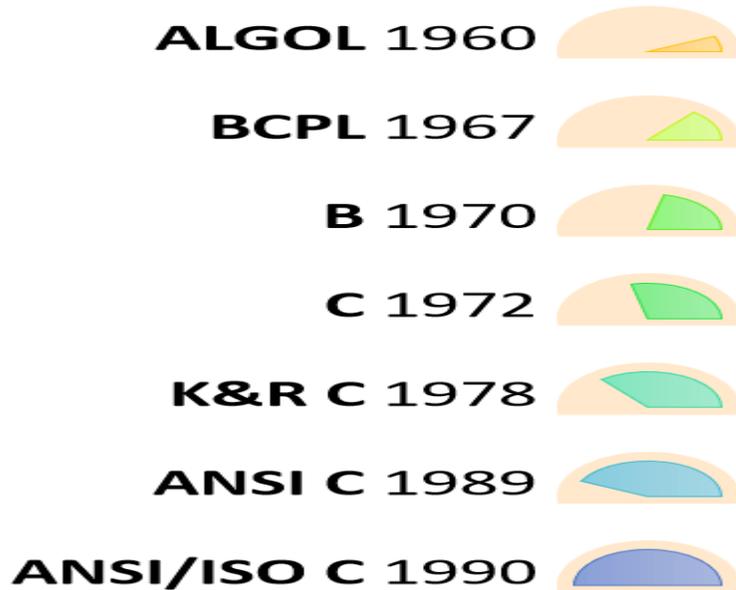


C Language

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



Applications

It is used in embedded systems.

developing system applications.

developing desktop applications.

developing browsers and their extensions.

databases. MySQL is the most popular database software which is built using 'C'.

developing an operating system. Apple's OS X, Microsoft's Windows, and Symbian are

developed mobile phone's operating system.

compiler production.

It is widely used in IOT applications.

Operating Systems

Language Compilers

Assemblers

Text Editors

Print Spoolers

Network Drivers

Modern Programs

Databases

Language Interpreters

Utilities

Structure of c Program

C Language

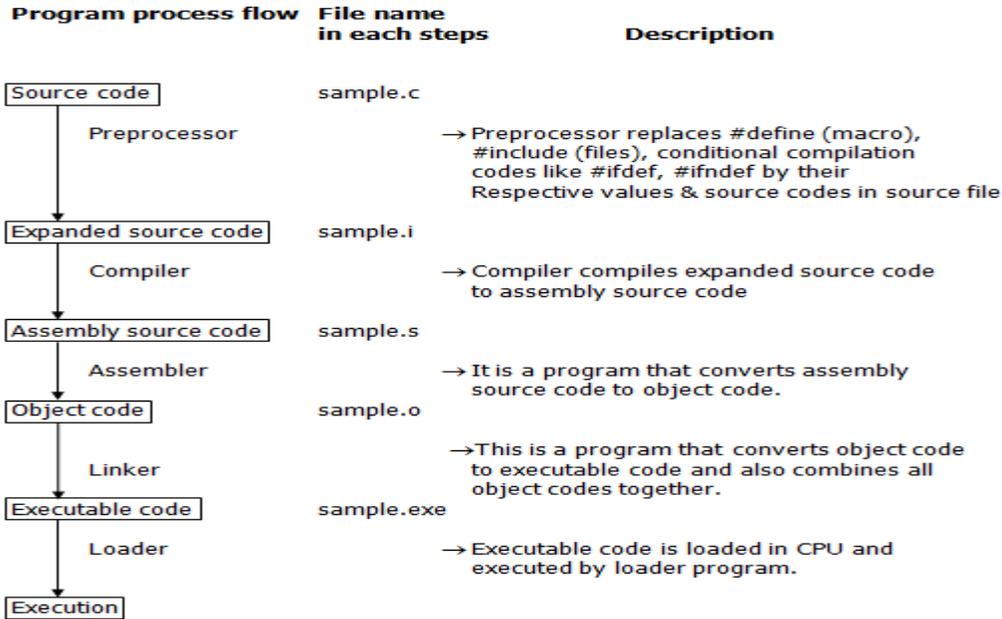
The structure of c program consists of sections. They were

Documentation Section
Preprocessor Directive Section
Global Declaration Section
main() Function Section { Declaration Part Executable Part }
User Defined Function

Explanation

Section Name	Details / Purpose
Documentation	It is used to write comments for reference purpose like creation or modified date, author name etc.It is skipped by the compiler. Example : /* Authoe Name : Wisdom Materials Creation Date : 1/1/2019 Purpose: C language */
Preprocessor directives	Proprocessor directives / macros are statements which are executed before compilation.
Global Declaration	Here Global variables are defined and used throughout the entire program.
Main function	It contains 2 sections (declaration section and executable section).In Declaration section all the variables are declared and used in the executable section and every line should be separated by a semi colon. The language which uses semi colon as a separator in the program between lines is called as a free form language.
User defined fuctions	Here users define their own functions for a particular task.

C Language



Program: Print a statement in c language <pre> /* Hello World program in c Language */ #include <stdio.h> int main() { printf("Hello World!"); return 0; } </pre>	Output Hello World!
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Saving, Compilation and Running

Save file with extension .c and file name hw	hw.c
Compiling	ALT + F9
Running	CTRL + F9

C Tokens

Each and every smallest individual unit in a C program are known as C tokens and considered as basic buildings blocks of C language.C tokens are of 6 types. They were

types	Example
Keywords	For, int, while e.t.c
Identifiers	main, total e.t.c
Constants	20, 40, 60 e.t.c
Strings	"sum", "average", "total"
Special symbols	, , {, }
Operators	+, /, -, *

C Language

Identifiers

It is a name used to identify a variable / function / any other thing defined by user and it starts with a letter A to Z, a to z, or an underscore '_' followed by letters, and digits (0 to 9) and punctuation characters not allowed (Like @, \$, and %) within identifiers. Identifiers are case sensitive i.e. "SUM", "sum" are treated differently.

Keywords

They are the predefined words used in the c language and each keyword with a specific meaning and purpose and it can't be used as variable name. They were 32 keywords in language.

auto	else	long	switch
break	enum	register	typedef
case	extern	return	union
char	float	short	unsigned
const	for	signed	void
continue	goto	sizeof	volatile
default	if	static	while
do	int	struct	double

Variables

It is a data named used to store a data value and need declare the variables for its types in c language.

Initialization of variables

Giving value to variables is called Initialization of variables.

Example

Declaration	Int x ;
Initialization	X=9;
Declaration and Initialization	Int x =9;

Data Type

It tells the system / Computer to allocate how much **space required by the variable name** and what type of variable it is.

Type	Size (bytes)	Format Specifier
int	at least 2, usually 4	%d
char	1	%c
float	4	%f
double	8	%lf
short int	2 usually	%hd
unsigned int	at least 2, usually 4	%u
long int	at least 4, usually 8	%li
long long int	at least 8	%lli

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unsigned long int	at least 4	%lu
unsigned long long int	at least 8	%llu
signed char	1	%c
unsigned char	1	%c
long double	at least 10, usually 12 or 16	%Lf

Constants in c Language

It variable can be defined as a Constant with const keyword means its value cannot be changed.

Example,

const double PI = 3.14;	ok
const double PI = 3.14; PI = 2.9;	Error

There are 4 types of constants in C.

Integer constants

Character constants

Real/Floating point constants

String constants