History of C Programming Language

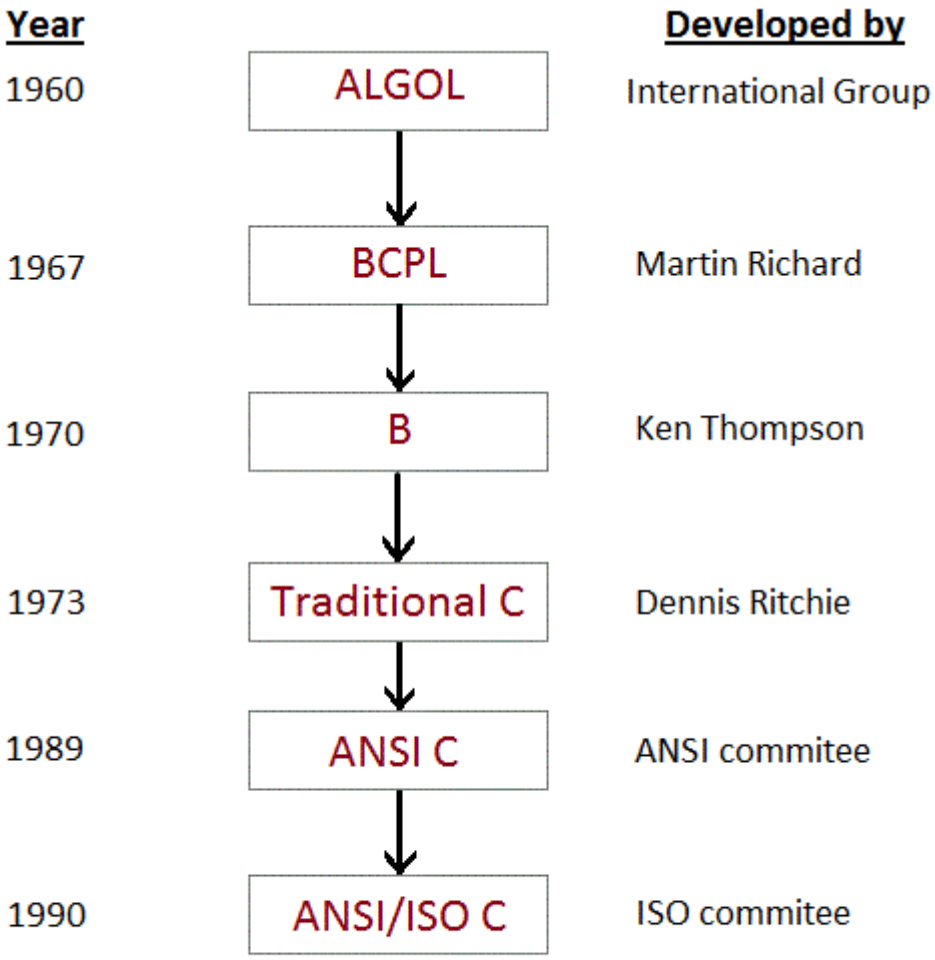
- C is a structured programming language which born at “AT & T’s Bell Laboratory” of USA in 1972.
- C was written by Dennis Ritchie, that's why he is also called as father of c programming language.
- C language was created for a specific purpose i.e designing the UNIX operating system (which is currently base of many UNIX based OS).
- From the beginning, C was intended to be useful to allow busy programmers to get things done because C is such a powerful, dominant and supple language
- Its use quickly spread beyond Bell Labs in the late 70’s because of its long list of strong features

- C language has evolved from three different structured language ALGOL, BCPL and B Language.

- It uses many concepts from these languages while introduced many new concepts such as data types, struct, pointer etc.

- In 1988, the language was formalized by **American National Standard Institute**(ANSI).

- In 1990, a version of C language was approved by the **International Standard Organisation**(ISO) and that version of C is also referred to as C89.


Year
Developed by
1960
ALGOL
International Group
1967
BCPL
Martin Richard
1970
B
Ken Thompson
1973
Traditional C
Dennis Ritchie
1989
ANSI C
ANSI commitee
1990
ANSI/ISO C
ISO commitee

Features of C Programming Language :

Features of C	
Low Level Language Support	Program Portability
Powerful and Feature Rich	Bit Manipulation
High Level Features	Modular Programming
Efficient Use of Pointers	

1 . Low Level Features :

- C Programming provides low level features that are generally provided by the Lower level languages. C is Closely Related to Lower level Language such as "**Assembly Language**".
- It is easier to write assembly language codes in C programming.

2 . Portability :

- C Programs are portable i.e they can be run on any Compiler with Little or no Modification
- Compiler and Preprocessor make it Possible for C Program to run it on Different PC

3 . Powerful

- Provides Wide verity of '**Data Types**'
- Provides Wide verity of 'Functions'
- Provides useful Control & Loop Control Statements

4 . Bit Manipulation

- C Programs can be manipulated using bits. We can perform different operations at bit level. We can manage memry representation at bit level. [Eg. We can use Structure to manage Memory at Bit Level]
- It provides wide verity of bit manipulation Operators. We have bitwise operators to manage Data at bit level.

5 . High Level Features :

- It is more User friendly as compare to Previous languages. Previous languages such as BCPL,Pascal and other programming languages never provide such great features to manage data.
- Previous languages have there **pros and cons** but C Programming collected all useful features of previous languages thus C become **more effective language**.

6 Modular Programming

- **Modular programming** is a software design technique that increases the extent to which software is composed of separate parts, called **modules**
- C Program Consist of Different Modules that are integrated together to form complete program

7 . Efficient Use of Pointers

- Pointers has direct access to memory.
- C Supports efficient use of pointer .

8 . More Efficient

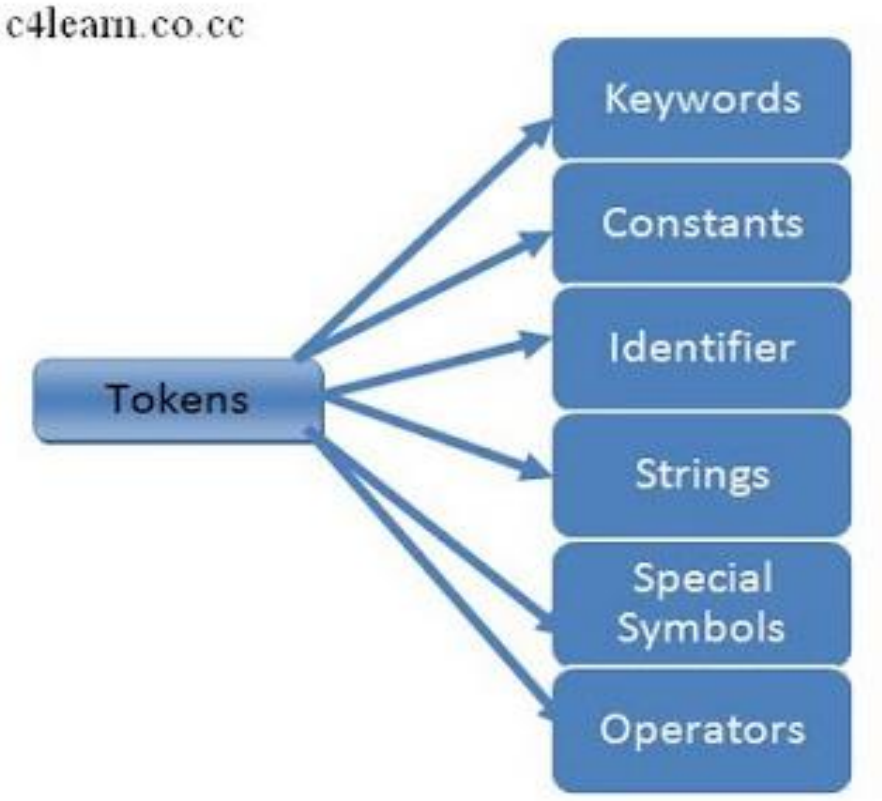
Applications of C Programming

- C language is used for creating **computer applications**
- Used in writing **Embedded softwares**
- Firmware for various electronics, industrial and communications products which use micro-controllers.
- It is also used in developing **verification software, test code, simulators** etc. for various applications and hardware products.
- **For Creating Compiles** of different Languages which can take input from other language and convert it into lower level machine dependent language.
- C is used to implement different **Operating System Operations**.
- **UNIX kernel** is completely developed in C Language.

C token keywords & identifiers

C Tokens Chart

- ✔ In C Programming **punctuation,individual words,characters** etc are called **tokens**.
- ✔ Tokens are **basic building blocks** of C Programming



Basic Building Blocks and Definition :

Token	Meaning
Keyword	A variable is a meaningful name of data storage location in computer memory. When using a variable you refer to memory address of computer
Constant	Constants are expressions with a fixed value
Identifier	The term identifier is usually used for variable names
String	Sequence of characters
Special Symbol	Symbols other than the Alphabets and Digits and white-spaces
Operators	A symbol that represent a specific mathematical or non mathematical action

Keywords in C Programming Language :

- Keywords are those words whose meaning is already defined by Compiler
- Cannot be used as **Variable Name**
- There are **32 Keywords** in C
- C Keywords are also called as **Reserved words** .

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

C - Character Set

- Whenever we write any C program then it consists of different statements. Each C Program is set of statements and each statement is set of different c programming leximes. In C Programming each and every character is considered as single lexim. i.e [Basic Lexical Element]

Character Set Consists Of –

Types	Character Set
Lowercase Letters	a-z
Uppercase Letters	A to Z
Digits	0-9
Special Characters	!@#$%^&*
White Spaces	Tab Or New line Or Space