THE INTERNSHIP PROCESS: APPLICATION TO OFFER

CSC 207 SOFTWARE DESIGN

LEARNING OUTCOMES

- Understand how you can prepare for job and internship interviews.
- Understand some of the kinds of technical questions you might get asked.

STEP 0: PREPARATION

- Network
    - Workshops & Events for technology & industry you are interested in
    - Online platforms
        - LinkedIn, 10KC, Mentorship programs
    - Meetups & Social events
        - Email the organizers and ask questions!
        - HackerNest, TechTO, DevTO, etc.
        - https://www.meetup.com
        - https://www.eventbrite.ca/d/canada--toronto/tech-meetup/
    - Newsletters
        - MaRS, U of T Entrepreneurship
    - DCS Undergrad office

- Experience
    - Side projects
    - Open source contributions

STEP 1: APPLICATION

- Find interesting companies & teams
  - Direct Search by technology/industry
  - Via a mutual connection/friend
  - Research
  - Ideally, you know someone there to reach out to for a referral or an “informational interview”
  - Job websites (see list on last slide)
- Apply to the position
  - 1-page resume
  - Contact the hiring manager directly
- Large number of generic applications vs. several targeted applications
  - Some companies will toss applications whose cover letters are not customized!
- Optimize for learning, mentorship, and impact (and maybe brand)
  - Optimizing for salary is almost always a mistake

STEP 2: FIRST SCREEN

- Phone screen:
  - Basic questions (interests, goals, culture fit, legal)
  - Review of resume and prior experience
  - A few small tech questions (or coding ones for companies like Google)
- Tech challenge:
  - Small coding challenge to do anywhere between a few hours to one week
  - Be ready to write code
  - Write clean code (conventions, tests, naming, design patterns, good — not excessive — comments)

STEP 3: ONSITE INTERVIEWS

- Usually 1–2 onsite interviews
    - Technical and behavioral
    - Cracking the coding interview is a go-to book for this
    - They want to hear how you think
    - Ask questions to understand and clarify
    - Restate the problem, the goal, and the important criteria
    - Explicitly talk about your assumptions and decisions
    - Communicate, communicate, communicate: **think out loud**
    - BEFORE the interview, look up the team (LinkedIn, company website)
        - Always have questions about the team, company, product, what you'll learn

- Questions they want answers to:
    - What is it like to work with you?
    - Can you learn?
    - Do you take initiative?

STEP 4: OFFER

- Understand your offer:
  - Compensation
  - Team, direct supervisor
  - Vacation, benefits, etc.
  - Always ask for things you want. Don’t hold back or be shy.
    - But be nice
    - Do your research
- Feel free to negotiate AFTER you receive a written offer but before you have accepted
  - https://capd.mit.edu/blog/2021/06/11/how-to-ask-for-a-raise-or-negotiate-your-salary/
- Know the rough salary levels!
  - https://www.levels.fyi/?compare=Amazon,Microsoft,Google&track=Software%20Engineer

RESOURCES

- How to write a cover letter
  - https://www.youtube.com/watch?v=P8ci7tnlhEo
- How to use your social media to get a job
  - https://www.youtube.com/watch?v=xT6rIbHXC8E
- Internship websites
  - https://ca.indeed.com, https://talentegg.ca, https://www.workopolis.com, https://www.careeredge.ca
    - Do a web search for more! There are dozens.
  - https://hbr.org/2019/07/3-questions-hiring-managers-want-you-to-answer

RESOURCES

- Technical interview questions
  - ChatGPT 4 about CSC207: https://chat.openai.com/share/c53a1999-2475-4646-bd8e-3f3eee17a95a
  - Top 18 Clean Architecture Interview Questions: https://www.fullstack.cafe/interview-questions/clean-architecture
    - Check out the other topics!
- Much more about this in the other slide deck!

LEETCODE
HTTPS://LEETCODE.COM

Repository of coding problems that emphasize data structures and algorithms and invariant thinking

https://leetcode.com/explore/interview/card/top-interview-questions-easy/

Information about specific coding questions companies have used in the past

https://leetcode.com/discuss/interview-question/352460/Google-Online-Assessment-Questions

Practice coding interviews in a timed environment

https://leetcode.com/assessment/

SOME SELECT LEETCODE PROGRAMMING PROBLEMS

- https://leetcode.com/problems/binary-search-tree-iterator/
- https://leetcode.com/problems/smallest-number-in-infinite-set/
- https://leetcode.com/problems/valid-palindrome-ii/
- https://leetcode.com/problems/valid-palindrome/
- https://leetcode.com/problems/integer-to-roman/
- https://leetcode.com/problems/path-sum/
  - https://leetcode.com/problems/path-sum-ii/
  - https://leetcode.com/problems/path-sum-iii/
- https://leetcode.com/problems/sum-of-left-leaves/
- https://leetcode.com/problems/range-sum-of-bst/
- https://leetcode.com/problems/even-odd-tree/

OTHER TIPS

- Know time and space complexity
  - Exponential = fired, polynomial = try again, n log n, n, C = good job
- Try problems (15-20 min.), then study the solution
- Study common patterns (e.g. https://hackernoon.com/14-patterns-to-ace-any-coding-interview-question-c5bb3357f6ed, https://medium.com/leetcode-patterns)
- “Memoization” - easy problems can often be solved via this technique
- Work with other people!
- https://igotanoffer.com/blogs/tech/coding-interview-questions
- https://igotanoffer.com/blogs/tech/coding-interview-prep

NON-TECHNICAL QUESTIONS

These questions are more likely to appear in an interview for a full-time job, or other non-internship positions.

•Describe your leadership style.

•What can you do to help your group work well together?

•What is your best character trait?

•What is your worst character trait? (Common question!)

•Why should we hire you?

HOMEWORK

- Try out some LeetCode or Code Jam problems if you haven't before!