Why learn C

History

- C is a procedural programming language.
- It was initially developed by Dennis Ritchie between 1969 and 1973.
- It was mainly developed as a system programming language to write operating system.
- Low-level access to memory
- Simple set of keywords
- Clean style

Advantages of C Programming

- C is a Middle-Level Language.

  The middle-level languages are somewhere between the Low-level machine understandable assembly languages and High-Level user friendly languages.

  C reduces the gap between the low-level and high-level languages.

  It can be used for writing operating systems as well as doing application level programming.

Advantages of C Programming (Contd...)

- **Helps to understand the fundamentals of Computer Theories.**

  In the modern high level languages, the machine level details are hidden from the user, so in order to work with CPU cache, memory, network adapters, learning C programming is a must.

- **Fewer Libraries**

  C programming language has fewer libraries in comparison with other high-level languages.
  So, learning C programming also clears programming concepts to a great extent as you have to write lot of things from scratch.

Advantages of C Programming (Contd...)

- C is very fast in terms of execution time.

  Programs written and compiled in C executes much faster than compared to any other programming language.

  C programming language is very fast in terms of execution as it does not have any additional processing overheads such as garbage collection or preventing memory leaks etc.

  The programmer must take care of these things on his own.

Advantages of C Programming (Contd...)

- Embedded Programming.

  Embedded Programming is also referred to as micro-controller programming, where C program is used to control micro-controllers.

  Micro controllers and embedded programming is widely used in auto-motives, Robotics, Hardware's etc.

Linux OS

- Linux is a community of open-source Unix like operating systems that are based on the Linux Kernel.
- It initially released by Linus Torvalds on 1991.
- It is a free and open-source operating system
- The source code can be modified and distributed to anyone commercially or non commercially under the GNU General Public License.
- High Security, Large Community Support, High Stability and Higher performance.

Embedded Linux

- Embedded Linux is a type of Linux operating system/kernel that is designed to be installed and used within embedded devices and appliances like,
  --- Consumer electronics (set-top boxes, smart TVs, Mobile phones)
  --- In-vehicle infotainment (IVI)
  --- Networking equipment (such as routers, switches, wireless access points or wireless routers)
  --- Machine control applications
- Example: Android OS is an Example of Embedded Linux

Advantages of Linux in Embedded Systems

- Easy Customization
- Used in device-specific purpose-built applications
- Power consumption is lower
- Easily portable
- Large Community support
- Performance optimization
- Low cost