History of C

Structure of C

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History of C

The C programming language is developed by **Dennis Ritchie at AT&T Bell Laboratories** in **1972**. It is named C because many features of C were derived from an earlier language called B.

The **history of C language goes back to 1960's**, when a number of computer languages were being used for various purposes. **COBOL** (Common Business-Oriented Language) was being used for commercial purposes, **FORTRAN** (Formula Translation) was being used for scientific and engineering applications and so on.

Most of the modern languages including C are derived from the algorithmic language called **ALGOL** which was developed by international group and introduced in 1960's.

Martin Richards in 1967 developed programming language called **BCPL (Basic Combined Programming Language)** which was derived from ALGOL. Similarly, **BCPL influenced development of programming language called B by Ken Thompson in 1970.**

In 1972, Dennis Ritchie introduced "Traditional C" and it was confined to use within Bell Laboratories until 1978.

In 1978, Brian Kernighan and Dennis Ritchie published a book called "The C Programming Language". The book was so popular and the use of C started spreading. **C Language at that time is commonly referred to as "K&R C".**

In 1983, the American National Standards Institute formed a committee to produce a C programming language standard. This **"ANSI C" was completed in 1988**, and was approved in 1989. It was then approved by the International Organization for Standardization (ISO) in 1990

Brief History of C Language

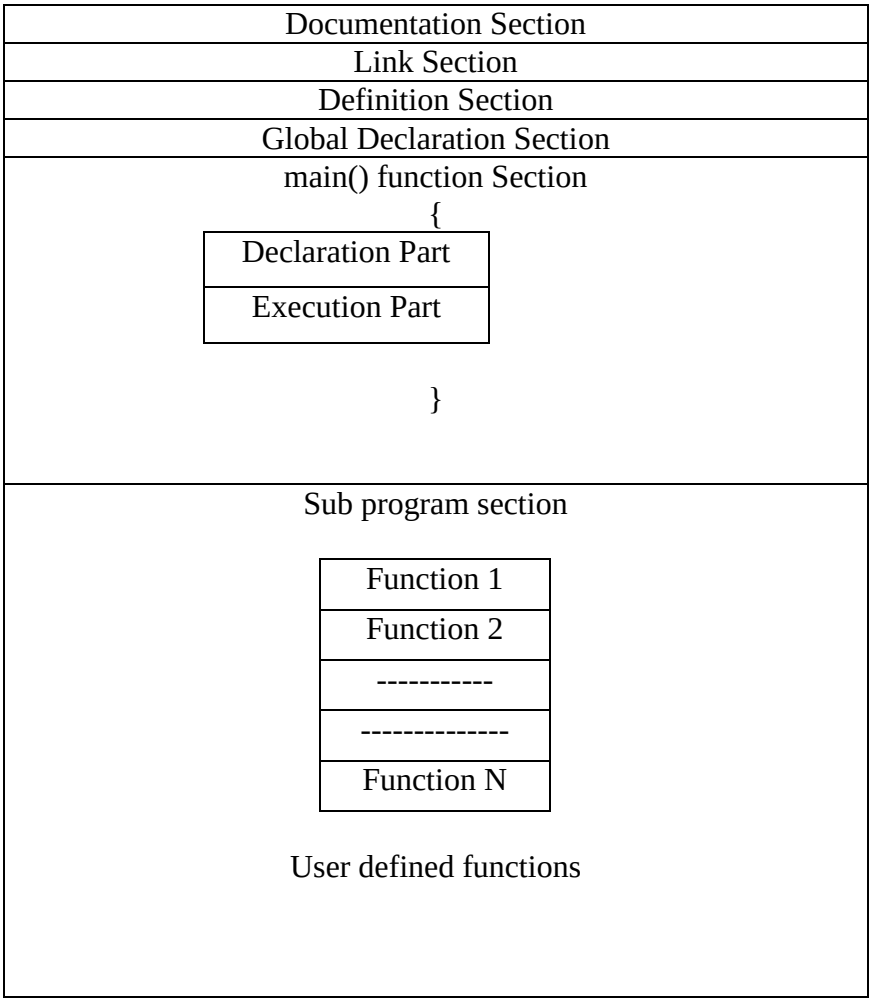
1. **1960 - ALGOL - Developed by International Group**
2. **1967 - BCPL - Developed by Martin Richards**
3. **1970 - B - Developed by Ken Thompson**
4. **1972 - C - Developed by Dennis M. Ritchie**
5. **1978 - K&R C - Developed by Brian w. Kernighan and Dennis M. Ritchie**
6. **1989 - ANSI C - Developed by ANSI Committee**
7. **1990 - ANSI/ISO C - Standardaized by ISO**

C Programming language has following features:

- C Language is well suited for **structured modular programming.**
- Programs written in C are **efficient and executes much faster.**
- C is powerful and feature rich programming language with **rich set of built-in functions, data types and operators.**
- C is **highly portable** language i.e. code written in one machine can be moved to other.
- C supports low level feature like **bit level programming and direct access to memory using pointer.**
- C has only **32 keywords and several standard built-in functions** which can be used for developing different program.
- C has **high level constructs** and it is more user friendly.

Basic Structure of C program.

The structure of C program implies the composition of a program that answers questions such as what are the main components to write in C program? How they are organized etc.



Documentation Section

This section contains a set of comment lines giving the name of the program, the author, algorithms, method used and other details. This will be useful in future for users and developing teams. The documentation acts as a communication medium between members of the development team when a number of developers is working in the same project.

For example.

```
/* Author:Karna
Program to calculate area of rectangle.
Created at 2021-4-26 */
```

Link Section/Header Declaration Section

This section provides instruction to compiler to link functions with the program from the system library.

For example

```
#include<stdio.h>
```

```
Links the input/output functions like printf(),scanf() with the program.
```

Definition Section

All symbolic constants are defined in this section.

```
#define PI 3.14
```

Global Declaration Section

Global variables are defined and declared in this section. The variables that are used in more than one functions or blocks are called *global variables*. This section also declares all the user defined functions, that informs the compiler about the name of function, its return type(if any) and the data types of the function arguments(if any).

For example.

```
int a=10;
```

```
int add(int,int); //user defined function to add integer number that need two integer arguments
```

main() Function section

The main function is the starter of the C program, the execution of the program always start from main function. Each program should have main function and the main function should be only one in the entire program. Within main function there are declaration and executable parts. The declaration parts declares the variables used in the execution part.

For example:

```
int a=10;
int b=20;
int c;
```

The execution part has operations like:

```
c=a+b;
```

Sub Program section

This section contains all user defined functions which are being called in the main function.

```
/* Author: Karna
     Created at:2021-04-26
     Program that calculates area of circle
*/

#include<stdio.h> //link or header declaration section
#define PI 3.14   //Definition section defining symbolic constant

int main()
{
     int radius=5;   //variable declaration
     float area;          //variable declaration

     area= PI*radius*radius;
     printf("The area of circle is: %f",area);
     return 0;

}
```

Note: All the section except main() and header declaration may be absent when they are not required.