:

data_type variable_name;

where:

data_type: Defines types of data for storing values. Data types can be int, char, float, double, short, int, etc.

variable_name: Defines the name of the variable. It can be anything except the keyword.

Types of Variables in C++ Language:

There are 5 types of variables in C++ language which are as follows:

- **Local Variables:** Local variables are **declared inside the function**. Local variables must be declared **before they have used in the program**. Functions that are declared inside the function could adjust the values of variables. Function outside cannot change value of local variables.

  E.g.:

  ```
  int main()
  {
  int x = 2; //local variable
  }
  ```

Global Variables

- Global variables are declared outside the functions. Any function i.e., both **local and global function** can inevitably change the value of **global function** accordingly.

Example is given as follows:

```
int y = 10;     //global variable

int main()
{
int x = 5;      //local variable
}
```

Static Variables

- These variables are declared with the word static:

Example is given as follows:

```
int main()
{
int x = 5;      //local variable
static y = 2;   //static variable
}
```

Automatic Variables

- Automatic variables are declared with the **auto** keyword. All the variables that are declared inside the functions are default considered as an **automatic variable**.

```
int main()
{
int x = 20;          //local variable (Automatic variable)
auto y = 12;      //automatic variable
}
```

External Variables:

- By using the extern keyword, external variables are declared:

  Example as follow below:

  - extern z = 4; //external variable.