Career Talk: What next after graduation?

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My journey so far: Madurai to Microsoft!

Key Takeaways!

- It is okay to make mistakes and **fail** (multiple times)!
- Put yourself out there, **keep hustling**, and trust the process!
  - Note: Also, have **fun** doing all this!
- **Seize** the opportunities life throws at you!
  - Psss..., the cool thing is you need not be completely ready, **because you never are**!
  - **Fake it** until you make it!
- ''You **can't connect the dots looking forward**; you can only connect them looking backward'' – Steve Jobs
  - Everything happens for a reason!
- Anything and everything is possible in life, you just have to try!

Different aspects of career planning

Biased:
Major: Computer Science
Country: United States

Job
Vs
Higher
Studies

Engineering
vs
Research

Timeline

India
vs
Aboard

Masters
vs
PhD

Personal
Preferences

Potential career paths (and what suites you?) ...

Masters/PhD -> Job Abroad

Job in India

Job in India -> Job Abroad

Job Abroad

What is your end goal or motivation?

More ...

Job in India -> Masters/PhD -> Job Abroad

Higher education: Masters/PhD

Profile building ...

Experiences

Internships
Projects
Work Ex.
Research
Hackathons
...

Writing samples

SoPs
LoRs
Resume/CV
Research Papers

Scores

GPA
GRE
TOEFL
IELTS

Scores

- Great scores does help, but having average scores is not the end of the world!
- What tests should you take?
  - US: GRE and TOEFL (maybe IELTS?)
  - IELTS is more common in Canada and Europe
- My scores: CGPA – 8.56, GRE – 324 (169Q, 155V, 4.0AWA), TOEFL – 116
- What are good scores (aim for)?
  - CGPA > 8.5, GRE > 320 (Q > 168, V > 152, AWA >= 4.0), TOEFL > 110

Prep and Tips for GRE and TOEFL

- Prep:
  - Should you take classes or self-study?
  - What worked for me the Nth time?
    - All Official Materials from ETS (learn these holistically)
    - GRE: Premium Magoosh account and Manhattan 5 lb. and verbal practice set
    - TOEFL: notefull.com and Barron's TOEFL iBT
- Tips:
  - Timing matters!
    - Learn all the techniques and shortcuts
  - Take as many mock tests as possible
  - Practice, practice, practice … everyday for 3-6 months
  - Do not send all your scores, if you took it more than once

Writing samples: SoPs

- Statement of Purpose (SoP)
  - WHY do you want to pursue Masters/PhD at their university?
  - This is very unique and personal to each applicant
  - Only place where you get to talk/express your true self to the admissions committee
  - Personalize for each university to align with their values!
  - What are some good points to address in an SoP
    - What inspires you and keeps you going?
    - How are you unique and why should they admit you?
    - Story Telling: Talk about your journey so far and why you decided to pursue Masters/PhD?
    - Why Masters/PhD at their university?
    - Finally: Make sure to express a true reflection who you are!
  - It is going to take 1-2 months to perfect and draft your final SoP
    - Have multiple people review it for coherence, grammar, and impact

Writing samples: LoRs

- Letter of Recommendation (LoR)
  - What are LoRs?
  - Never write your own LoRs!
    - If you have to write your own, then make it sound like someone else wrote it
  - Choose people who appreciate you and know about your work the most
    - Best to have a personal connection with them
    - Identify potential Recommenders and build a relationship with them early on
  - Can be a mix of people from Academia and Industry
    - From your internships, research assistantships, managers, professors
  - LoRs from high-profile people who know about your work personally can be huge plus!
  - Track the deadlines for each universities and have your recommenders submit these on time

Experiences

- Different ways to gain experiences?
  - Internships, Research, Projects, Hackathons, Programming Contests, Industry Experience, …
- Start early: ideally from 2nd year in college
- Try to gain experiences that align with your Area of Interest
- The contacts and peer-network you get from these experiences are very important!
  - Helps with getting impactful LoRs and growing together with your intelligent peers
- All of this gives you a chance to tell an amazing story in your SoPs
- Document all your work: GitHub, LinkedIn, Blogs, Personal Website, Research papers, YouTube, …

Financial Planning

- MS in US cost range: 40 L to 90 L (54k USD to 122K USD)
  - Is it worth it?
- How to pay for it?
  - Full loan, Part Loan + Part Savings, Full Savings
- How long does it take to clear loans?
  - On a Software Engineer salary: 6 months to 1.5 years
- How to reduce out-of-pocket costs?
  - Complete your course early:
    - Usual: 3 full semesters + 1 part-time semester
    - Short: 3 full OR (2 full + 1 part-time)
  - Work Part-time: Course Assistants, Teaching Assistants, Research Assistants, other Campus Jobs …
    - Will help covers monthly expenses and rent
  - Summer Internship stipend
    - Can cover a part or one full or semester fee
  - Doing all this: I have seen a course costing 80L come down to 55L in Out-of-pocket costs or even less if you complete quick
- How much money (minimum) should I plan to have in liquid assets (bank, loan, etc)
  - 1.5x the amount specified on your I-20

University Shortlisting

- Find top universities (specialization-wise)
  - USNewsRankings, QSWorldUniversityRankings, Quora, Blog posts, Alumni, etc.
- Research about these universities:
  - Talk with current students/alumni from these universities
  - Go through the university website
    - Course Work, Professors, Research, Labs, Publications, etc
    - Cost of studying at each university
  - Filter the ones that interest you/match the most to your goals
- Shortlist 5 – 15 universities
  - Shorter the list, better the quality of each application you submit will be
  - Group them into three categories:
    - Ambitions, Moderate, Safe
    - Profile evaluation: Edulix, Grad Café, Yocket, ask Alumni, etc
  - Keep in mind: Cost involved with each application, sending GRE, TOEFL scores, transcripts, etc.
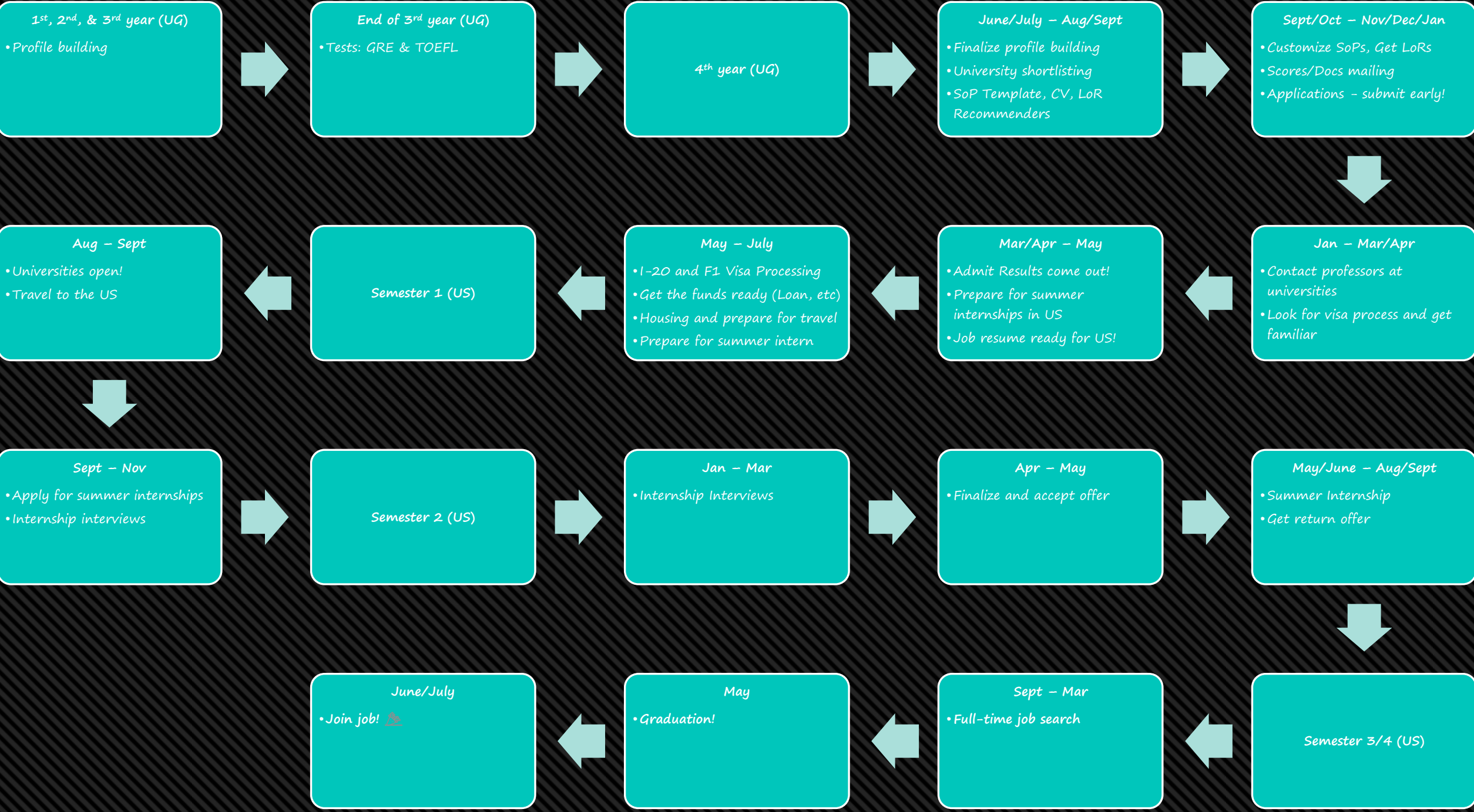
Keeping track ...

Name	Actual Deadline	Courses	Application Link	Other Links	App Fees Paid?	Institution Code for GRE	Institution code for TOEFL	GRE sent date	TOEFL sent date	SoP	LoR (Person 1)	LoR (Person 2)	LoR (Person 3)
November 28								Block After Receipt	Block After Receipt		Block after submission confirmed, Yellow - On submission LoR trigger	Block after submission confirmed, Yellow - On submission LoR trigger	Block after submission confirmed, Yellow - On submission LoR trigger
CMU	Early: Nov 30, Late: Dec 14, App can be edited after submission	MS CV, MS CS, MIIS, MCDS	https://applygrad.cs.cmu.edu/apply/index.php?domain=1	https://www.cs.cmu.edu/masters-programs, https://www.cs.cmu.edu/sites/default/files/SCS_Masters_Programs_in_Brief_2016.pdf, https://www.cs.cmu.edu/masters-admissions FAQ: https://www.cs.cmu.edu/masters-admissions-frequently-asked-questions	75$ + 25$ Additonal for each app, YES, PAID 225USD, 25th Nov	GRE Institution Code: 2074; Department Code: 0402	TOEFL Institution Code: 4256; Department Code: 78	Nov 19	Nov 19	Done	Sent	Sent	Sent

Package, Transcript Send	Other Documents (CV, Doc Scans, etc.)	Submitted? (With date)	Documents Needed	Complete ?	Ambi / Mod / Safe	Result ?	Login info and other info	Profs and Labs	Mailed Profs?
Block after submission confirmed									
NIL	Resume, SOP, Publication, Fellowship, Video essay	YES, 26th Nov	Test Scores(GRE, TOEFL), Transcripts(no hard copies needed), Resume, SoP, 3 LoR, online application, plus links to portfolios and work online	Yes	Ambi	MIIS, MSCV, MS CS MCDS	<email>, <password>	http://www.cs.cmu.edu/~abhinavg/, http://www.cs.cmu.edu/~kkitani/, https://www.cs.cmu.edu/~deva/, http://www.cs.cmu.edu/~yaser/, https://vision.ri.cmu.edu/people-list/	Done

Sample Application Timeline

(UG -> Masters -> Job Abroad (Fall Admits) — 3 full + 1 part-time semester)

1st, 2nd, & 3rd year (UG)
- Profile building

End of 3rd year (UG)
- Tests: GRE & TOEFL

4th year (UG)

June/July – Aug/Sept
- Finalize profile building
- University shortlisting
- SoP Template, CV, LoR Recommenders

Sept/Oct – Nov/Dec/Jan
- Customize SoPs, Get LoRs
- Scores/Docs mailing
- Applications - submit early!

Jan – Mar/Apr
- Contact professors at universities
- Look for visa process and get familiar

Mar/Apr – May
- Admit Results come out!
- Prepare for summer internships in US
- Job resume ready for US!

May – July
- I-20 and F1 Visa Processing
- Get the funds ready (Loan, etc)
- Housing and prepare for travel
- Prepare for summer intern

Semester 1 (US)

Aug – Sept
- Universities open!
- Travel to the US

Sept – Nov
- Apply for summer internships
- Internship interviews

Semester 2 (US)

Jan – Mar
- Internship Interviews

Apr – May
- Finalize and accept offer

May/June – Aug/Sept
- Summer Internship
- Get return offer

Semester 3/4 (US)

Sept – Mar
- Full-time job search

May
- Graduation!

June/July
- Join job! 🎉

Job Search
(US and India)

Applying for Jobs

- There is no concept of Campus placements in the US universities
  - Career Fairs happen in Sept/Oct – networking event at max
- Where to find and apply for jobs?
  - Job portals like: LinkedIn, Indeed, etc
  - Directly on company websites
- Tips:
  - One-page – Resume/CV (Machine readable)
  - Have an updated LinkedIn profile always!
  - Having a GitHub profile and a Personal website helps as well
- If in India, still apply for job openings outside our placements
- These online Job portals have low success rate for getting you calls ☹
  - Maybe 1-10% success rate
  - What to do?

Networking and Referrals

- This is the best way to find and apply for jobs and has the highest success ratio
- Just Do It: Contact Alumni, Seniors, previous Colleagues, even random people on LinkedIn
  - Get referrals!
  - Do not hesitate, at max, they will say NO!
- Contact recruiters and hiring managers directly
  - LinkedIn InMail – get Premium until you get a job offer
- Tips:
  - Build a conversation or professional relationship with people in your network, to get stronger referrals
  - Network with as many people as possible at conferences, talks, etc
  - Follow-up regularly
- Getting an interview call is the first hurdle you need to overcome!

Preparing for interviews

- Keep building your competitive programming muscle well ahead
  - Practice, practice, practice …
- Prepare to answer architecture/design questions
- Know your previous projects and experiences well
- Be up-to-date within your specialization area and be strong with all the basics
- Research about the company, the role, and the team you are going to interview with
  - Company Website, LinkedIn, Job description, People currently working in the company
- Know the interview process:
  - People working in the company, Forums in LeetCode like websites, Glassdoor, etc.

Tips to tackling coding interviews

- Understand the question well and rephrase/repeat it to the interviewer
  - Ask questions and clear all the ambiguity in the question
- Confirm the inputs and outputs
  - Write down some samples
  - Identify the edge cases
- Explain the different approaches you have before implementing
- Code the best approach or the one the interviewer wants you to implement
  - Talk out loud, throughout the process
  - Your problem solving skills and thought process matters more
- Test the code with the samples you wrote down – code walkthrough
- Talk about time and space complexities
  - How will you optimize it for larger datasets?
- If it is a multi-part questions or if the interviewer asks a follow-up questions
  - Repeat the process!

Architecture /Design interviews

- Examples:
  - How do you design a clone of Twitter, Dropbox, Whatsapp, Instagram...?
  - Design a traffic light, elevator, ATM machine...?
  - Design a web crawler, URL shortener,...?
  - Etc
- These questions does not expect you to code anything
- It is going to be an architecture level design discussion
- Talk your mind out and walk through your design with block diagrams on a whiteboard or paper!
- Be prepared and understand all the different design components
  - Load balancers
  - Data structures
  - Microservice architecture
  - REST APIs
  - Databases
  - DNS
  - CDN
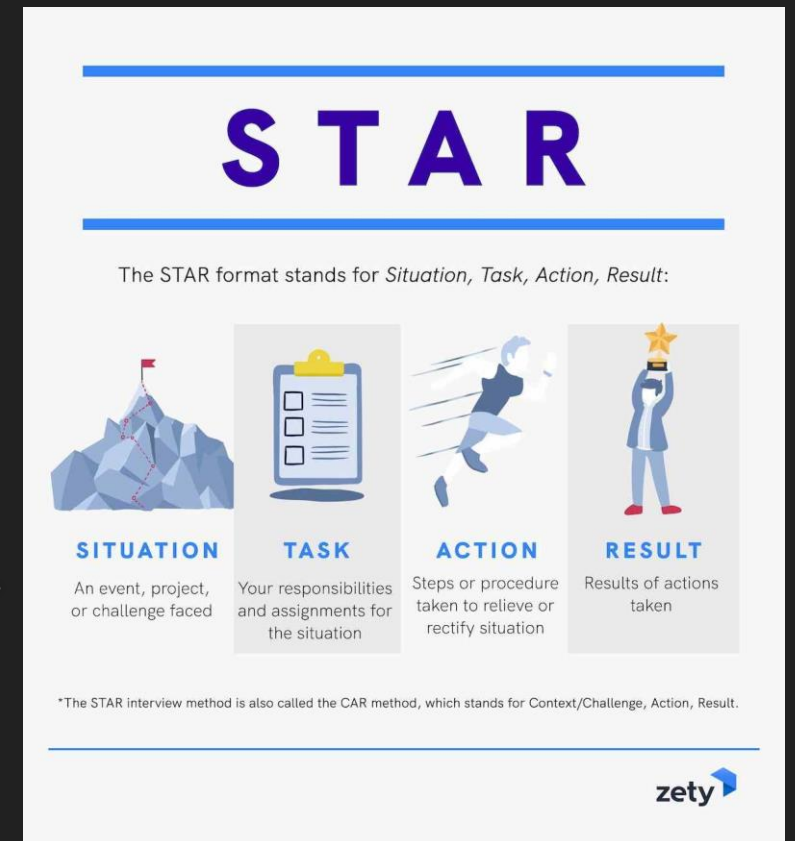 - Web Sockets, Etc.

Negotiating job offers!

- Rule #1: Never accept a job offer as presented, always try negotiating!
- Having multiple job offers helps
- Make sure you leverage them liking you, to get a better offer
- Harvard Business Review *Notes*.

Resources

- Coding Interview University: https://github.com/jwasham/coding-interview-university
- Tech Interview Handbook: https://github.com/yangshun/tech-interview-handbook
- LeetCode Solutions: https://github.com/kamyu104/LeetCode-Solutions
- Collection of all job openings in 2021: https://github.com/pittcsc/NewGrad-2021
- ML Interview Prep: https://github.com/khangich/machine-learning-interview
- All competitive programming platforms like LeetCode
  - Company wise frequently asked questions lists - premium
- There are many more: Just a Google search away ;)

Resume/CV Building

- It should be One-page!
- I used this basic latex template McDowell-CV
  - Clean, simple, machine readable, uses space well
  - Use any template you like!
- Use STAR principle when writing descriptions
  - "Solved inventory management deficit by redesigning inventory control system, quality controls, network integration, and training; on-time order fulfillment improved by 45%, profits increased by 23%, and canceled orders decreased by 82%."
- Refer Resume Writing guides published by universities: CMU, UCB, JHU, NCSU, etc…
- It takes 1-2 months to perfect and proof-read your resume with multiple people!

S T A R

The STAR format stands for *Situation, Task, Action, Result*:

SITUATION
An event, project, or challenge faced

TASK
Your responsibilities and assignments for the situation

ACTION
Steps or procedure taken to relieve or rectify situation

RESULT
Results of actions taken

*The STAR interview method is also called the CAR method, which stands for Context/Challenge, Action, Result.

zety

My work experiences

Interview experiences: Qube, Amazon, Microsoft

Work-life: Qube, Amazon, Microsoft

Questions

- Time management
- ''Effective ways to concentrate on both on campus placement and higher studies''

- Publications

- ''Where in the US would you recommend to go for CS MS?''

Questions

- ''How do we find our interest?''
- ''How and when to choose the domain.''
- ''How to choose ur higher studies subject??''

- ''Student scholarship and basic requirements?''

- ''I am a mediocre but hardworking student. After completing engineering, apart from going abroad or working at any IT company , what else can i do to contribute for the growth of my country ? (I am not interested in civil services)''

Questions

- "Is it better to take a gap year and focus on research work this year to pursue higher studies or rather apply to a job and gain work experience?"

- "What is recommended-Placements or Higher education? Which one has the best scope. What should be kept in mind when choosing either of the two?"

- "How do you decide if it's higher studies first or a few years of experience first?"

- "Student scholarship and basic requirements?"

- "I am a mediocre but hardworking student. After completing engineering, apart from going abroad or working at any IT company , what else can i do to contribute for the growth of my country ? (I am not interested in civil services)"

Questions

- ''In this pandemic, is it safe doing MS in US?''

- ''How do we plan for studying abroad in this Covid Scenario''

- ''When and how did you realize your interest in the field of Machine Learning and how did you develop said interest into skills and eventually a career?''

- ''I'm tensed to attend interviews... I want to be confident... What can I do?''

Questions

- ''Is starting a start up right after UG a good idea?''

- ''Can I specialise in neuroscience after obtaining a bachelor degree in biomedical engineering?''

- ''Can a non-IT/CS student be placed in marquee companies? Is it possible for them?''

Question of the Day!

"Are you happy!"

Live AMA!

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Thank you!