

ADVANCE C

Detail Syllabus

(Duration 100 hours 1 month/ 2 months)

Introduction

Basic Linux commands and vi editor
Compilation and linking process
Header files and Libraries
Process memory layout on 16 and 32 bits (user space and kernel Space details)
Operating system, Kernel, Microprocessor and Compiler
Memory allocation – variable and function, load time and run time
Linux Installation

Operators

Types of operators
Rules
Dealing with all 45 operators

Data types

Data types, qualifiers, modifiers, format specifiers
Dealing with each data types
Memory representation of each type

Control Structure

Types of control structure
Basic fundamental of loop and recursion
Dealing with all control structures (goto, for, while, do while, if else, switch case)

Pointer

What is pointer?
Why pointer?
Different concept of pointer (memory leak, wild pointer, null pointer, dangling pointer ...)
Types of memory address
Application of pointer
Heap and stack exploration

Array

How to introduce array?
When single and double?
Dynamic array and efficient use of malloc, calloc and free
Pointer and array.

Function

Styles of writing program
What is function?
Why function
Library and system calls
Function recursion
Function with va_list
Function calling convention

Storage class

Types of storage class
Scoping rules
Dealing with all storage classes

Preprocessor

C Compiler, Preprocessor, Assembler, linker
Preprocessor directives
Dealing with all preprocessor directives

Structure and union

Memory allocation of structure and union
Why structure and union?
What is structure and union?
Bit field

Dynamic memory allocation

Heap allocation using malloc and calloc
Memory leak, link and linked list
How to write the code snippet
Introduction of DS

File Handling

Types of file
Buffer and streams
File operations
File operations using std.library and system calls
File locking and unlocking
File linking
Text and Binary file I/O

Command line argument

What is command line and why command line?
Programs using command line
Use of Environment vector
Developing start and stop process

Process, threads and signal

What is process & Threads?
Types of process and threads
Use of fork, vfork?
Daemon process
Signals and how to handle all signals
Use of return and exit statements

Locking Mechanism

Dealing with OS resources
Locking using mutex, file locking and semaphore

Socket and Network programming

Introduction to Inter Process communication (IPC)
OSI Layers with a practical approach, IP and Port numbers
Introduction to PC and HOST
Networking using TCP and UDP
Concurrent Server using Process and Threads

ODBC Programming

ODBC rules and regulation
Introduction to MYSQL and Oracle
Creating, inserting and retrieving records for different Data bases.

Graphics & Curses

Graphics using Glade interface with GTK+
Working with GTK Widgets, Event handling
Developing Application Interface
Developing Application using curses library

Development tools

Make cscope, gdb, valgrind, strace and ltrace

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