Java

Programming Language:

Week 1:

- **Day-1, 2, 3 :**
  - **CPP**- Introduction, Variables and Operators: Introduction, Variables, Data types.
  - **Java**- Introduction, Variables and Operators: Introduction, Variables, Data types.

  Day- 4, 5, 6 :
  - **CPP**- Input/Output,Arithmetic, Logical, Bitwise.
  - **Java**- Wrapper class,Input/Output, Operators in Java, Bitwise.

Week 2:

- **Day- 1, 2, 3 :**
  - **CPP**- Flow Control, Function & Loops: If-else, for loop, while loop.
  - **Java**- Flow Control, Loops & Function: If-else, for loop, while loop.
- **Day- 4, 5, 6 :**
  - **CPP**- jump statements, Patterns, Functions & its Applications.
  - **Java**- jump statements, Patterns, Functions & its Applications.

Week 3:

- **Day- 1, 2, 3, 4:**
  - **CPP**- Arrays, String, Pointers & Reference: 1D & Multidimensional Arrays, References & Pointers, C style Strings.
  - **Java**- Arrays & String : 1D & Multidimensional Arrays, String in Java, StringBuilder & StringBuffer.

- **Day- 5, 6:**
  - **CPP**- Struct and Union, Quiz
  - **Java**- Quiz

Week 4:

- **Day- 1, 2, 3:**
  - **CPP**- C++ OOPs: Constructors & Destructors, Inheritance.
  - **Java**- Java OOPs: Encapsulation, Inheritance.

- **Day- 4, 5, 6:**
  CPP- Operator Overloading, Friend Function in C++.
  Java- Interface,Polymorphism, Abstraction, Constructors.

Week 5:

- **Day- 1, 2, 3:**
  CPP- Advanced: Exceptions, Function pointers, Lambda Expressions.
  Java- Advanced: BigInteger, File Handling.

  Day- 4, 5, 6:
  CPP- Smart pointer, Errors, Dynamic Memoryallocation.
  Java- Multithreading, Exceptions.

Data Structures(Basics):

Week 6:

- **Day- 1 :** Introduction : Asymptotic Analysis (Finding time and space complexities)
- **Day- 2, 3 :** Arrays: Types, Operations on Arrays
- **Day - 4, 5, 6 :** Basic Recursion

Week 7:

- ~~**Day-1, 2, 3 :** Hashing: Different Types of Hashing Techniques,Collision resolution Techniques.~~
- **Day- 4, 5, 6 :** Searching: Linear & Binary Search(Iterative and Recursive).

Week 8:

- **Day-1, 2, 3, 4 :** Sorting: Insertion Sort, Merge Sort, Quick Sort, Cycle Sort, Counting Sort, Radix Sort, Bucket Sort, Custom Sort using STL
- ~~**Day- 5, 6 :** Linked Lists: Singly Linked List, Search,~~

Week 9:

- ~~**Day-1, 2, 3:** Linked Lists: Insert, Delete, Reverse Operations.~~
  ~~Circular Linked Lists: Insert & Delete Operations~~
  ~~**Day- 4, 5 :** Doubly Linked Lists: Insert & Delete Operations~~
- ~~**Day- 6 :** Solve available practice questions~~

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Week 10:

- **Day-1, 2:** Stack: Stack Operations, Implementation.
- **Day- 3 :** Solve available practice questions
- **Day- 4, 5 :** Queue: Queue Operations, Implementation.
- **Day- 6 :** Deque Operations, Implementation. Solve available practice questions

Week 11:

- **Day- 1, 2, 3 :** Tree: Binary Tree, Tree Traversals, Questions
- **Day- 4, 5 :** Binary Search Tree: Search, Insert, Delete, Floor & Ceil.
- **Day- 6 :** Heaps: Binary Heap(Min and Max Heap).

Libraries:

Week 12:

- **Day- 1, 2:**
  CPP- STL Overview: Introduction, Iterators & templates.
  Java- Collections Overview: Introduction, Generics, Collection, Iterators

- **Day- 3:**
  CPP- Pairs
  Java- Lambda Expressions

- **Day- 4:**
  CPP- Vectors: Vectors & its Questions
  Java- Streams

- **Day- 5:**
  CPP- Forward list & List: Introduction and Questions
  Java- ArrayList: Introduction and Questions

- **Day- 6:**
  CPP- Deque

Java- Linked List

Week 13:

- **Day- 1, 2:**
  CPP- Stack & Queue: Different Questions
  Java- Stack & Queue: Different Questions

- **Day- 3:**
  CPP- Priority Queue
  Java- Deque & Priority Queue

- **Day- 4:**
  CPP- Set & MultiSet
  Java- HashSet and LinkedHashSet, TreeSet

- **Day- 5:**
  CPP- Map & Multimap
  Java- HashMap and LinkedHashMap, TreeMap

- **Day- 6:**
  CPP- Unordered_set
  Java- String:

Week 14:

- **Day- 1:**
  CPP- Unordered_map
  Java- String: Continued..

- **Day- 2:**
  CPP- Non-Mutating STL Algorithms
  Java- Comparator & Comparable

- **Day- 3:**
  CPP- Set & MultiSet
  Java- Array Class

- **Day- 4, 5:**
  CPP- Mutating STL Algorithms
  Java- Sorting: Methods & Questions

- **Day- 6:**
  CPP- String and More
  ~~**Java**- Collections~~ Class

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Data Structures(Advanced):

Week 15:

- **Day-1 :** Mathematics : GCD, Prime, Factorial, Sieve of Eratosthenes, Computing Power
- **Day- 2, 3 :** Bit Magic : Bit Operators,Tricks to use bit manipulation.
- **Day - 4 :** Recursion: Questions
- **Day- 5, 6 :** Arrays: Questions, Prefix Sum, Sliding Window

Week 16:

- **Day-1, 2, 3 :** Searching: Two pointer approach &Questions
- **Day- 4, 5, 6 :** Sorting: Questions

Week 17:

- **Day-1, 2, 3 :** Matrix :Operations on Matrix(SearchRotate,Transpose).
- **Day- 4, 5, 6 :** Solve available practice questions

Week 18:

- **Day-1, 2 :** Hashing: Hashing Questions
- **Day- 3, 4, 5, 6 :** Strings: Basic Operations, Naive Pattern Search, Other searching algorithms(KMP, Rabin-Karp).

Week 19:

- **Day-1, 2, 3 :** Linked Lists:Linked List & its Questions
- **Day - 4, 5 :** Stacks: Infix, Prefix & Postfix, Questions
- **Day- 6 :** Queue & Deque: Different Questions.

Week 20:

- **Day-1, 2, 3 :** Tree: Binary Tree, Tree Traversals, Different Questions
- **Day- 4, 5, 6 :** Binary Search Tree: AVL (Basic Introduction),Self Balancing Trees and their use in sets and maps STL.

Week 21:

- **Day-1, 2, 3 :** Tree: Solve medium level questions of tree on GeeksforGeeks.
- **Day- 4, 5, 6 :** Binary Search Tree: Solve medium level questions of tree on GeeksforGeeks.

Week 22:

- **Day-1, 2, 3 :** Heaps: Heap Sort, Min & Max Heap
- **Day - 4, 5, 6 :** Solve available practice questions.

Week 23:

- **Day-1, 2 :** Graphs: Graph Implementation, Traversals,
- Cycle Detection.
- **Day - 3, 4, 5, 6 :** Bipartite Graph, Minimum Spanning Tree, Topological Sorting, & solve available questions of graph.

Week 24:

- **Day-1, 2, 3 :** Graph Algorithms: Shortest Path Algorithms, Connected Components, Bridges, etc.
- **Day- 4, 5 ,6 :** Solve available practice questions

Week 25:

- **Day-1, 2, 3 :** Greedy : Fractional Knapsack, Activity Selection, Job Sequencing, Backtracking: Concept & Questions.
- **Day- 4, 5 ,6 :** Solve available practice questions

Week 26:

- **Day-1, 2, 3, 4, 5, 6 :** Dynamic Programming: Properties (Top Down, Bottom Up, Optimal Substructures, Overlapping Subproblems) and Standard Problems (LIS, LCS, etc), Dynamic Programming Problems (Variations of Standard Problems)

Week 27:

- **Day-1, 2, 3, 4, 5, 6 :** Dynamic Programming: Solve all the available practice questions of dynamic programming.

Week 28:

- **Day 1, 2:** Tries
- **Day 3, 4:** Segment Tree
- **Day 5, 6:** Disjoint Set Union: Operations(Union, Find), Path Compression

Week 29:

- **Day-1, 2, 3 :** Linked Lists: Linked List & its Questions
- **Day - 4, 5, 6:** ,Tree, BST & its Questions

Week 30:

- **Day-1, 2, 3 :** Stack Infix, Prefix, Postfix & its Questions
- **Day - 4, 5, 6:** Queue & Deque: Different Questions

Object Oriented Design:

Week 31:

- **Day-1 :** Introduction to Classes and Objects
- **Day - 2 :** Software Development Process
- **Day- 3 :** Introduction to UML.
- **Day - 4, 5 :** Class Diagrams and Object Diagrams
- **Day- 6 :** Use Case Diagrams.

Week 32:

- **Day-1, 2 :** OOAD Case Study: Design Online Movie Ticket Booking
- **Day - 3, 4 :** OOAD Case Study: Design Ecommerce Platform
- **Day- 5 :** OOAD Case Study: Design Parking Lot
- **Day - 6 :** OOAD Case Study: Design BlackJack Card Game

Computer Subjects:

Week 33:

- **Day-1, 2, 3, 4, 5, 6 :** Operating Systems: Introduction, Multithreading, Process Management, Process Synchronization, Deadlocks, Memory management, Virtual Memory

Week 34:

- **Day-1, 2, 3, 4, 5, 6 :** Computer Networks: Introduction, Data Link Layer, Network Layer, Transport Layer, Application Layer, IP addressing.

Week 35:

- **Day-1, 2, 3, 4, 5, 6 :** DBMS: Introduction, ER and relation Models, Database Design(Normal Forms), File Structures, Transactions and Concurrency Control.

Week 36:

- **Day-1, 2, 3 :** SQL: SQL Queries
- **Day- 4, 5, 6 :** Computer Networking Interview Questions

Week 37:

- **Day-1, 2, 3 :** Operating Systems Interview Questions
- **Day- 4, 5, 6 :** DBMS Interview Questions

Aptitude and Reasoning:

Week 38:

- **Day-1, 2, 3 :** Quantitative Analysis: Area, Average, DecimalsFractions, DivisibilityTest, HCFandLCM, HeightDistance, NumberSystem, Percentage, ProfitLossDiscount, RatioAndProportion, SeriesAndSequence, SquaresCubes, Volume, Age, Boats and Streams, Calendars, Clocks, Log, Partnership, Race, RatioAndProportion, TimeAndWork, Trains.

- **Day- 4, 5, 6 :** Logical and Verbal Reasoning: Logical Reasoning, Basics of Grammar, Articles, Solution to the Coleman Exercise of Articles, Active Voice and Passive Voice, Closet Test, Passage Formation, Sentence Formation, Sentence Completion, Subject Verb and Agreement, Determiners, Modifiers, Parallel Structure, Grammar Exercise, Error Spotting, Parajumbles, Verbal Analogies.