C-C++ Documentation

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Contents

C is a "Procedural programming" supporting structured programming. **C** is parent of all programming languages. **C** has given some concepts which adopted by all other programming languages.

CHAPTER 1

History

C is a general-purpose, high-level language that was originally developed by Dennis M. Ritchie to develop the UNIX operating system at Bell Labs. C was originally first implemented on the DEC PDP-11 computer in 1972.

Use Case

C was initially used for system development work, particularly the programs that make-up the operating system.

CHAPTER 3

Editors

This will where the program is written and executed. There are several editors for C-C++ language like TurboC3, Codeblock, Visual Studio etc.

Basics of C

C-Language is encoding by ASCII(American Standard Code for Information Interchange).ASCII created encoded design for computer keyboards which is called as ASCII Table.

Here is the simple c program for printing hello world.

hello.c '#include<stdio.h>

int main() {

/* my first program in C */

printf("Hello, World! \n");

return 0;

}'

4.1 Phases of C

The C language is based on compiler. The compiler is like a translator. It translate the source code which is called as High Level Code to the Machine Code(Low Level Code) which is called as ASCII Code.

After completing Compiling phase **hello.obj** file will generated. This is the binary file which will be executed by C. If there are any Syntax(Grammer) has error than the file is not created.

Syntax errors: **Errors** that occur when you violate the rules of writing **C/C++ syntax** are known as **syntax errors**. This compiler **error** indicates something that must be fixed before the code can be compiled. All these **errors** are detected by compiler and thus are known as compile-time **errors**. ... This causes a **syntax error**.

The output is generated after the execution phase is cleared. In this phase it will create **hello.exe** file which can be executed in the Windows Command Prompt.

C - Syntax

Syntax is nothing but the grammer of the language. In order to get output the set of rules must be followed any programming language. C has created some rules which widely used by languages like Java, PHP, Python etc. In C it is called as **Tokens**.

The Code concept of C is based on 3 parts.

1. Headers

2. Main

3. Logic

Token is a smallest individual unit in C program.

5.1 Semicolon ; :

; is like terminator of the line. In C the statement must be ended with ; .If the ; is missing then it leds to syntax error.

5.2 Comments

Comments are plain simple text in a C program that are not compiled by the compiler.

There are two ways in which we can write comments.

1. Using // This is used to write a single line comment.

2. Using /* */: The statements enclosed within /* and */ , are used to write multi-line comments.

   comments are generally used for documenting the code. Another use of comment is to disable the code/statement which you don't wan't to compile.

5.3 Basics

5.3.1 Datatypes

Datatype is representation of the data. C - Language understand only two types of data. Numbers and Characters(Symbols). Numbers type has two types : Non Fractional and Fractional Basic Datatypes of C are:

Types	Formats	Specification	Limits
———	———	——————	————————————————
int	%d	Number +1 -1	(-32,768 to 32,767)
float	%f	Number +1.02 -1.02	(-32,768 to 32,767) (6 digit precision)
long	%ld	Number +1 -1	(-9223372036854775808 to 9223372036854775807)
double	%lf	Number +1.02 -1.02	15 decimal places
char	%c	Symbol	1 character
char	%d	ASCII	1 character