ACCIOJOB FULL STACK DEVELOPMENT WEEK-WISE SYLLABUS

- Week 1 -
  - HTML
    - What is frontend? Why it is important?
    - Common HTML tags and their usage. Viewing webpages in browsers
    - HTML Tables and Forms. Discussion on more tags & display properties.
  - Intro To CSS
    - Specificity, common style properties
    - Selectors, Box model, positioning, flex model
- Week 2 -
  - CSS extended
    - Grids in CSS, pseudo selectors.
    - Bootstrap.
  - CSS in real world
    - Building Landing pages and other popular components

HTML + CSS PROJECT

- Week 3-8
  - Javascript
    - Intro to DOM model
    - Intro to Javascript
    - Solving DSA in javascript
    - Let, var, const, hoisting and closures
    - Filters, maps, arrow functions and other ES6 syntaxes ◆ Arrow Functions and bind, apply usage.
    - async, await, event loop, callbacks
    - Promises, event handling in Javascript
    - Prototypes and classes in JS

JS + HTML+CSS PROJECT x 2

- Week 9-11
  - ReactJS & Redux
    - Understanding class based and function based components ◆ Lifecycle methods
    - Intro to Hooks
    - React router
    - Intro to redux toolkit
    - Using global redux stores in complex web apps

REACTJS FRONTEND PROJECT x 2

- Week 12-
  - Programming Basics
    - Printing and reading inputs
    - Datatypes and variables
    - Space and Time Complexity
  - Arrays and Matrices
    - Declaration & iteration
    - Handling Input & printing output ◆ Iterating over arrays
  - Strings
    - Initialization and basic string methods ◆ Iterating over characters
- Week 13-
  - Recursion
    - Basic concept
    - Simple recursion questions ○ Sorting Algorithms
    - Definition of Greedy Algorithms (basic intro)
    - Some example algorithms of maybe min number of coins
    - Types of Sorting
      - Merge Sort
      - Quick Sort
  - Searching
    - Linear Search
- Week 14-
  - Binary search
    - Recursive Binary Search
    - Iterative Binary Search
    - Time Complexity
  - Object Oriented Programming Basics
  - Linked List
    - Linked Lists vs Array time complexities and differences.
    - Single Linked List
    - Linked Lists operations
    - Double Linked List
    - Circular Linked List
    - Must Do Questions: Using linked lists for finding sum of 2 long numbers, cycle detection in linked lists, etc.
- Week 15-
  - Two Pointers and sliding window
    - Sliding window question.
    - Working of two pointer
    - Time Complexity
  - Stacks, Queues and Deques

- LIFO FIFO basic functioning
- Implementation using arrays and linked lists
- Popular questions like closest larger element using stacks, using queues to solve some 2D matrix questions like finding islands in a boolean matrix

- Week 16-
  - Kadane's Algorithm
    - Prefix Sum
  - String Algo - KMP
  - Hashing
    - Full theory including hash functions, collisions, probing, probing problems,
    - Popular questions. Hash sets and HashMaps differences, also discuss treeMaps and differences
  - Heaps
    - Introduction - Insert, Delete, find min, max, parent/child indexes ◆ Heap Sort
    - Types of Heaps (Max & Min)
    - Build Heap
    - Popular questions for finding K largest etc.
- Week 17-
  - Some popular Algorithms
    - Sieve of Eratosthenes
    - GCD & LCM
    - Prefix, postfix infix operation conversion
  - Bit Manipulation
    - Popular questions. 1 lecture.
  - Recursion Revisited
    - Theory revisit
    - Discuss questions like create a group from array summing to K (questions about choosing combinations and printing permutations)
    - BackTracking - nQueens, solving Sudoku.
- Week 18-
  - Trees
    - Definition of trees, height, Binary Trees, complete trees, balanced trees, root, leaves, ancestor,
    - Traversals - 4 types
    - Binary Search Trees
    - Implementation
    - Deletion, insertion, search, ancestor, next maximum, common ancestor
    - Problems without balancing
- Week 19-

- Graphs
  - Basic implementation using adjacency list and matrix. Time complexity in common operations
  - BFS and DFS with implementation
  - Common problems on both including bipartite
  - Cycle detection using back edge and its intuition
  - Dijkstra's Algorithm
  - Logic and implementation
  - Using a PriorityQueue

- Week 20-
  - Dynamic Programming
    - Problems with recursion, issues of complexity and stack overflow
    - Tabulation and memoization
    - Fibonacci, KnapSack Problem, Coin Change problem, Matrix multiplication number of operations.

- Week 21 & 22-
  - DSA Revision and more practice questions on DSA - all topics
  - SQL - basics, joins, group by , having, normalization
  - Low Level System Design

DSA + OOP PROJECT

- Week 23-28
  - Intro to NodeJS
  - Creating APIs in nodeJS
  - Fs module, expressJS, streams and buffers in nodeJS
  - REST APIs
  - Intro to mongoDB
  - Designing schema in mongoDB and Postgres/MySQL
  - Mongoose and Sequelize ORMs
  - Integrating SQL and noSQL databases in express based projects ○ Authentication - stateful and stateless
  - Aggregation Queries
  - Integrating backends and frontends using REST APIs
  - Hosting your projects on Heroku

BACKEND ONLY PROJECT

- Week 28 Onwards
  - Revision Sessions and Project Building

FULL STACK CAPSTONE PROJECT