**C PROGRAMMING**

It can be defined by the following ways and its features are:

1. Mother language
2. System programming language
3. Procedure-oriented programming language
4. Structured programming language
5. Mid-level programming language
6. Simple
7. Machine Independent or Portable
8. Rich Library
9. Memory Management
10. Fast Speed
11. Pointers
12. Recursion
13. Extensible

Types of Variables in C

There are many types of variables in c:

1. local variable
2. global variable
3. static variable
4. automatic variable
5. external variable

Local Variable

A variable that is declared inside the function or block is called a local variable.

It must be declared at the start of the block.

1. **void** function1(){
2. **int** x=10;//local variable
3. }

You must have to initialize the local variable before it is used.

Global Variable

A variable that is declared outside the function or block is called a global variable. Any function can change the value of the global variable. It is available to all the functions.

It must be declared at the start of the block.

1. **int** value=20;//global variable
2. **void** function1(){
3. **int** x=10;//local variable
4. }

Static Variable

A variable that is declared with the static keyword is called static variable.

It retains its value between multiple function calls.

1. **void** function1(){
2. **int** x=10;//local variable
3. **static** **int** y=10;//static variable
4. x=x+1;
5. y=y+1;
6. printf("%d,%d",x,y);
7. }

If you call this function many times, the **local variable will print the same value** for each function call, e.g, 11,11,11 and so on. But the **static variable will print the incremented value** in each function call, e.g. 11, 12, 13 and so on.

Automatic Variable

All variables in C that are declared inside the block, are automatic variables by default. We can explicitly declare an automatic variable using **auto keyword**.

1. **void** main(){
2. **int** x=10;//local variable (also automatic)
3. auto **int** y=20;//automatic variable
4. }

External Variable

We can share a variable in multiple C source files by using an external variable. To declare an external variable, you need to use **extern keyword**.

*myfile.h*

1. **extern** **int** x=10;//external variable (also global)

*program1.c*

1. #include "myfile.h"
2. #include <stdio.h>
3. **void** printValue(){
4. printf("Global variable: %d", global\_variable);
5. }

|  |  |
| --- | --- |
| %d or %i | It is used to print the signed integer value where signed integer means that the variable can hold both positive and negative values. |
| %u | It is used to print the unsigned integer value where the unsigned integer means that the variable can hold only positive value. |