**MODULE – 2**

**INTRODUCTION OF PROGRAMMING**

**OVERVIEW OF C - PROGRAMMING**

**THEORY QUESTIONS & ANSWERS**

**Q:1 – EASSAY ON C PROGRAMMING.**

**HISTORY:**

* C originated at Bell Labs in the early 1970s.
* The language was designed by Dennis Ritchie between 1969 and 1973 as an enhancement of the earlier B programming language, which was itself derived from BCPL (Basic Combined Programming Language).
* Ritchie’s goal was to create a language that could efficiently support system programming and be used to develop operating systems.
* In 1972, the first version of C was implemented on a DEC PDP-11 computer.
* This language quickly became the foundation for writing the UNIX operating system, which was also being developed at Bell Labs by Ritchie and Ken Thompson.
* By 1973, much of the UNIX kernel had been rewritten in C, demonstrating the language’s power and flexibility.
* The first standardized version of C, known as K&R C (named after the authors of the definitive book *The C Programming Language* by Brian Kernighan and Dennis Ritchie), was published in 1978.
* This book served as the primary reference for C programmers for many years.

**EVOLUTION & STANDARDIZATION:**

* As C grew in popularity, the need for a standardized version became evident.
* In 1983, the American National Standards Institute (ANSI) formed a committee to create a formal standard for C.
* The result was the ANSI C standard, published in 1989, commonly referred to as "C89" or "C90" when adopted by the International Organization for Standardization (ISO).
* Subsequent updates to the standard have kept C relevant:
* **C99** (ISO/IEC 9899:1999): Introduced new features like variable-length arrays, inline functions, and improved support for floating-point arithmetic.
* **C11** (ISO/IEC 9899:2011): Added multithreading support, improved Unicode handling, and enhanced performance features.
* **C17** (ISO/IEC 9899:2017): A minor revision, fixing bugs & clarifying ambiguities.

**THE INFLUENCE OF “C” ON OTHER LANGUAGE:**

* C’s impact on computer programming is profound.
* Many popular programming languages, including C++, C#, Java, Python, and JavaScript, have syntax and features that are influenced by C.
* For example, C++ was designed as an extension of C to include object-oriented programming features.
* Similarly, the syntax of Java and C# resembles C, making it easier for C programmers to transition to these languages.

**IMPORTANCE OF “C” TODAY:**

* **SYSTEM PROGRAMMING:** Operating systems like UNIX, Linux, macOS, and Windows have core components written in C. C’s efficiency and low-level capabilities make it ideal for this purpose.
* **EMBEDDED SYSTEMS:** Devices like microcontrollers, sensors, and automotive systems rely heavily on C due to its close-to-the-hardware functionality and minimal overhead.
* **PERFORMANCE-CRITICAL APPLICATIONS:** High-performance computing, game engines, and real-time systems benefit from C’s speed and efficiency.
* **LEARNING AND TEACHING:** C is often used as a teaching language because it introduces fundamental programming concepts, such as pointers, memory management, and data structures, that are essential for understanding computer science.
* **LEGACY CODE MAINTENANCE:** Many older systems and applications were written in C, and maintaining or upgrading these systems requires knowledge of the language.

**Q:2 – WRITE FRIST PROGRAM IN C LANGUAGE & GET OUTPUT “HELLO WORLD.”**

* **HELLO WORLD LINK:** [**https://github.com/darshangohil7/25Nov\_Darshan\_SE/blob/main/Assignments/Moduel%20-%202/Hello%20World.cpp**](https://github.com/darshangohil7/25Nov_Darshan_SE/blob/main/Assignments/Moduel%20-%202/Hello%20World.cpp)