

C LANGUAGE

C Language Contents:

- Introduction to C Language
- Role Of Compilers and Assemblers
- Procedural programming Approach
- Top to Bottom Approach

Introduction to C Basic

- Keywords
- Data types
- Variables
- Constants
- Identifiers
- Tokens
- Operators
- Memory management in prog

Flow Control Statements

- Jump statements
- Goto
- Break
- Continue
- Conditional Statements
- If statement
- If else statement
- Nested if else
- If else if ladder
- Switch case statement
- Iteration statements
- For loop
- While loop
- Do while loop
- Nested loops
- patterns

Arrays:

- Introduction to Arrays
- Several examples of Arrays like insert, delete, counter occurrence of items etc.
- Searching
- Sorting
- 2 D Array
- Several Examples of 2 D arrays



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- Multidimensional Array s

Strings:

- Introduction to Strings
- String handling built in functions
- Several examples of Strings
- Array of Strings
- Searching in Array of Strings
- Sorting in Array of Strings

POINTERS

- Introduction to pointers
- Pointer expressions
- Types of Pointers
- Void Pointer
- NULL Pointer
- Wild Pointer
- Dangling Pointer
- Various examples of pointers
- Pointer Arithmetic's
- Array using pointers
- String using pointers
- Pointers in Functions
- deadlock pointer

FUNCTIONS

- Introduction to functions
- Types of functions
- Nesting of functions
- Various examples of functions
- Strings passing is functions
- Array Passing in Functions
- Pointer passing is functions
- Function Returning Address
- Function returning address
- Recursion
- Various Examples and Interview Questions on Recursion and Function
- Storage classes

STRUCTURE

- Introduction to structure
- Advantages of structure
- Array of structure

- Structure using pointer
- Structure with functions
- Applications of structure

Union

- Introduction to union
- Advantages of union
- Difference between union and structure
- Enum
- Introduction to enum

DYNAMIC MEMORY ALLOCATION

- Introduction to dynamic memory allocation
- Advantage of dynamic memory allocation
- malloc(), calloc(), realloc(), free()
- Array implementation using dynamic memory allocation

Macro and Compiler Control Directives

- #define
- #undef
- #ifdef
- #ifndef
- #elif
- ## Etc.

FILE MANAGEMENT

- Introduction to file management
- File opening modes
- Opening and closing a file
- Input output operations on file
- Applications of file management
- Project

DATA STRUCTURE AND ALGORITHMS CONTENT (using C)

INTRODUCTION TO DATA STRUCTURE AND ALGORITHMS

- What is data structure
- Benefits of data structure
- Types of data structure
- Introduction to algorithms
- Types of Algorithms
- Time and Space Complexity
- Interview Questions

LINEAR DATA STRUCTURE

- Array
- String
- Link list
- Introduction to link list
- Array vs. link lists
- Types of link lists
- Implementation of link list
- Singly link list
- Insertion(at first position, last position and at used specific position) , deletion(at first position, last position and at used specific position) , traversing operations in Singly linked list
- Doubly link list
- Insertion (at first position, last position and at used specific position), deletion(at first position, last position and at used specific position) , traversing operations in Doubly linked list
- Circular link list
- Insertion(at first position, last position and at used specific position) , deletion(at first position, last position and at used specific position) , traversing operations in Circular linked list
- Application of link list

Interview Questions

- Stack
- Introduction to stack
- Stack using array
- Stack using linked list
- Applications of stack
- Reverse Polish Notations(Infix to Postfix and Infix to Prefix)

Interview Questions

- Queue
- Introduction to queue
- Queue using array
- Queue using linked list
- Applications of queue
- Introduction to circular queue
Application of Circular queue
- Introduction to DeQueue (Double Ended Queue)
- Application of Dequeue
- Priority Queue

- Interview Questions

NON-LINEAR DATA STRUCTURE

- Tree
- Introduction to trees
- Types of trees
- Implementation of tress
- Binary tree
- Binary search tree
- AVL tree
- Threaded binary tree
- M way tree
- M way search tree
- B tree
- Heap
- Various operations on trees
- Application of tress
- Interview Questions

SEARCHING AND SORTING

- Searching in arrays
- Searching in strings
- Linear Search
- Binary Search
- Sorting
- Various sorting techniques
- Selection sort
- Bubble sort
- Insertion sort
- Quick sort
- Heap sort
- Merge sort
- Radix Sort

Graph

- Introduction of graph
- Types of graphs
- Implementation of graph using Adj.
- Matrix and Adj. list
- Various operations on graphs
- Shortest path search in graph
- Floyd Warshall Algorithm



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- Dijkstra Algorithm
- Minimum spanning tree
- Kruskal's Algorithm
- Prims Algorithm
- Applications of graphs
- Interview Questions

Hashing

- Introduction of hashing
- Hash table
- Applications of hashing
- Interview Questions
- Interview Questions

Project



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