BETHEL SCHOOL
OF TECHNOLOGY

< CODING WITH A CAUSE >

Nailing the Technical Interview Workshop

BETHELTECH.NET

Agenda

- Types of Interviews
- What is the Technical Interview?
  - What can I expect in the interview?
  - Walkthrough of interview
- Overcoming Interview Anxiety
- Resources for Preparation
- Challenge!!
- Q&A Time

The Typical Technical Interview

Step 1: Phone call

- HR/ Recruiter
- Overview Technical Screening

Step 2: Skill Test (in some cases)

- Timed LeetCode Test
- Take-home Coding Challenge
- Other online assessments

Step 3: Coding Interview

- Problem solving, writing code, answering technical questions
- Algorithms and Data Structures / whiteboarding

Step 4: Onsite (3-6 interviews!)

- Whiteboard interview
- Culture-based interview
- Behavioral/soft skills
- Debugging interview
- Multiple interviews with different teams
- System Design

Technical Interview Process (Google)

- Apply: resume, cover letter, and referrals
- Initial HR Interview
- Online Technical Assessment (new graduates and interns only)
- Technical phone screen: one to two interviews
- Onsite interviews: four to six interviews
- Process takes approximately 8 weeks

- https://igotanoffer.com/blogs/tech/google-software-engineer-interview#process

What can I Expect in a Technical Interview?

What are interviewers looking for?

Intelligence, thoughtfulness, experience in a technology, leadership, and any number of other factors that are important in identifying a good hire to signal that the candidate should move forward with the application.

Source

What can I Expect in a Technical Interview?

What are they NOT looking for?

Your ability to regurgitate an answer to a specific problem you already know. In fact, interviewers are likely hoping to ask you questions that you will not know in order to see how you work towards a solution.

Technical Interview Process (Google) cont.

What are they looking for?

- **General cognitive ability.** Here your interviewer will try to understand how you solve hard problems and how you learn.
- **Role-related knowledge and experience.** The company wants to make sure that you have the right experience, domain expertise and competencies for the position you're applying for.
- **Leadership.** You'll typically be working in cross-functional teams at Google, and different team members are expected to step up and lead at different times in the lifecycle of a project when their skills are needed.
- **Googleyness (i.e. culture fit).** Your interviewer will check whether you naturally exhibit the company's values including: being comfortable with ambiguity, having a bias to action, and a collaborative nature.

4 Steps to Ace a Coding Interview

1. Communicate Your Process
2. Write Code Down
3. Demonstrate Your Testing and Troubleshooting
4. Optimize Your solution

Walkthrough of the Coding Interview

Communicate Your Process:

- Ask questions to define the problem space
- Discuss your problem-solving tactics
- Discuss any assumptions you're planning to make
- Write comments and pseudocode of your plan

Walkthrough of the Coding Interview

Write Code Down

- Implement a “terrible” solution
- Don’t be afraid to make mistakes, you can fix them!

Walkthrough of the Coding Interview

Demonstrate Your Testing and Troubleshooting

- Test that solution: For valid and invalid inputs
- Test your code for Spam inputs
- General rule of thumb for testing: check corner and edge cases
    - ex) the biggest inputs, smallest, negative numbers, etc.

Walkthrough of the Coding Interview

Optimize your solution

- Discuss how the solution can be improved
- Analyze various solutions and tradeoffs before starting to code
- Optimizing for space and time: Big O Notation
- Discuss Future Ramifications for Scalability

Google Coding Interview Question Types

- **Graphs/ Trees : 39%**
  - EX) Range sum of a binary search tree
- **Arrays/ Strings : 26%**
  - EX) product of array except self
- **Dynamic Programming : 12%**
  - EX) Continuous subarray sum
- **Recursion : 12%**
  - EX) Given a 2D board and a list of words, find all words in the board
- **Geometry / Math : 11%**
  - EX) Given a set of points on an xy-plane, find the rectangle with minimum area

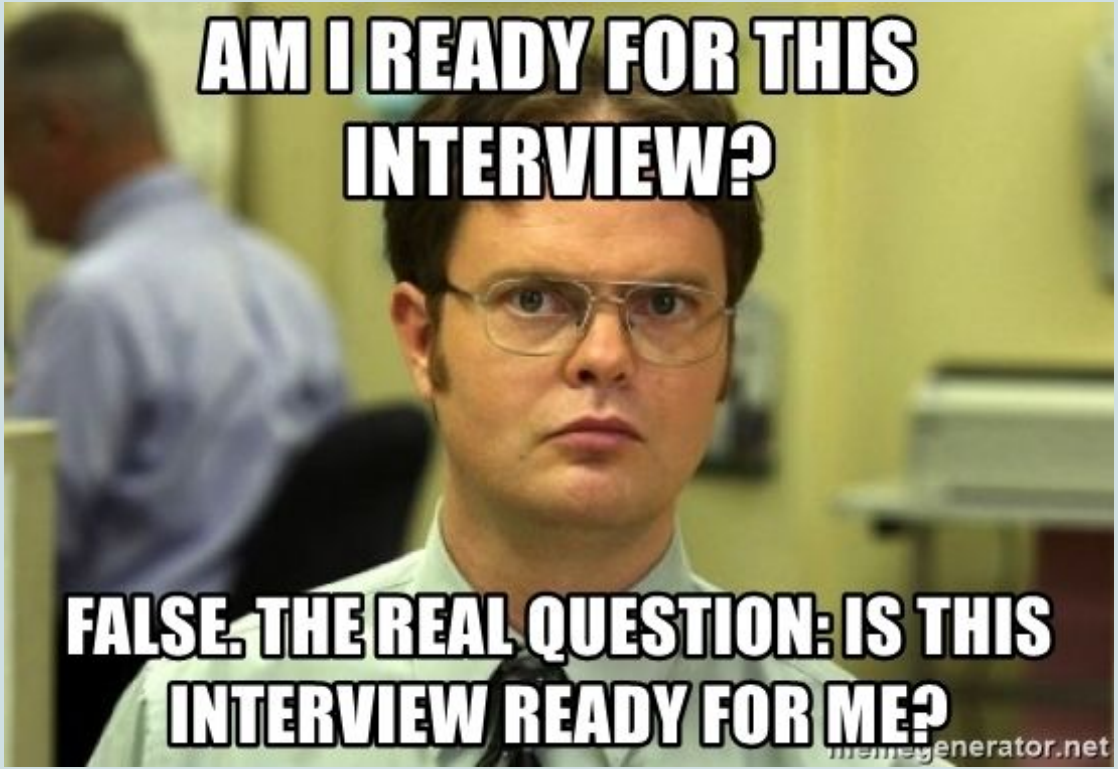
Microsoft Coding (SWE) Interview Question Types

- **Arrays/ Strings : 36%**
  - EX) product of array except self
- **Linked Lists : 29%**
  - EX) Copy list with random pointer
- **Graphs/ Trees : 20%**
  - EX) Range sum of a binary search tree
- **Search / Sort : 6%**
  - EX) Find the minimum number of meeting rooms required
- **Dynamic Programming : 5%**
  - EX) Continuous subarray sum
- **Bit manipulation / Maths : 4%**
  - EX) Maximum length of a concatenated string with unique characters

Overcoming Interview Anxiety

A new study from North Carolina State University and Microsoft finds that the technical interviews currently used in hiring for many software engineering positions test whether a job candidate has performance anxiety rather than whether the candidate is competent at coding. (1)

Half the Battle = Overcoming Interview Anxiety



How Do I Overcome Interview Anxiety?

- Pacing yourself during the interview and asking questions
- Practice technical interview questions; study what you don’t know
- Practice run-through interviews
- Celebrate small wins; you HAVE an interview!
- Confidence methods: visualization, power poses, box-breathing
- Prayer! God is with you!
- Knowing your identity in God and declaring it
- Admitting your fear and giving it to God

Resources for Learning More

Online practice problems:

- Leetcode.com *check this out!
- HackerRank
- Codewars.com
- Interviewcake.com
- Algoexpert.io
- CoderByte
- Free Code Camp
- Pramp
- Top Coder
- Amazon's Recommended Software Dev Topics
- GeeksForGeeks *check this out!

Books:

- Cracking the Interview
- Programming Interviews Exposed: Secrets to Landing Your Next Job
- Programming Pearls
- Introduction to Algorithms
- The Algorithm Design Manual

YouTube Videos List:

Cracking the Coding Interview

UI/UX Interview Resources

Design Challenge: to demonstrate how the designer approaches problem-solving and identify their design process.

Can expect: Portfolio presentation and/or Whiteboard challenge

- DesignBuddies! - community support and resources (my favorite!)
- Cofolios - community support and resources
- ADPList - community support and resources
- MilaNote - tool for design practice
- Sharpen - design prompts
- Designercize - whiteboard practice
- Prototype - whiteboard walkthrough
- Design Challenge - demonstrate how the designer approaches problem-solving

Data Science Interview Resources

Can expect: Portfolio presentation and/or Whiteboard challenge

- MLPro - Practice problems
- Data Engineering Cookbook - practice problems
- Algoexpert.io - Practice problems and resources
- TowardsDataScience - How to Prepare *great read!*
- TowardsDataScience - additional sample questions
- 365DataScience - resources
- Kdnuggets - overall study guide and resources
- Leetcode - stick to level easy questions

The Challenge: Array / Strings

- Problem:

  Given an input string, reverse the string word by word

Ex)

Input: s = “the sky is blue”

Output: “blue is sky the”

Solutions

Questions?