

Shree Saraswati Niketan Ma Vi OJT Workshop

2024 Grade 10 / 11

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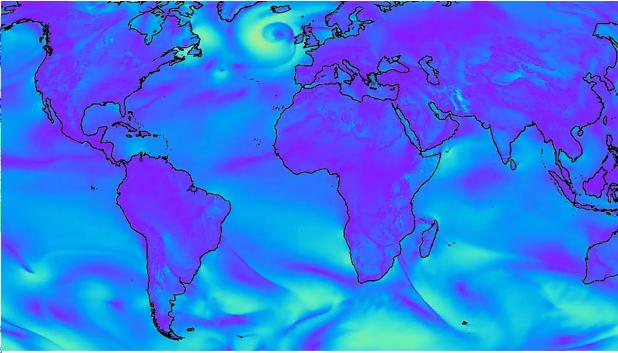
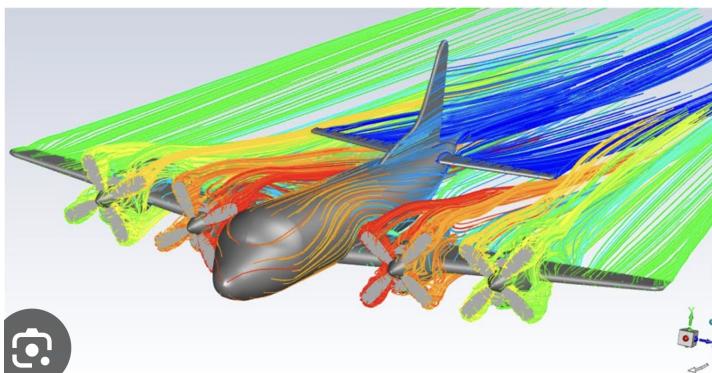
Learning objectives

1. Why work in IT?
2. How do you become a good IT / software developer
3. Software Development Life Cycle
4. Applying for IT jobs / internships in Nepal

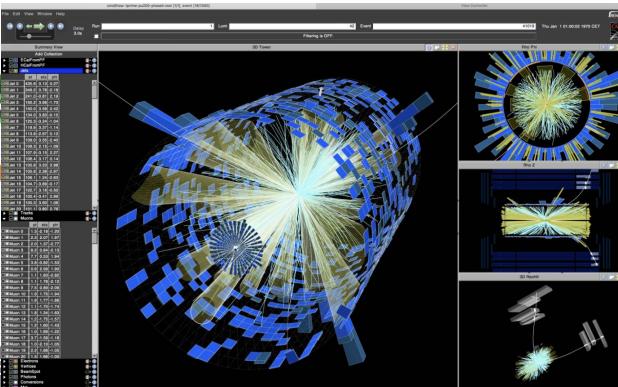
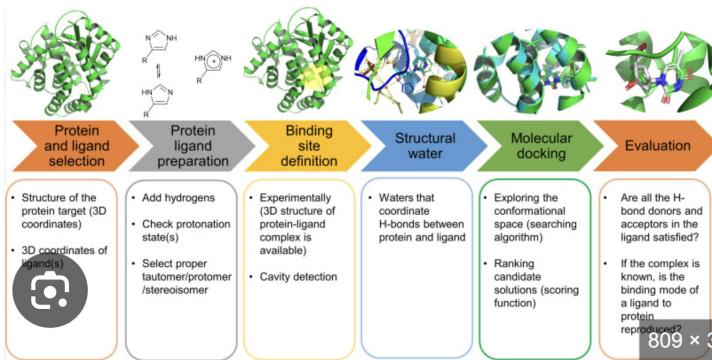
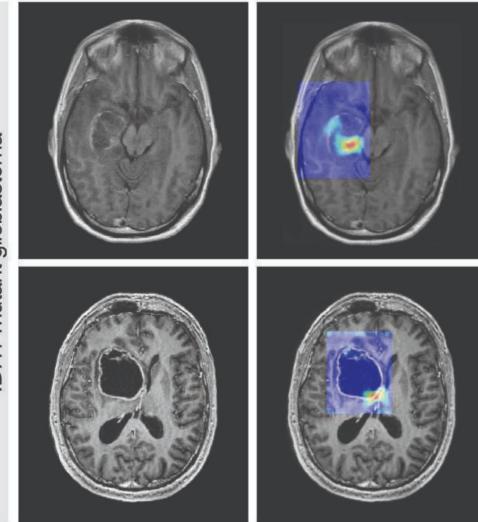
Why work in IT / Software?

IT / Software applications

Science & Research



IDH1 mutant glioblastoma



A deep learning algorithm trained to analyze images from MRI scans predicts the presence of an IDH1 gene mutation in brain tumors.

Credit: CA Cancer J Clin March/April 2019. doi: 10.3322/caac.21552. CC BY 4.0.

Business

The screenshot shows the Amazon.in homepage with a search bar at the top. Below it, there's a banner for 'YODHA' with a 'Join Prime now' button. The main content area features several promotional sections: 'Appliances for your home | Up to 55% off' (air conditioners, refrigerators), 'Revamp your home in style' (cabinets, lighting), 'Toys for your kids | Amazon brands' (stuffed animals, games), and 'Starting ₹199 | Amazon Brands & more' (bedding, curtains). A 'Today's Deals' section highlights phones like POCO M6 Pro 15, Realme 12, and Samsung Z9. A 'Daraz' banner offers up to 40% off on diapers. A '100% Off' offer is available for a limited time.



intuit
quickbooks



Games



616 × 353

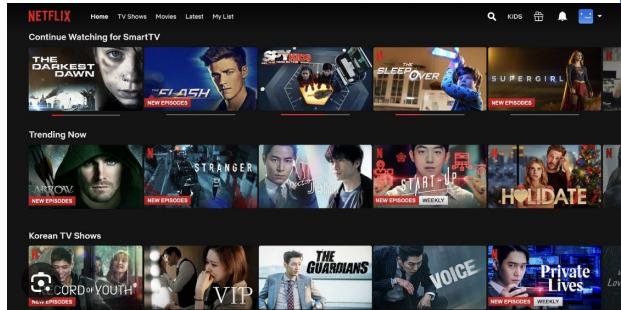
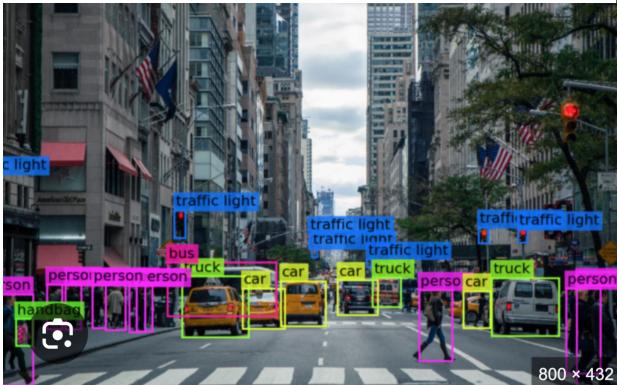
Communication & Social Media



IT / Software applications: And a lot more...

- Education: Online learning, classroom management
- Manufacturing: Automation, quality control
- Government: Public services, citizen engagement
- Healthcare: Managing patient records, medical imaging
- Transportation: Navigation, traffic optimization

AI applications



IT companies are valuable

- Top 7 most valuable companies in the world
 - 6 are IT companies
- USD 1T = NPR 133 Kharab

Rank	Name	Market Cap
1	Microsoft MSFT	\$3.082 T
2	Apple AAPL	\$2.806 T
3	NVIDIA NVDA	\$2.246 T
4	Alphabet (Google) GOOG	\$2.093 T
5	Amazon AMZN	\$1.951 T
6	Saudi Aramco 2222.SR	\$1.927 T
7	Meta Platforms (Facebook) META	\$1.207 T

Good IT / software developer earn well

Average salary (from levels.fyi)

- America: NPR 2.4 crore / year | **NPR 20 lakh / month [1]**
 - USD 178,000 / year
- Australia / Canada: NPR 1.3 crore / year | **NPR 10.5 lakh / month [2]**
 - USD 96,000 / year
- India: NPR 40 lakh / year | **NPR 3.5 lakh / month [3]**
 - USD 30,000 / year
- Nepal: NPR 10 lakh / year | **NPR 80 hajar / month [4]**
 - USD 7,200 / year
- Nepal: NPR 5 lakh / year | **NPR 40 hajar / month [5]**
 - Starting salary
 - USD 3,600 / year

America:
NPR 20 lakh / month

Australia / Canada:
NPR 10.5 lakh / month

India:
NPR 3.5 lakh / month

Nepal:
NPR 80 hajar / month

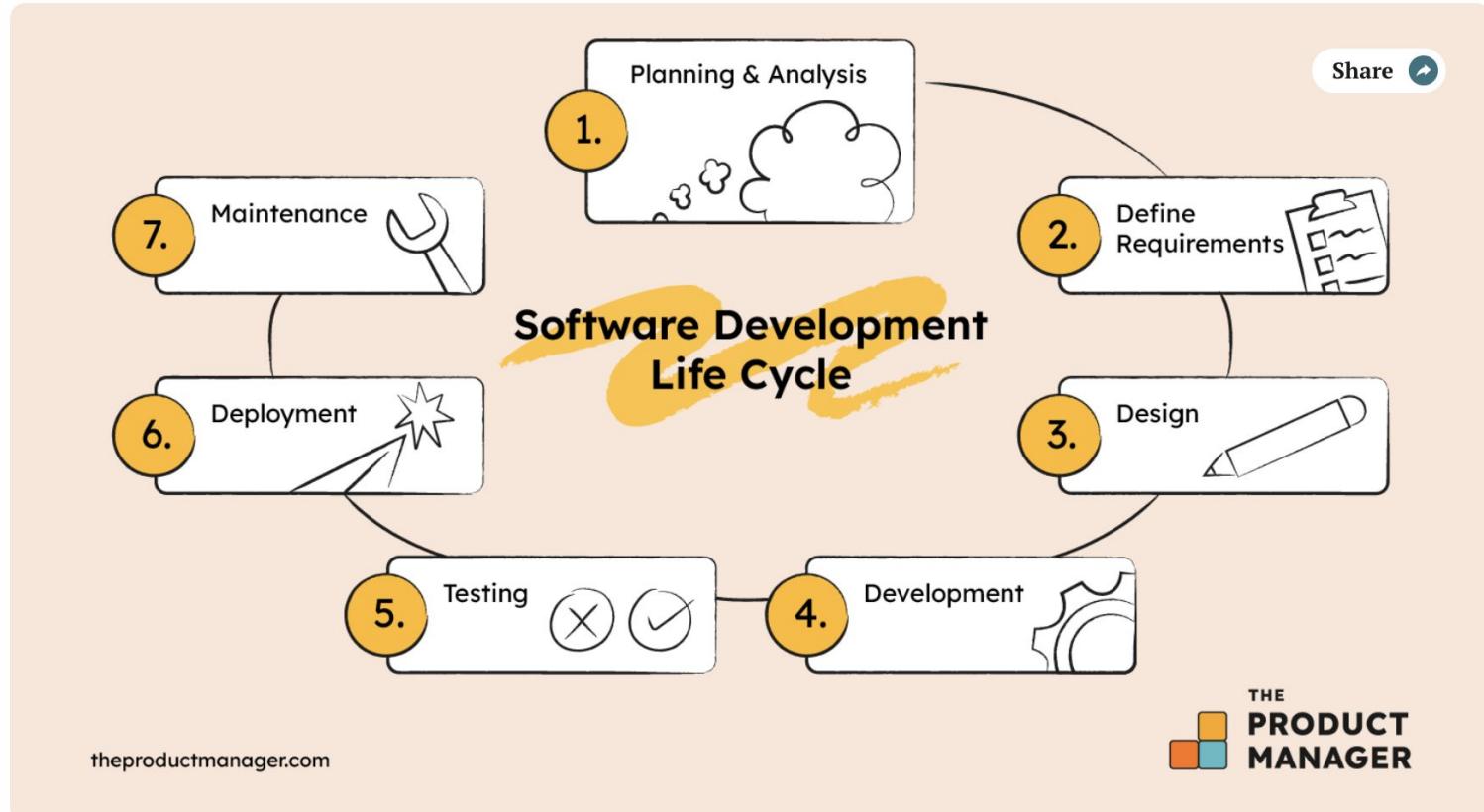
How do you become a good IT / software developer

- Code! Code! Code!
- Code at home, in the lab
- Practice a lot of coding on your own

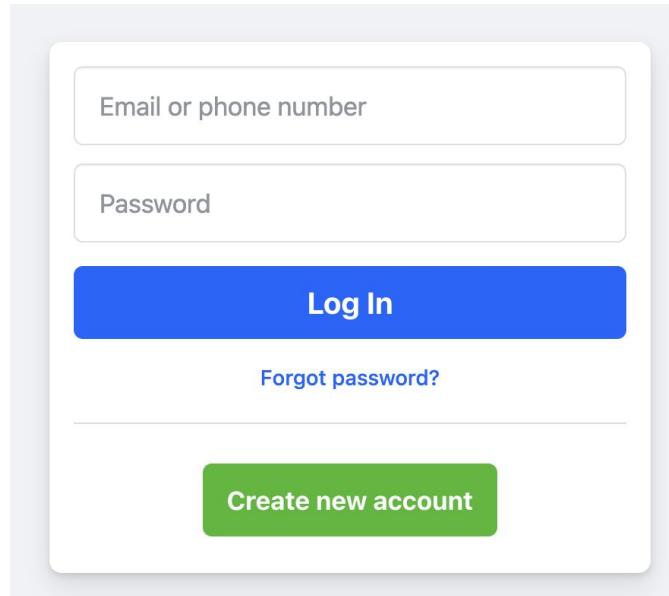
How do you become a good IT / software developer

- <https://bit.ly/ojt-guide>
- 4 Cs
 - **Community:** Get 2 or more friends to do it together
 - **Curriculum:** Learn one language (JS, Python) before framework
 - Javascript or Python
 - <https://www.fullstackacademy.com/bootcamp-prep-online>
 - Learn Javascript
 - 12 weeks, 1 hour per day, 5 days a week
 - <https://fullstackopen.com/en/>
 - Learn React, Express
 - Part 0, 1, 2, 3
 - 16 weeks, 1 hour per day, 5 days a week
 - <https://study.cs.helsinki.fi/discord/join/fullstack> support group to help you
 - **Commit:** E.g. 5 hrs a week, finish 1 chapter a week
 - **Coach:** Find a coach. e.g. your teacher, sister, brother etc.
- www.codewars.com, solve 1 per day
 - Start level 8 (beginner): **two weeks**
 - Get to Level 6 (Nepal) - **16 weeks**
 - Get to level 5 (Global) - **52 weeks**
- Possibly leetcode
- Use PM tool to track project, even if simple project with one person

Software Development Life Cycle

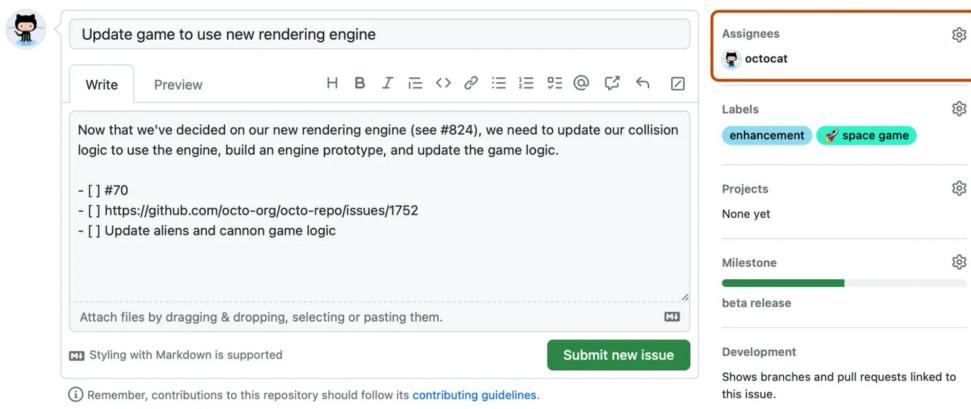


Software Eng flow example: Work - Build a login screen



Software Eng flow example: Step 2- Requirements

- Build login API **backend**
- Build **frontend**
 - Enter email or phone number
 - Enter password
 - Click log in
 - If success, proceed to next page
 - If failed, provide reason for login failure
 - Retry log in
- Create a ticket to track this work
 - Example: Github issue
 - Write it out to clarify the requirement

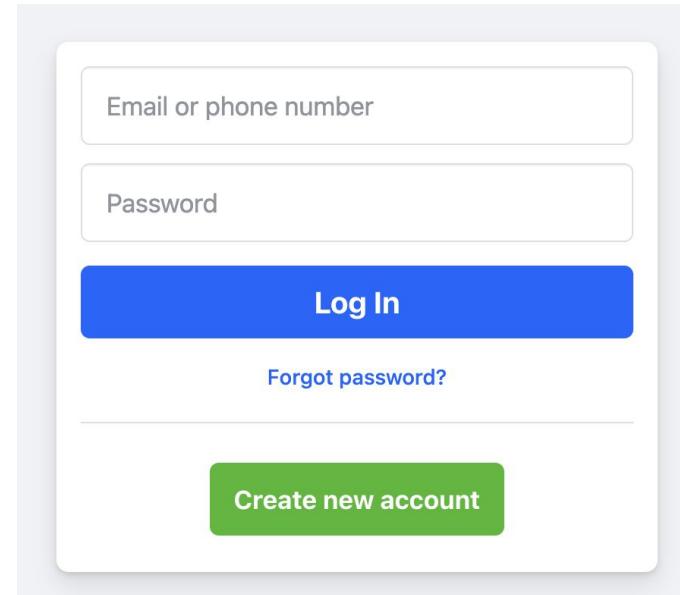


Software Eng flow example: Step 3 - Design

1. Design UI/UX
2. Design frontend
 - o Use tools your team is already using
 - o Use React / Typescript
 - o Use existing frameworks in Javascript
3. Design backend
 - o Use tools your team is already using
 - o Use Node.js & Express
 - o /login API POST endpoint

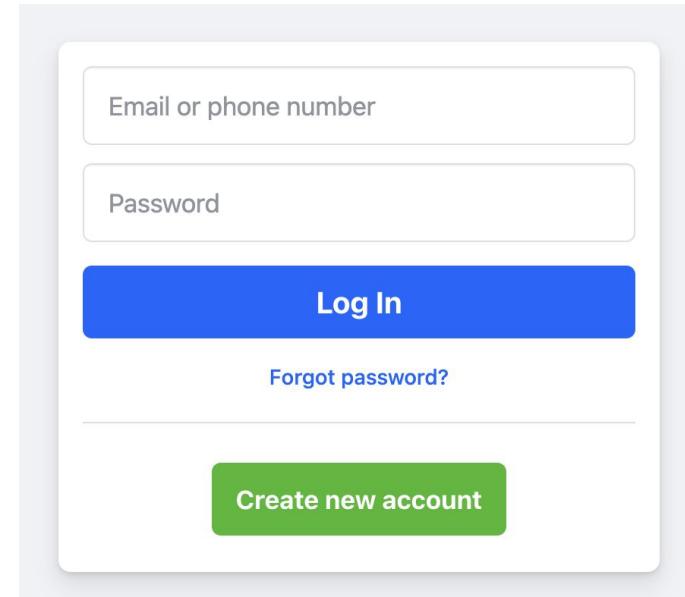
Create 1 github issue for each of the tasks above

- o Create all these tasks as dependent tasks for the major task
- o (2) Design Frontend depends on (1) Design UI/UX



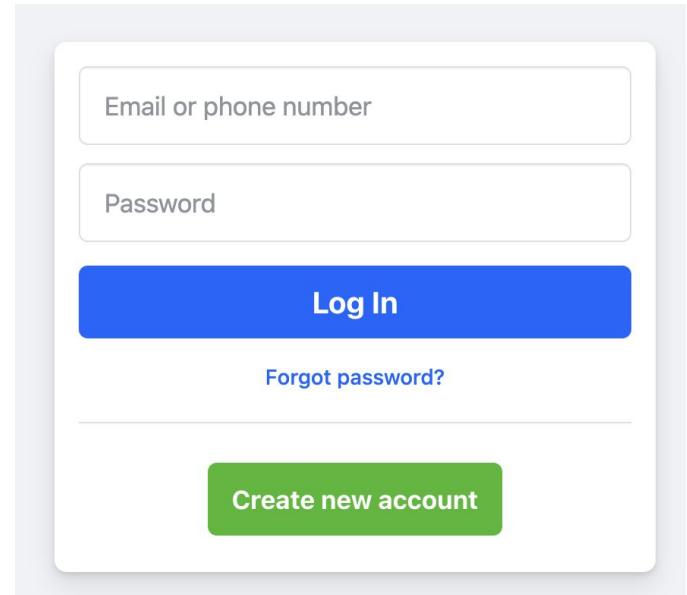
Software Eng flow example: Step 4 & 5: Build & Test

- Code up the frontend
 - Code up the backend
 - Test to make sure the system works as expected
-
- Work division: Maybe 2 different people work together on this task
 - 1 builds frontend
 - 1 builds backend
 - Communicate regular updates to the team
 - Daily short meetings
 - Weekly long meetings



Software Eng flow example: Step 6 - Deploy

- Deploy the system to production
 - Make sure the new code is working
- Close the github issues



Applying for IT jobs / internships in Nepal

- Research companies 3 months before applications open
- Network
 - Complete LinkedIn profile
 - Go to meetups for people in technology; Conferences
 - Schedule informational conversation
- Find out interview process for each company
 - Find example questions
 - Find type of questions
 - We can provide samples
- Prepare for **2-3 months for interview**
 - Do Question / Answer practice
 - Do **Mock interview** with friends
- Apply
 - Referral: Find people who can help refer you
 - Internships OK: Can convert to jobs; more in smaller companies

Recap

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Q&A

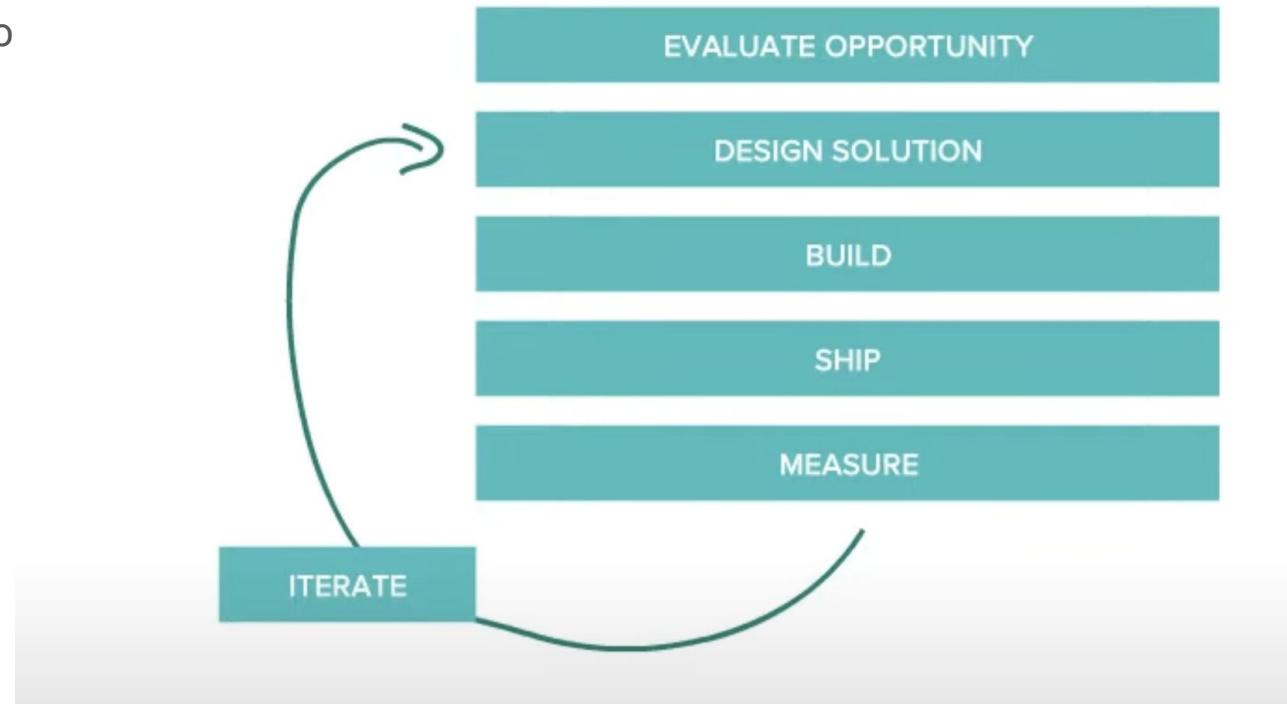
Any questions?

Appendix

Product development cycle

From Stanford
University product
management video

THE PRODUCT LIFECYCLE



- Project management
 - Break down projects into task and subtasks
 - Identify critical path, dependencies, risks, mitigate risks
 - Timeline estimates
 - Effective communication

- Software engineering
 - Write good code
 - Design good systems
 - Ramp up on new codebases or new technology