Sign Up For Future Free Content, Videos, Etc	Date Completed	Notes	Personal Difficulty 1-5
Intro			
This is a software engineering study guide that you can use to help prepare yourself for your interview. This was developed by people who have interviewed and gotten jobs at Amazon, Facebook, Capital One and several other tech companies. We hope these help you get great jobs as well. In order to use this, you can make a copy of this sheet and follow along with the study guide. Keeping track helps you know where you are and how you are doing.			

Warm Up With The Classics

	Date Completed	Notes	Personal Difficulty 1-5
Fizz Buzz			
Find The Kth Smallest/Largest Integer In An Array			
560. Subarray Sum Equals K			
Arrays: Left Rotation			
Strings: Making Anagrams			
Nth Fibonacci			
How did you? Take a moment and rate yourself on these classics. We have been asked most of these at some point in the interview process and often early on as a weed-out style questions. They often have less to do with algorithms and data structures, but still require a good understanding of loops and arrays (yes an array is a data structure).			

Algorithms And Data Structures

	Date Completed	Notes	Personal Difficulty 1-5
Pre-Study Problems			
Before going through the video content about data structures and algorithms. Consider trying out these problems below. See if you can answer them. This will help you know what to focus on.			
985. Sum of Even Numbers After Queries			
657. Robot Return to Origin			
961. N-Repeated Element in Size 2N Array			
110. Balanced Binary Tree			
3. Longest Substring Without Repeating Characters			
19. Remove Nth Node From End of List			
23. Merge k Sorted Lists			
31. Next Permutation			
Algorithms And Data Structures Videos			

Data Structures			
Data Structures & Algorithms #1 - What Are Data Structures?			
Multi-dim (video)			
Dynamic Arrays (video)			
Resizing arrays (video)			
Data Structures: Linked Lists			
Core Linked Lists Vs Arrays (video)			
Pointers to Pointers			
Data Structures: Trees			
Data Structures: Heaps			
Data Structures: Hash Tables			
Phone Book Problem (video)			
Data Structures: Stacks and Queues			
Using Stacks Last-In First-Out (video)			
Data Structures: Crash Course Computer Science #14			
Data Structures: Tries			
Algorithms			
Python Algorithms for Interviews			
Algorithms: Graph Search, DFS and BFS			
BFS(breadth-first search) and DFS(depth-first search) (video)			
Algorithms: Binary Search			
Binary Search Tree Review (video)			
Algorithms: Recursion			
Algorithms: Bubble Sort			
Algorithms: Merge Sort			
Algorithms: Quicksort			
Big O Notation			
Introduction to Big O Notation and Time Complexity (Data Structures & Algorithms #7)			
Harvard CS50 - Asymptotic Notation (video)			
A Gentle Introduction to Algorithm Complexity Analysis			
Cheat sheet			
Dynamic Programming			
Dynamic Programming (Think Like a Programmer) - Video			

Algorithms: Memoization and Dynamic Programming - Video			
6.006: Dynamic Programming I: Fibonacci, Shortest Paths - Video			
6.006: Dynamic Programming II: Text Justification, Blackjack - Video			
6.046: Dynamic Programming & Advanced DP - Video			
Dynamic Programming - Post			
String Manipulation			
Coding Interview Question and Answer: Longest Consecutive Characters			
Sedgewick - Substring Search (videos)			
Interview Problem Walk Throughs			
Amazon Coding Interview Question - Recursive Staircase Problem			
Google Coding Interview - Universal Value Tree Problem			
Google Coding Interview Question and Answer #1: First Recurring Character			
Find min and max element in a binary search tree (video)			
Find height of a binary tree (video)			
Check if a binary tree is binary search tree or not (video)			
What Is Tail Recursion Why Is It So Bad?			
Post-Study Problems			
Now that you have studied for a bit, and watched a few videos. Let's try some more problems!			
Bigger Is Greater			
6. ZigZag Conversion			
7. Reverse Integer			
40. Combination Sum II			
43. Multiply Strings			
Larry's Array			
Short Palindrome			
65. Valid Number			
Bigger is Greater			
The Full Counting Sort			
Lily's Homework			
Common Child			
459. Repeated Substring Pattern			
27. Remove Element			
450. Delete Node in a BST			

659. Split Array into Consecutive Subsequences			
Number of Subarrays with Bounded Maximum			
Combination Sum IV			
Best Time to Buy and Sell Stock with Cooldown			
Longest Repeating Character Replacement			
Swap Nodes in Pairs			
Binary Tree Right Side View			
Flatten Nested List Iterator			
Binary Tree Level Order Traversal			
Binary Search Tree Iterator			
Maximum Length of Pair Chain			
Split Linked List in Parts			
Operational Programming Problems			
Some companies won't ask you algorithm problems. Instead, they might focus more on implementation and operational problems. These are usually more niche and involve practical problems. Like looping through data and performing a task of some sort. These types of problems don't usually require as much practice because it is more about taking basic concepts like arrays and hashmaps and keeping track of what you are doing to them.			
Kangaroo Problem			
Breaking Records			
Find A String			
itertools.permutations()			
No Idea!			
Days of the programmer			
Leaderboard			
Word Order			
Sherlock And Squares			
Equalize The Array			
Apples And Oranges			
More Operational Style Questions			
System Design Videos			

System design are crucial questions that show you are more than just a coder. You need to be able to think big picture as an engineer. Where do certain services belong, what kind of servers do you need, how would you manage traffic, etc. All of these ideas show that you are able to design software not just code what people tell you to code.			
Tiny url			
Parking Lot System			
Whats App			
Uber design			
Instagram			
Tinder Service			
Operating Systems			
Operating system questions are a little more rare, but it is good to have a good basis in understand concepts like threads, scheduling, memory, etc. Even if it is just a basic understanding. It is very embarrassing to get asked what is the difference between a process and a thread and not know the answer.			
Commonly Asked Operating Systems Interview Questions			
What is Translation lookaside buffer?			
Why does Round Robin avoid the Priority Inversion Problem?			
Interrupt Vs System Call			
What is `inode' in file system?			
Operating System Interview Questions and Answers - Part I			
What is a kernel - Gary explains			
Round Robin Algorithm Tutorial (CPU Scheduling)			
The Magic of LRU Cache (100 Days of Google Dev) (video)			
MIT 6.004 L15: The Memory Hierarchy (video)			
Interrupts (video)			
Scheduling (video)			
Threads			
User Level thread Vs Kernel Level thread			
Intro to Processes & Threads			
Difference Between Process and Thread - Georgia Tech - Advanced Operating Systems			
Difference between forking and multithreading			
Object Oriented			

Similar to operating systems, not every interview will ask you about object oriented programming, but you never know. You want to make sure you remember your basics from your computer 162 course.			
Java Programming Tutorial - 49 - Inheritance			
Java Programming Tutorial - 55 - Intoduction to Polymorphism			
Java Programming Tutorial - 58 - Abstract and Concrete Classes			
Java Programming Tutorial - 57 - Overriding Rules			
Java Programming Tutorial - 59 - Class to Hold Objects			
Object-Oriented Programming			
Design Patterns			
If you were like us, we weren't taught about all the various design patterns. So it's good to get an understanding of how they work and why you would use them. Some interview questions can be as simple as why would you use a factory class.			
Factory Design Pattern			
Observer Design Pattern			
Adapter Design Pattern			
Facade Design Pattern			
Chain of Responsibility Design Pattern			
Interpreter Design Pattern			
Singleton Design Pattern Tutorial			
Chapter 6 (Part 1) - Patterns (video)			
Head First Design Patterns			
SQL - Problems			
262. Trips and Users			
601. Human Traffic of Stadium			
185. Department Top Three Salaries			
626. Exchange Seats			
Hackerrank The Report			
177. Nth Highest Salary			
Symmetric Pairs			
Occupations			
Placements			
Ollivander's Inventory			
SQL - Videos			
IQ15: 6 SQL Query Interview Questions			

Learning about ROW_NUMBER and Analytic Functions			
Advanced Implementation Of Analytic Functions			
Advanced Implementation Of Analytic Functions Part 2			
Wise Owl SQL Videos			
Post SQL Problems			
Binary Tree Nodes			
Weather Observation Station 18			
Challenges			
Print Prime Numbers			
595. Big Countries			
626. Exchange Seats			
SQL Interview Questions: 3 Tech Screening Exercises (For Data Analysts)			

Courses

If you really don't feel comfortable, then consider taking one of the courses below. It will pretty much have the same videos and discussions above. However, sometimes paying for courses is a good incentive to actually get it done.			
The Coding Interview Bootcamp: Algorithms + Data Structures			
Data Structures and Algorithms Bootcamp			
Data Structures and Algorithms - The Complete Masterclass			

Books

Some of us hate reading books and watching online videos. For you few, we have some classic book recommendations for preparing for software engineering interview.			
Cracking The Code			
The Algorithm Design Manual			
The Linux Command Line: A Complete Introduction			
The Complete Software Developer's Career Guide: How to Learn Your Next Programming Language, Ace Your Programming Interview, and Land The Coding Job Of Your Dreams			

Other Resources			
Learning Data Science: Our Top 25 Data Science Courses			
The Best And Only Python Tutorial You Will Ever Need To Watch			
Dynamically Bulk Inserting CSV Data Into A SQL Server			

4 Must Have Skills For Data Scientists			
Engineering Dashboards, Metrics And Algorithms Part 2			
Read Last Weeks Top Ten Article For Python Libraries			
How Algorithms Can Become Unethical and Biased			
SQL Best Practices—Designing An ETL Video			