Lesson no. 1: Introduction of C

COURSE CONTENTS OF C

Introduction

- ✓ The C Language and its Advantages
- ✓ The Structure of a C Advantages
- ✓ Writing C Programs
- ✓ Building an Executable Version of a Program
- ✓ Debugging a C Program
- ✓ Examining and Running a C Application Program

Date Types and Variables

- ✓ Date Types
- ✓ Operands, Operators, and Arithmetic Expressions

Input/output Management

- ✓ The Input/output Concept
- ✓ Formatted Input Function

Control-Flow Statements

- ✓ The Control-Flow Program Statements
- ✓ Looping Statements
- ✓ The Data-checking process

Modular Programming with Functions

- ✓ The C Function
- ✓ Passing Data to Functions
- ✓ Passing an Address to Modify a Value in Memory
- ✓ Using Function in the Checkbook Program
- ✓ C Standard Library Functions

Arrays, Pointer, and Strings

- ✓ Arrays, Pointer, Strings
- ✓ Using Arrays, Strings, and Pointers in the Checkbook Program

Structures

- ✓ Structures
- ✓ Arrays of Structures
- ✓ Passing Structures to Functions
- ✓ Nesting Structures

The Preprocessor and Multiple-file Compilation

- ✓ The C Preprocessor
- ✓ The Conditional Compilation Directives
- ✓ Global Variables and Variable Storage Classes
- ✓ Program Organization and Multi-file Compilation

File Input/output

- ✓ Command-line Arguments
- ✓ Combining Command-line Arguments and File I/o
- ✓ File Input and Output

Introduction of C

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. C was originally first implemented on the DEC PDP-11 computer in 1972.

In 1978, Brian Kernighan and Dennis Ritchie produced the first publicly available description of C, now known as the K&R standard.

The UNIX operating system, the C compiler, and essentially all UNIX applications programs have been written in C. The C has now become a widely used professional language for various reasons.

- Easy to learn
- Structured language
- It produces efficient programs.
- It can handle low-level activities.
- It can be compiled on a variety of computer platforms.

Facts about C

- C was invented to write an operating system called UNIX.
- C is a successor of B language which was introduced around 1970
- The language was formalized in 1988 by the American National Standard Institute (ANSI).
- The UNIX OS was totally written in C by 1973.
- Today C is the most widely used and popular System Programming Language.
- Most of the state-of-the-art software's have been implemented using C.
- Today's most popular Linux OS and RBDMS MySQL have been written in C.

Why to use C?

C was initially used for system development work, in particular the programs that make-up the operating system. C was adopted as a system development language because it produces code that runs nearly as fast as code written in assembly language. Some examples of the use of C might be:

- Operating Systems
- Language Compilers
- Assemblers
- Text Editors
- Print Spoolers
- Network Drivers
- Modern Programs
- Databases
- Language Interpreters
- Utilities

C Programs

A C program can vary from 3 lines to millions of lines and it should be written into one or more text files with extension **".c"**; for example, *hello.c*. You can use **"vi"**, **"vim"** or any other text editor to write your C program into a file.

This tutorial assumes that you know how to edit a text file and how to write source code inside a program file.