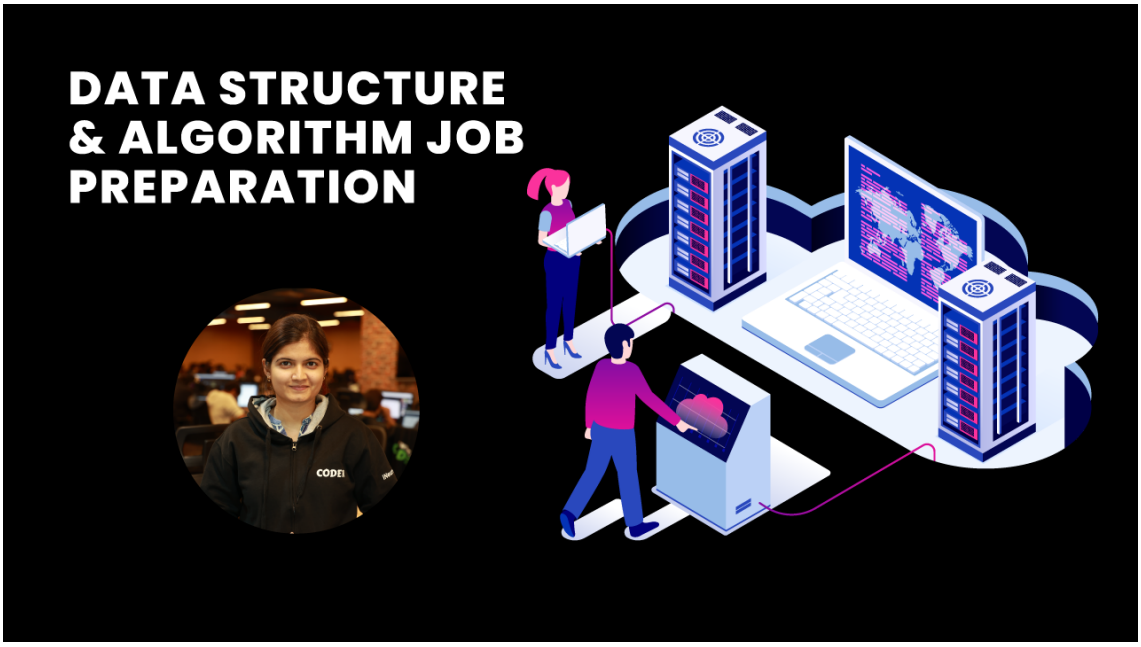
Welcome to ineuron.ai



Data Structure and Algorithm Job Preparation

Description:

Algorithmic programming techniques are a must-have skill. Learn Algorithms through programming and puzzle solving to advance your Software Engineering or Data Science career. Then, implement each algorithmic problem in this program to ace coding interviews.

Start Date:

Doubt Clear Time:

Course Time:

Features:

Downloadable resources

Roadmap

Assignments

Quizzes

Interview questions

Completion certificate

What we learn:

Problem solving

Analytical skill

Design Solution

Architecture design

Answer Confidently in interview.

Upscale your skill as a Developer.

Requirements:

Prior Knowledge of Data Structure & Algorithms concepts.

A System with internet connection.

Your dedication

Instructor:

Name:

Priya Bhatia

Description:

Expertise in data structure competitive programing and solving an analytical problems and implementing data structure algorithm in multiple programing language. I have done my M.Tech in Artificial Intelligence at IIT Hyderabad and have an experience of implementation in multiple projects.

>Maximum Subarray Sum:

>>Given an integer array, find the sum of the largest contiguous subarray within the arra

>K Closest Points:

>>Given a list of coordinates, write a function to find k closest points(measured by Euclid

>Finding of Kth Smallest Element in 2D Sorted Matrix:

>>Given an n-by-n matrix of elements that are sorted in ascending order both in the colu

>Mirror Image in Binary Tree:

>>Given a binary tree, write a function to determine whether the tree is a mirror image o

>Maximum Product:

>>Given an integer array, return the maximum product of any three numbers in the array

>Intersection Of Elements in an array:

>>Given two arrays, write a function to get the intersection of elements between the two

>Diameter Of Tree:

>>Given a binary tree, write a function to determine the diameter of the tree, which is the

>Maximum Length Of Common Subarray:

>>Given two arrays, return the maximum length of the common subarray within both arr

>Finding of Peak Elements:

>>Given an integer array, find the peak element and return its index. Here, Peak Eleme

>Top K Frequent Elements:

>>Given an integer array and integer k, return the k most frequent elements. For examp

>Permutation Of list:

>>Given a list of one or more distinct integers, write a function to generate all the permu

>Combinations of k numbers:

>>Given an integer n and an integer k, output a list of all the combinations of k numbers

>Removal Of kth Node from end:

>>Given a linked list, return the head of the same linked list but with the kth node from t

>Length Of Longest Path:

>>Given the m-by-n matrix with positive integers, find the length of the longest path of in

>Reverse Linked List from the given start and end position:

>>Given the head of the singly linked list and two integer start and end where start <= e

>Finding of Cycle in Linked List:

>>Given the head of a linked list, determine if the linked list has a cycle in it or not.

>Rotate Array:

>>Given an array, rotate the array to the right by k steps where k is non-negative.

>Longest Substring Without Repeating Characters:

>>Given a string s, find the length of the longest substring without repeating characters.

>Number of Friend Group:

>>Say that there are n people. If person X is a friend with person Y, and person Y is a fr

>Greedy Algorithms vs Dynamic Programming:

>>As you are aware of the fact that both Greedy Algorithms and Dynamic Programming

>QuickSort:

>>In QuickSort, sorting of n numbers, n/10th element is selected as Pivot using O(log N

>Correlation:

>>Given two lists X and Y, return their correlation.

>QuickSort vs MergeSort:

>>Out of MergeSort and QuickSort, which one do you think is more suitable for practica

>>Why is QuickSort preferred for Array and MergeSort for LinkedList?

>Median Calculation:

>>Given a continuous stream of integers, write a class with functions to add new integer

>Length Of longest well-formed substring:

>>Given a string with left and right parentheses, write a function to determine the length

>Sum to the target Number:

>>Given a target number, generate a random sample of integers that sum to that target

>Sort an array of 0s, 1s and 2s:

>>Given an array of size N containing only 0s, 1s and 2s, sort the array in ascending or

>Detection Of Cycle in Undirected Graph:

>>Given an undirected graph with V vertices and E edges, check whether it contains an

>Detect Cycle in Directed Graph:

>>Given a directed graph, check whether the graph contains at least one cycle, else retu

>Binary Tree Level Order Traversal:

>>Given the root of a binary tree, return the level order traversal of its nodes' values.

>Binary Tree Zigzag Level Order Traversal:

>>Given the root of a binary tree, return the zigzag level order traversal of its node value

>Intersection Of Two Linked Lists:

>>Given the head of two singly linked lists, return the node at which the two lists interse

>Rotate Image:

>>Given an n-by-n matrix representing an image, rotate the image by 90 degrees(clockw

>Smallest Number Of Perfect Squares:

>>Given positive integers n, find the smallest number of perfect squares that sum up to

>Application of Graph:

>>Demonstrate any real-world application of graph?

>Anagrams:

>>Given an array of strings, return all groups of strings that are anagrams.

>Leaf at the same level:

>>Given a Binary Tree, check if all the leaves are at the same level or not.

>Reverse Words in a String:

>>Given an input string s, reverse the order of the words.

>Spiral Matrix:

>>Given an m-by-n matrix, return all the elements of the matrix in spiral order.

>Sorted Input array:

>>Given an array of integers that is already sorted in non-decreasing order, find two nur

>Array vs Linked List:

>>How is an Array different from Linked List?

>Lowest Common Ancestor:

>>Given a Binary Tree, find the lowest common ancestor in a binary tree

>Next Greater Element:

>>Given an array, find the next greater element for every element. For example [3, 4, 1,

>Edit Distance:

>>Given two strings str1 and str2, find the minimum number of edits required to convert

>Binary Tree is BST or not:

>>Given a Binary Tree, check if a Binary Tree is BST or not.

>Maximum number of nodes:

>>What is the maximum number of nodes in a binary tree of height k?

>Single Number:

>>Given an array of integers, every element appears twice except for one. Find that sing

>Linked List:

>>What is the primary advantage of Linked List?

>Height Of Binary Tree:

>>Given a Binary Tree, calculate the height of the Binary Tree

>Remove Duplicates from Sorted Array:

>>Given an array of integers sorted in non-decreasing order, remove the duplicates in p

>Build Heap:

>>What is the time complexity of building a heap, and also, Give a mathematical intuitio

>Merge Sorted Array:

>>Given two integer arrays, arr1 and arr2, sorted in non-decreasing order, you have to m

>Heap:

>>What is the advantage of the heap over a stack?

>Sorting:

>>What is the meaning of a stable and unstable sorting algorithm? Demonstrate it with t

>Matrix Multiplication:

>>Can we do the task of matrix multiplication in less than O(n^3) time complexity? If yes

>Inplace vs Outplace Sorting Algorithm:

>>Can you explain the difference between in place and outplace sorting algorithms, and

>Non-Comparison Sorting Algorithm:

>>Can you explain what a non-comparison-based sorting algorithm is with an example?

>Tree vs Graph:

>>What is the difference between Tree and Graph-based Data Structure?

>Topological Sort:

>>Can you explain the topological sort in a graph and where it is used practically?

>Longest Common Prefix:

>>Write a function to find the longest common prefix string amongst an array of strings.

>Palindrome in Linked List:

>>Given the head of a singly linked list, return true if it is a palindrome.

>Minimum Value in Stack:

>>Design a Stack Data Structure that supports Push, Pop, Top and give us the minimur

>Longest Palindromic Substring:

>>Given a string s, return the longest palindromic substring in s. For example : str = "ba

>Kth Smallest Value in Binary Search Tree:

>>Given the root of BST and an integer k, return the kth smallest value

>Divide two integers:

>>Given two integer dividends and divisor, divide two integers without using multiplicatio

>Positive Missing Integer:

>>Given an unsorted integer array, return the smallest positive integer. For example : ar

>Stable vs Unstable Sorting Algorithm:

>>If the user's requirement is a minimum number of swaps, then which sorting algorithm

>Binary Search:

>>Can we implement Binary Search in Linked List? If yes, then how and If not, then is th

>Complete vs Almost Complete Binary Tree:

>>What is the difference between Complete vs Almost Complete Binary Tree?

>Heap Data Structure:

>>When we should go for Minheap or Maxheap based Data Structure.

>Huffman Coding:

>>What is the application of Huffman Coding?

>Simple vs Multigraph:

>>What is the difference between Simple Graph and Multi Graph? Which type of graph

>Generate Parentheses:

>>Given n pair of parenthesis, write a function to generate all well-formed combinations

>Factorial Trailing Zeros:

>>Given an integer n, return the number of trailing zeros in n!

>Spanning Tree in Complete Graph:

>>Given n, which indicates the number of vertices in a graph, how we can get the numb

>Graph Connected or Not:

>>You are given a graph. How can you determine whether the graph is connected or no

>DFT vs BFT:

>>What Data Structure is internally used for the implementation of DFT and BFT?

>MergeSort:

>>In MergeSort, if the input is "A" sorted subarrays of each size "B", Then what is the tir

>Cycle in Graph:

>>Given a graph, check whether it contains a cycle or not?

>Sum Greater than 1000:

>>Given a sorted array of n elements, find any two elements such that the sum of an ele

>Maximum Number of Vowels in a Substring:

>>Given a string s and an integer k, return the maximum number of vowel letters in any

>Complete Binary Tree:

>>Which data structure is preferable to store the complete binary tree and why?

>Minimum nodes in Binary Tree:

>>What is the minimum number of nodes that a binary tree can have?

>Doubly Linked List:

>>Illustrate any real-life application of Doubly Linked List end to end.

>Analysis in Algorithm:

>>Why do we need to do an algorithm analysis?

>AVL Tree vs BST:

>>How can AVL Tree be useful in various operations as compared to BST?

>B-Tree:

>>Where most of the time B-Tree based data structure is used frequently and how?

>Interpolation Search:

>>Usually, we studied Linear and Binary Search. Do you have an idea about interpolatio

>Divide and Conquer vs Dynamic Programming:

>>Can you explain the major differences that you have observed between Divide and C

>Recursion:

>>Which Data Structure is used internally to perform recursion operations?

>Hashing:

>>What is the worst-case time complexity of searching an element in Hash Table?

>Postfix Form:

>>What is the postfix form of (A + B) * (C - D)

>Tree Data Structure:

>>What is the real-life applications of Tree-Based Data Structure?

>Overlapping Of Two Rectangles:

>>How to find if two given rectangles overlap or not?

>First Non-Repeating Character:

>>Given a string, find its first non-repeating character. For example : str = ["mmadlsals"]