C With Data Structures

Fundamentals of C

- Data types, Variables and Constants
- Use of Memory
- Arithmetic & Logical Operators and Expressions
- Conditional Statements and Loops

Functions

- Introduction and Importance
- Passing Value/Reference
- Recursive Functions
- Getting values back from Functions
- Affects on Stack
- Library and User defined function
- Passing Variable number of parameters

Arrays

- Definition, initialization and usage
- Multi Dimensional Arrays
- Strings
- Pointer based arrays
- Passing arrays to functions
- String handling – with function/without function

Storage Class and Scope of Variables

- Scope and Life
- Automatic, Static, External, Register
- Memory(CPU / RAM)

Pointers

- Introduction to pointers
- Defining pointers
- Importance of & and * operators
- Pointer Assignment
- Pointer Arithmetic
- Generic and Null Pointer
- Function Pointers
- Pointers to Arrays and Strings
- Array of Pointers

Structures & Unions

- Introduction to structures
- Declaration, initialization
- Access to members of structure
- Array of Structures
- Passing structures to functions
- Memory Allocation
- Structure Comparison
- Structure bit operation
- Unions
- Structure Vs Union
- Pointers to Structure and Union

Dynamic Memory Allocation

- Malloc(), Calloc(), Realloc(), Free()
- Pointers to Dynamic memory

Enumerated data types

- Enum, Indexing

- Enum Vs #define

Bit wise Operations
- Bit wise AND (&), OR (|), XOR (^) Logic
- Compliment (~) operator
- Left-Shift (<<), Right Shift (>>)
- Masking, Setting, Clearing and Testing of Bit / Bits

File Handling Concepts
- Introduction to File Data
- Inode, FILE structure
- Pointer to File
- File Accessing Concepts

Command line Arguments
- Argc, argv
- Variable Inputs to the main

Compiler in Practical
- Preprocessor Directives
- Compiler, Assembler, Linker

Data Structures
- Introduction to Data Structure
- Types – Linear & non-linear
- Concept of Linked List
- Single, and Double Linked Lists
- Stacks & Queues
- Binary Trees
- Sorting and Searching Techniques