

'C' Programming Language

'C' is one of the most popular programming language, it was developed by Dennis Ritchie at AT (T's Bell Laboratories at USA in 1972. It is an upgraded version of two earlier languages, called BCPL and B, which were also developed at Bell laboratories.

Features and Applications of 'C' Language:

1. 'C' is a general purpose, structural programming language.
2. 'C' is powerful efficient, compact of flexible.
3. 'C' is highly portable.
4. 'C' is a robust language whose rich set of built in functions and operators can be used to write any complex program.
5. 'C' has the ability to extend itself.
6. 'C' is well suited for writing system software as application software.
7. 'C' program can be run on different systems of the different computers with little alteration.
8. 'C' is a middle level language, it supports both the low level language and high level language features.

Structure of a C' program:

```
Documentation section
Preprocessor section
Definition section
Global declaration section
main ( )
{
Declaration part;
Executable part;
}
```

Sub program section

```
{
Body of the sub program;
}
```

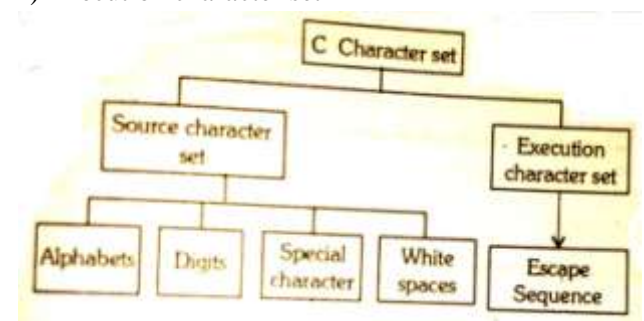
All the statements in the program ends with a semicolon except conditional and control statements.

Programming Rules in 'C' Language:

- 1) All statements in 'C' program should be written in lower case letters. Upper case letters are only used for symbolic constants.
- ii) Blank spaces may be inserted between the words. It is not used while declaring a variable, keyword, constant and function.
- iii) The program statement can write anywhere b/w the two braces following the declaration part.
- iv) The user can also write one or more statements in one line separating them with a semicolon.

C's Character set:

- i) Source character set
- ii) Execution character set



Identifiers:

Identifiers are names given to various program elements _ such as variables, functions and arrays etc.

Ex: STDNAME, SUB, TOT, MARKS, Y/2k etc.

Keyword:

There are certain reserved words called keywords that have standard and predefined meaning in C language, which cannot be changed and they are the basic building blocks for program statements. The 'C' keywords are listed below:

| | | | | | |
|-------|--------|--------|-------|-------|--------|
| auto | double | int | break | while | sizeof |
| const | float | signed | case | void | return |
| | | struct | char | for | goto |
| | | union | long | | |

Data type:

C supports the following 4 classes of data types.

- 1 Primary
2. User defined
3. Derived
4. Empty

Primary data type:

char
int
float
double

User defined:

typedef

Derived:

arrays
pointer
structures

union

Empty:

void

All C compilers support the five fundamental data types called int, char, float, double and void.

Variables:

A variable is an identifier that is used to represent some specified type of information within a designated portion of the program. A variable may take different values at different times during the execution, i.e. it is the named memory location.

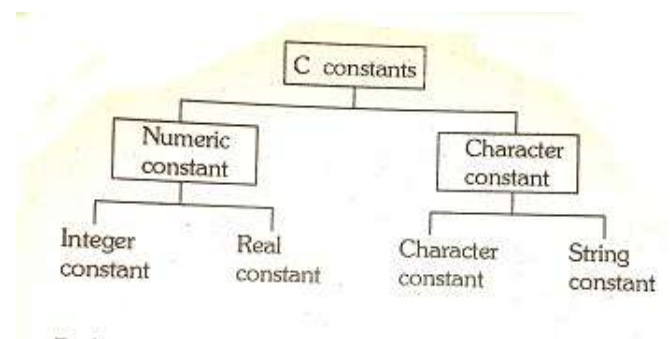
Scope of variables:

Scope of a variable implies the availability of variables within the program. Variables have two types of scopes.

- i) Local variables
- ii) Global / External variables

Constants:

The item whose values cannot be changed during the execution of program are called constants.



Delimiters:

These are the symbols, which has some syntactic meaning and has got significance. These will not specify any operation.

Example:

Symbol Name Meaning

Hash pre-processor
directive

, comma variable delimiters
to separate list of variables

Statements:

Statements can be defined as set of
declaration, or sequence of action. Statement

causes the computer to perform some action.

All statements in 'C' language ends with
semicolon except conditioned and control
structured.

Types of statements are:

Assignment statement

Null statements

Block of statements

Expression statements

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