

## What is Program?

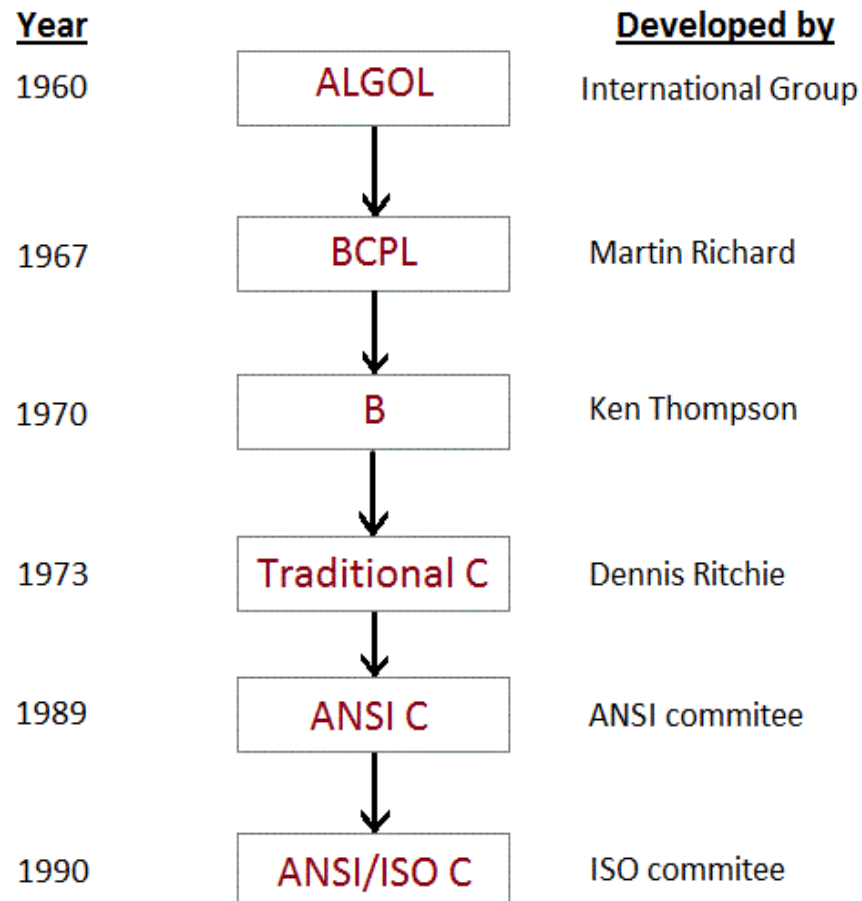
In computing, a program is a specific set of ordered operations for a computer to perform. In the modern computer that John von Neumann outlined in 1945, the program contains a one-at-a-time sequence of instructions that the computer follows.

## Overview of C Language

C is a powerful general-purpose programming language. It is fast, portable and available in all platforms. If you are new to programming, C is a good choice to start your programming journey.

C is a structured programming language developed by Dennis Ritchie in 1973 at AT&T Bell Laboratories Murray Hill, NJ, USA. It is one of the most popular computer languages today because of its structure, high-level abstraction, machine independent feature etc. C language was developed to write the UNIX operating system, hence it is strongly associated with UNIX, which is one of the most popular network operating system in use today and heart of internet data superhighway.

## History of C language



## Features of C language

- I. It is a robust language with rich set of built-in functions and operators that can be used to write any complex program.
- II. The C compiler combines the capabilities of an assembly language with features of a high-level language.
- III. Programs Written in C are efficient and fast. This is due to its variety of data type and powerful operators.
- IV. It is many time faster than BASIC.
- V. Another important feature of C program, is its ability to extend itself.
- VI. A C program is basically a collection of functions that are supported by C library. We can also create our own function and add it to C library.
- VII. C language is the most widely used language in operating systems and embedded system development today.

## First C Welcome Program and its Structure

### welcome.c

```
#include<stdio.h>
#include<conio.h>
void main()
{
    clrscr(); //It is use for clear screen
    printf("\n Welcome to Ssi Computer Education"); \\ \n(New line Character) use for new line
    printf("\n C & C++ Programming Language ");
    getch(); // It is use for get character from Keyboard
}
```

Note :- More examples discussed in classroom

## Different parts of C program

- Pre-processor
- Header file
- Function
- Variables
- Statements & expressions
- Comments

All these are essential parts of a C language program.

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### Pre-processor

**#include** is the first word of any C program. It is also known as a **pre-processor**. The task of a pre-processor is to initialize the environment of the program, i.e to link the program with the header files required.

So, when we say **#include <stdio.h>**, it is to inform the compiler to include the **stdio.h** header file to the program before executing it.

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### Header file

A Header file is a collection of built-in(readymade) functions, which we can directly use in our program. Header files contain definitions of the functions which can be incorporated into any C program by using pre-processor **#include** statement with the header file. Standard header files are provided with each compiler, and covers a range of areas like string handling, mathematical functions, data conversion, printing and reading of variables.

With time, you will have a clear picture of what header files are, as of now consider as a readymade piece of function which comes packaged with the C language and you can use them without worrying about how they work, all you have to do is include the header file in your program.

To use any of the standard functions, the appropriate header file must be included. This is done at the beginning of the C source file.

For example, to use the **printf()** function in a program, which is used to display anything on the screen, the line **#include <stdio.h>** is required because the header file **stdio.h** contains the **printf()** function. All header files will have an extension **.h**

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### main() function

**main()** function is a function that must be there in every C program. Everything inside this function in a C program will be executed. In the above example, void written before the **main()** function is the **return type** of **main()** function. The curly braces { } just after the **main()** function encloses the **body** of **main()** function.

## Comments

We can add comments in our program to describe what we are doing in the program. These comments are ignored by the compiler and are not executed.

To add a single line comment, start it by adding two forward slashes // followed by the comment.

To add multiline comment, enclose it between /\* ... \*/, just like in the program above.

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## Return statement - return 0;

A return statement is just meant to define the end of any C program. All the C programs can be written and edited in normal text editors like Notepad or Notepad++ and must be saved with a file name with extension as .c If you do not add the extension .c then the compiler will not recognize it as a C language program file.

## Compile and Run C Program

**Step 1 :** Open turbo C IDE(Integrated Development Environment), click on **File** and then click on New

**Step 2 :** Write the above example

**Step 3 :** Click on compile or press Alt+f9 to compile the code

**Step 4 :** Click on Run or press Ctrl+f9 to run the code

**Step 5 :** Output