Content Outline

(Mention broad topics which will be covered along with teaching & evaluation methodology for each topic.)

S. No.	Broad Topic	Teaching Methodology (s)	Evaluation Methodology (s)
1	**Module 1-Basic of Programming and Getting a hold of Java** Installation of IDE and Learning Syntax Flowchart &Pseudocode Conditional Statements | Loops(for, while, do-while etc.) Patterns and Problem solving | Functions	Live (Zoom Class) and Pre-recorded	Programming Assignment
2	**Module 2- Starting with Data Structures** Arrays Strings 2-D Arrays Array List(Wrapper Class)	Live (Zoom Class) and Pre-recorded	Assignment
3	**Module 3- Recursion and Backtracking and Time and Space Complexity** Learning Recursion and Backtracking Techniques to solve problems. Understanding the Recursive Stack working It helps us to compare the algorithms on the basis of Time and Space it takes to run the code and help us to master how to write codes by considering constraints of the problem.	Live (Zoom Class) and Pre-recorded	Assignment and Hackathon
4	**Module 4Divide and Conquer, Bit masking** Learning DNC algorithms like Binary Search, Quicksort, Merge Sort etc Applications of Bit masking for faster execution of the Algorithms	Live (Zoom Class) and Pre-recorded	Assignment
5	**Module 5- Object Oriented Programming**	Live (Zoom Class)	Project on Clustering

	One of the most important topic to build data structures and learning about object oriented design decisions to implement them. How the real world is mapped with coding world with the help of four important OOP pillars inheritance, polymorphism, abstraction, encapsulation, Hierarchical Clustering and Density Based Clustering	and Pre-recorded	
6	**Module 7- Stack Queue and LinkedList** Practical Applications of Queue Data Structures Implementation, Collections and Problem Solving of these Data Structures Stack Implementation, Collections and Problem Solving of these Data Structures Practical Applications of Basic Data Structures Implementation, STL and Problem Solving of these Data Structures	Live (Zoom Class) and Pre-recorded	Assignment and Hackathon
7	**Module 8- Tree and HashMap and Heap** In this data structure, we learn how to store data in a hierarchical format. It is one of the most important topic from Interview point of view and questions from this topic is frequently asked in companies such as Amazon, Microsoft, Flipkart and Google etc. This data structures helps you to understand how the infinite stream of data coming can be accessed to fetch the useful information, for example, find the most sold products on any website? Collision Handling Techniques in HashMap Optimization of Algorithms using HashMap	Live (Zoom Class) and Pre-recorded	Assignment
8	**Module 9- Dynamic Programming(DP) and Graph Tire and Greedy** Understanding the Applications of Greedy Approach Differentiate between Recursive and Greedy Technique Applications Learning 1 Dimensional, 2 Dimensional DP Understanding Recursive vs DP vs Greedy Techniques Top-Down and Bottom-UP Approaches in DP Optimization of	Live (Zoom Class) and Pre-recorded	Assignment and Hackathon

	Time Complexity using Dynamic Programming Adjacency Matrix, Adjacency List, and Edge List DFS and BFS Algorithms on Graphs Classic Problems like Snake and Ladder, Components Count etc. Dijkstra's, Topological Sort Algorithm on Directed and Undirected Graph Implementation of Tries Interview Questions Problems Solving		

Detail of External Experts and their affiliation

(Mention the detail of external members involved in taking Coding Blocks course along with their affiliation)

Name:Lakshya Singh
Current Organisation:Coding Blocks
Current Designation:Instructor and Product Engineer
Total Experience: 2.5 years
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