Difference Between C and Embedded C

Structured programming is possible with the general-purpose programming language C. However, Embedded C is a collection of language extensions for the C programming language created to address difficulties of similarity between C extensions for various embedded devices. The difference between C and embedded C is given in the table below.

Difference Between C and Embedded C	
C	**Embedded C**
It is a general-purpose, structured programming language that programmers use to create desktop applications.	Embedded C uses application development for microcontrollers.
It is a high level language.	It is an extension of C.
Programs written in C are completely hardware independent.	Embedded C is totally dependent on hardware.
The operating system is created by C language compilers and is dependent on executable files in order to function.	The hardware-dependent files that must be uploaded in the microcontroller are produced by embedded C language compilers. Additionally, turn on the devices to verify whether a code is functioning or not.
Standard compilers help to compile and execute the program.	Embedded C requires specific compilers.
The OS impacts the C language compilers.	The embedded C compilers are OS independent.
The programme in C is executed using conventional or standard compilers.	In embedded C, we require a particular compiler that can assist in producing results based on microcontrollers.

What is C Language?

A general-purpose programming language called C is frequently employed to create all different kinds of desktop-based apps. Dennis Ritchie created it as a system programming language for the creation of the operating system. Low-

level memory access, a small collection of keywords, and a clean style are the fundamental characteristics of the C programming language, which makes it appropriate for system programming like OS or compiler development.

C is a computer language that uses a compiler. It operates more quickly as a result. The entire source code is converted at once by the C compiler into the equivalent machine code. The CPU can do the task specified in the source code because it can understand this machine code.

What is Embedded C?

A system that is capable of carrying out one or more functionalities is called an embedded system. Additionally, this type of system has both mechanical and electrical components. A microcontroller is used in every embedded system to manage and regulate the functionality. A C language extension that aids in the creation of embedded systems is called embedded C. In other words, programming microcontroller-based devices is helpful.

Key Difference Between C and Embedded C

The key difference between C and embedded C is given below.

- C is typically used for desktop computers, whereas embedded C is utilised for applications based on microcontrollers.
- C is able to utilise a desktop computer's RAM, operating system, etc. While using the restricted RAM, ROM, and I/Os on an embedded processor, embedded C must.
- Embedded C has some ectra features like fixed point types, multiple memory spaces, and I/O register mapping.
- On a desktop computer, C has free-format programme source code. whereas the format of embedded C varies depending on the embedded processor (micro-controllers/ microprocessors).
- C (ANSI C) compilers often produce executables that depend on the OS. Compilers must produce files for download to the microcontrollers or microprocessors where embedded C is to be used.