Top 50 Data Structure, Algorithms, and Coding Interview Program Questions

1. Array Coding Interview Questions

Here are some of the popular array-based coding interview questions for your practice:

1. **How do you find the missing number in a given integer array of 1 to 100?**

2. **How do you find the duplicate number on a given integer array?**

3. **How do you find the largest and smallest number in an unsorted integer array?**

4. **How do you find all pairs of an integer array whose sum is equal to a given number?**

5. **How do you find duplicate numbers in an array if it contains multiple duplicates**

6. **How are duplicates removed from a given array in Java?**

7. **How is an integer array sorted in place using the quicksort algorithm?**

8. **How do you remove duplicates from an array in place?**

9. **How do you reverse an array in place in Java?**

10. **How are duplicates removed from an array without using any library?**

2. Linked List Programming Interview Questions

1. **How do you find the middle element of a singly linked list in one pass?**

2. **How do you check if a given linked list contains a cycle? How do you find the starting node of the cycle?**

3. **How do you reverse a linked list?**

4. **How do you reverse a singly linked list without recursion?**

5. **How are duplicate nodes removed in an unsorted linked list?**

6. **How do you find the length of a singly linked list?**

7. **How do you find the third node from the end in a singly linked list?**

8. **How do you find the sum of two linked lists using Stack?**

3. String Coding Interview Questions

1. **How do you print duplicate characters from a string?**

2. **How do you check if two strings are anagrams of each other?**

3. **How do you print the first non-repeated character from a string?**

4. **How can a given string be reversed using recursion?**

5. **How do you check if a string contains only digits?**

6. **How are duplicate characters found in a string?**

7. **How do you count the number of vowels and consonants in a given string?**

8. **How do you count the occurrence of a given character in a string?**

9. **How do you find all the permutations of a string?**

10. **How do you reverse words in a given sentence without using any library method?**

11. **How do you check if two strings are a rotation of each other?**

12. **How do you check if a given string is a palindrome?**

4. Binary Tree Coding Interview Questions

1. **How is a binary search tree implemented?**

2. **How do you perform preorder traversal in a given binary tree?**

3. **How do you traverse a given binary tree in preorder without recursion?**

4. **How do you perform an inorder traversal in a given binary tree?)**

5. **How do you print all nodes of a given binary tree using inorder traversal without recursion?**

6. **How do you implement a postorder traversal algorithm?**

7. **How do you traverse a binary tree in postorder traversal without recursion?**

8. **How are all leaves of a binary search tree printed?**

9. **How do you count the number of leaf nodes in a given binary tree?**

10. **How do you perform a binary search in a given array?**

5. Miscellaneous Coding Interview Questions

1. **How is a bubble sort algorithm implemented?**

2. **How is an iterative quicksort algorithm implemented?**

3. **How do you implement an insertion sort algorithm?**

4. **How is a merge sort algorithm implemented?**

5. **How do you implement a bucket sort algorithm?**

6. **How do you implement a counting sort algorithm?**

7. **How is a radix sort algorithm implemented?**

8. **How do you swap two numbers without using the third variable?**

9. **How do you check if two rectangles overlap with each other?**

10. **How do you design a vending machine?**