APNA COLLEGE

Alpha Placement Course

Java

' Let not the fruit of action be your motive to action. Your concern is with action alone, not with the fruit of action. '

- The Bhagavad Gita

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Batch 2

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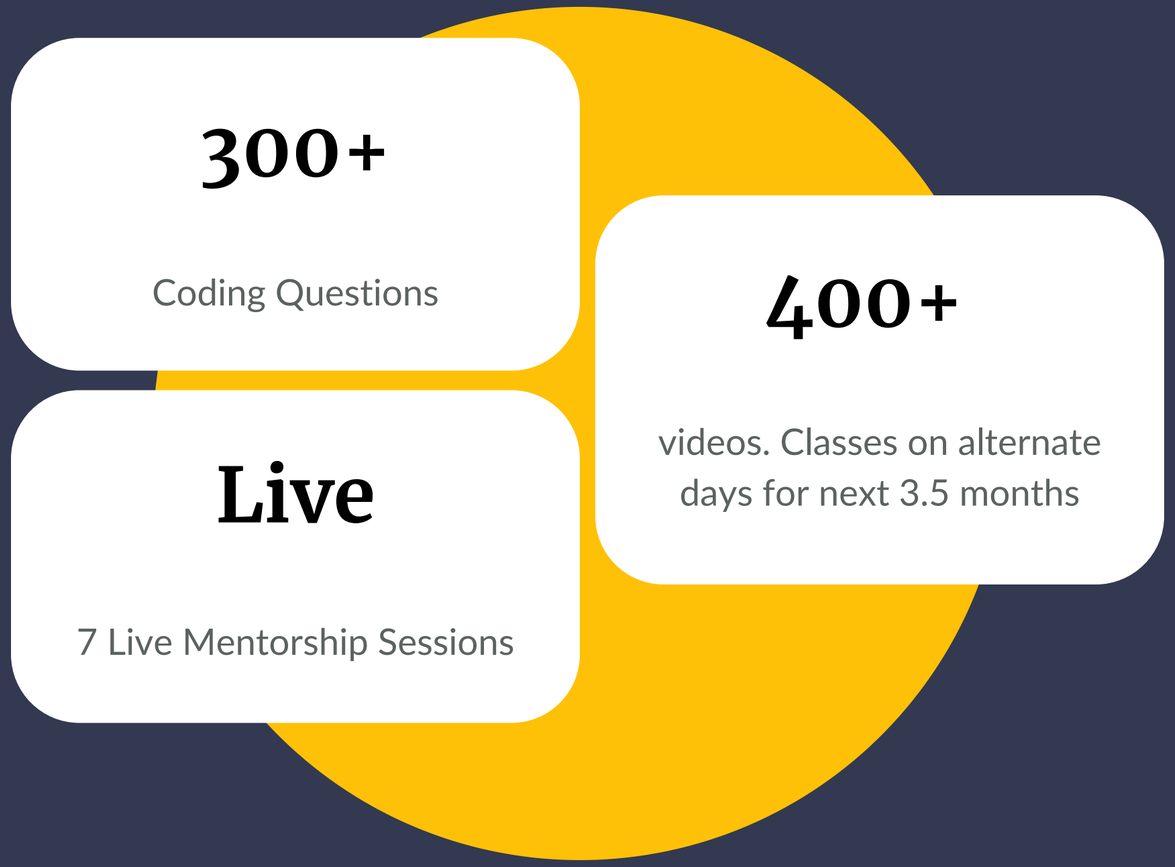
What's new?

Our experience tells us that students on average are 3 times more serious in a paid batch. The completion of course and watch time of students increases exponentially.



APNA COLLEGE

Batch Overview

- Complete Java
- Complete Data Structures & Algorithms
- Live Resume Preparation
- Live Interview Preparation & Mentorship sessions
- Coding Questions on all Important Topics (asked by Top Companies)

400+ video lectures

300+ solved questions practice

Duration : 3.5 Months
Course access is for One Year

Topics

Java

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CATEGORY	CHAPTERS	OVERVIEW
Basics of Programming	Flowcharts & Pseudocodes	what are flowcharts, pseudocodes, decision making using flowcharts, examples
	Variables & Data Types	Our first Java program, Variables and data types, Taking input/output, How java code runs?
	Conditional Statements	Introduction to if else, else if, Nested conditionals, switch
	Operators	arithmetic, relational, logical & assignment operators
Loops & Functions	For loop, While loop, Do-while loop	For loops, While loops, Do-while loops, Flow of execution of statements, break & continue, examples
	Patterns	Introduction to nested loops, basic to advanced patterns solved (butterfly, floyd's triangle, rhombus etc.)
	Functions	Introduction to functions, function calling, Pass by value, scope
Arrays	Introduction to Arrays	Introduction to arrays, arrays in memory, Passing arrays to functions, interview problems
	Searching & Sorting	Linear search, Binary search, Selection sort, Bubble sort, Insertion sort, count sort
2D Arrays & Strings	2D Arrays	2D arrays, 2D arrays in memory, Examples using 2D Arrays
	Strings	Introduction to strings & StringBuilder, storage of strings and their inbuilt functions

Data Structures & Algorithms (DSA)

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CATEGORY	CHAPTERS	OVERVIEW
Problem Solving Techniques	Recursion, Backtracking, Divide & Conquer	Introduction to recursion, Principle of mathematical induction, factorial, Fibonacci numbers, Recursion using arrays, Recursion using strings, Recursion using 2D arrays, backtrack, merge sort, quick sort
	Bit Manipulation	Binary number system, bitwise operators, operations on bits, fast exponentiation
	Time & Space Complexity	Order complexity analysis, Theoretical complexity analysis, Time complexity analysis of searching and recursive algorithms, Space complexity analysis of merge sort
	Greedy Algorithms	Introduction to greedy approach to problem solving, solving classical problems
Object-oriented programming	Basic to Advanced OOP	Objects & Classes, Creating objects, Getters, and setters, Constructors and related concepts, Inbuilt constructor and destructor, Example classes, Static members, Function overloading and related concepts, Abstraction, Encapsulation, Inheritance, Polymorphism, Abstract classes, Interfaces
Linear Data Structures	ArrayLists	Introduction to java collection framework, arrays, solved questions
	Linked lists	Linked list Introduction, Inserting node in linked list, Deleting node from linked list, Midpoint of linked list, Merge two sorted linked lists, merge sort of a linked list, Reversing a linked list
	Stacks and Queues	Stacks Introduction, Stack using arrays, Dynamic Stack class, Stack using linked list, Inbuilt stack, Queue using arrays, Dynamic queue class, circular queue

Data Structures & Algorithms (DSA)

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CATEGORY	CHAPTERS	OVERVIEW
Trees	Binary Trees & BST	Introduction to Binary Trees, Constructing the tree, Binary Tree traversals, Diameter of binary tree, height & LCA of the tree, Introduction to Binary Search Trees, Searching a node in BST, BST class, Inserting and Deleting nodes in BST, Types of balanced BSTs
Advanced Data Structures	Heaps/Priority Queues	Introduction to Heaps, Min/Max heaps, Heap Sort, Priority Queues, how to implement priority queues, Introduction to CBT(Complete Binary Trees) and its implementation, Insert and Delete operations in heaps, Implementing priority queues, In-built Priority Queue
	Hashing (Maps & Sets)	Introduction to Hashing, Hashmaps, Inbuilt Hashmap, Hashsets, In-built Hashsets, Hash functions, Insert and Delete operation implementation in hashmap/hashset, examples
	Tries	What are Tries, Creating a Trie node class, Insert, Search and Remove operation in Tries, Types of Tries, Questions on Tries
	Graphs	Introduction to Graphs, Graph Terminology, Graph implementation, Graph Traversals (DFS and BFS), Weighted and Directed Graphs, Minimum Spanning Trees, Cycle Detection in Graphs, Kruskal's algorithm, Prim's Algorithm, Dijkstra's algorithm, Bellman Ford Algorithm & a lot of questions
	Segment Trees	What are segment trees, Creation of segment trees, solving range queries, immutable & mutable
Dynamic Programming	DP & its Questions	Fundamentals of Dynamic Programming, Introduction to Memoization, Knapsack using DP, Factorial using DP, Fibonacci numbers using recursion, memoization and tabulation, Longest Common Subsequence (LCS) using recursion, Catalan's number, Edit distance using recursion, memoization and dynamic programming, Matrix Chain Multiplication and much more

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Lectures will be uploaded on **Alternate** Days (9:00 PM)

starting from 1st November

Till then, keep learning & keep exploring ❤

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