

# Software Engineering Placement Guide

## Complete Interview Preparation Manual

### Chapter 1: Technical Interview Preparation

#### 1.1 Data Structures and Algorithms

Essential Topics to Master:

- â€ Array and Strings: Two pointers, sliding window
- â€ Linked Lists: Reversal, cycle detection, merging
- â€ Stacks and Queues: Expression evaluation, BFS/DFS
- â€ Trees: Binary trees, BST, AVL, heap operations
- â€ Graphs: Shortest path, MST, topological sorting
- â€ Dynamic Programming: Knapsack, LCS, coin change

#### 1.2 System Design Fundamentals

Key Concepts:

- â€ Scalability: Horizontal vs Vertical scaling
- â€ Load Balancing: Round robin, weighted, least connections
- â€ Databases: SQL vs NoSQL, ACID properties, CAP theorem
- â€ Caching: Redis, Memcached, cache strategies
- â€ Microservices: API Gateway, service discovery

#### 1.3 Programming Languages

Popular Choices:

- â€ Java: Enterprise applications, Spring framework
- â€ Python: Data science, web development, automation
- â€ JavaScript: Full-stack development, Node.js, React
- â€ C++: System programming, competitive programming

## Chapter 2: Behavioral Interview Preparation

### 2.1 STAR Method (Situation, Task, Action, Result)

Common Questions and Framework:

- â€ "Tell me about a challenging project"
- â€ "Describe a time you worked in a team"
- â€ "How do you handle tight deadlines?"
- â€ "Tell me about a time you failed"

### 2.2 Leadership and Teamwork

Key Points to Highlight:

- â€ Communication skills and collaboration
- â€ Problem-solving approach
- â€ Taking initiative and ownership
- â€ Learning from mistakes and feedback

## Chapter 3: Company-Specific Preparation

### 3.1 Top Tech Companies

Google: Focus on algorithms, system design, Googleyness

Amazon: Leadership principles, customer obsession

Microsoft: Technical depth, collaboration, growth mindset

Meta: Move fast, be bold, focus on impact

### 3.2 Salary Negotiation Tips

- â€ Research market rates for your role and location
- â€ Consider total compensation package
- â€ Be prepared to justify your value
- â€ Have alternative offers for leverage