

Technical Interview Questionnaire for Software Engineers

This **technical interview questionnaire** is designed to evaluate the skills and problem-solving abilities of software engineers. It covers essential topics such as algorithms, data structures, and coding best practices. This comprehensive tool helps employers identify qualified candidates efficiently.

Candidate Information

- **Name:** _____
- **Date:** _____
- **Position Applied For:** _____

Section 1: Algorithms

1. Explain the difference between quicksort and mergesort. In what scenarios would you use each?
2. Write a function to find the k th largest element in an unsorted array.
3. Given an array of integers, write code to find if there are any two numbers that add up to a specific target.

Section 2: Data Structures

1. Describe how a hash table works and discuss its time complexities for basic operations.
2. Implement a stack using two queues.
3. How would you detect a cycle in a linked list?

Section 3: Coding Best Practices

1. What are some techniques you use to write clean and maintainable code?
2. How do you handle exceptions in your code? Provide a sample in your preferred language.
3. Discuss the importance of unit testing and provide a simple test case scenario.

Section 4: System Design (Optional)

1. Design a URL shortening service (like bit.ly). What components would you need and how would you handle scaling?

Feedback and Evaluation

- **Technical Proficiency:** _____
- **Problem Solving:** _____
- **Communication:** _____
- **Comments:** _____