Reminder

- Check out the website:

https://mcs.utm.utoronto.ca/~301/index.html (make sure to hard refresh to get the newest updates)

- Join Piazza (link on website)
- Join Discord (link on website)
- Please sit with your group!

Lec 2 - Roles and Project Management

Who are you?

- Software engineer
- Project manager? Communicator?
- Think about what lives beyond just being really good at coding

Topics

- How do you get to senior engineer and beyond
- What roles are in a typical software development organization
- Go into detail about project management

Why now?

- Expect you to think through all of this for your project
- Demonstrate your understanding in Sprint 0 deliverable

Why now?

- Expect you to think through all of this for your project
- Demonstrate your understanding in Sprint 0 deliverable

Roles

- Project manager
- Engineering manager (me)
- Tech lead



Project manager

- Liaison between users and engineering
- Responsible for creating requirements
- Final arbiter of product features

Engineering Manager

- My role here at Uber
- Who you are "reporting" to
- Responsible for your success
- What makes a good manager?

Tech leads

- Typically the most senior/experienced engineer
- They help to ensure product's engineering success
- Help mentor junior engineers



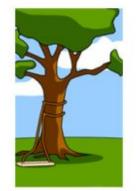
HOW THE CUSTOMER EXPLAINED IT



How the Project LEADER UNDERSTOOD IT



DESIGNED IT



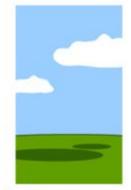
HOW THE ANALYST HOW THE PROGRAMMER WROTE IT



WHAT THE BETA **TESTERS RECEIVED**



HOW THE CONSULTA DESCRIBED IT



HOW THE PROJECT WAS DOCUMENTED



WHAT OPERATIONS INSTALLED



HOW THE CUSTOMER WAS BILLED



HOW THE PROJECT WAS SUPPORTED



WHAT MARKETING **ADVERTISED**



WHAT THE CUSTOME REALLY NEEDED

Why?

- Bridge between "business" and "engineering"
- Make sure you are solving an actual problem and not have a "solution chasing a problem"
- Also critical for Sprint 0

Definitions

- Goals: Who, What, Why
- Requirements: How
- Design: How, but more detailed

Goals

- Use English
- Layered Approach
- Focus on problem and users, not products
- Customer VS user

Activity: Project goals

- Use the next 5 mins, talk within your group, what's your project's goals?
- What's your 30s pitch?
- What problems are you solving?
- Which users are you targeting?

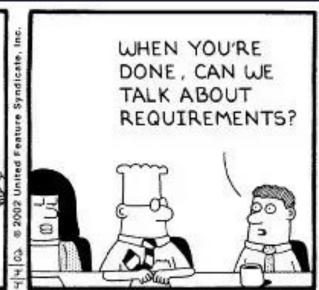
Who wants to tell me your pitch?

Requirements

TODAY IS THE THREE-YEAR ANNIVERSARY OF OUR FIRST MEETING TO DISCUSS PROJECT REQUIREMENTS.



AND WE'RE STILL
DISCUSSING REQUIREMENTS. DOES ANYONE ELSE SEE A
PROBLEM HERE?



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Requirements

 Here we are expanding goals a lot more and thinking about the Hows of what we are building

Peronas

- Develop empathy, esp if the users are not like you
- Develop a few personas ideally

User Stories

- Also helps to develop empathy, exercise to keep user's need in mind
- As <role>, I want <action/desire>, so that <benefit>
- As a rider, I want to be able to get a ride within 10 mins so that I have the freedom to leave when I want

Activity

- Take 5 mins, write down two personas, and then write a user story for one of them
- Reminder: As <role>, I want<action/desire>, so that <benefit>

Who wants to tell me your user story?

Acceptance Criteria

- Here you are thinking about what does it mean when something works?
- Questions:
 - What happens if i request a ride during peak? 2am on Sunday?
 - Is the time estimate accurate?

Activity

- Think about acceptance criteria for your user story. Try to do at least 4-5 edge cases.

Design

- Visual: think about edge cases, and not just the Happy Path
- Architectural: not just CRC, but data diagrams and sequence diagrams

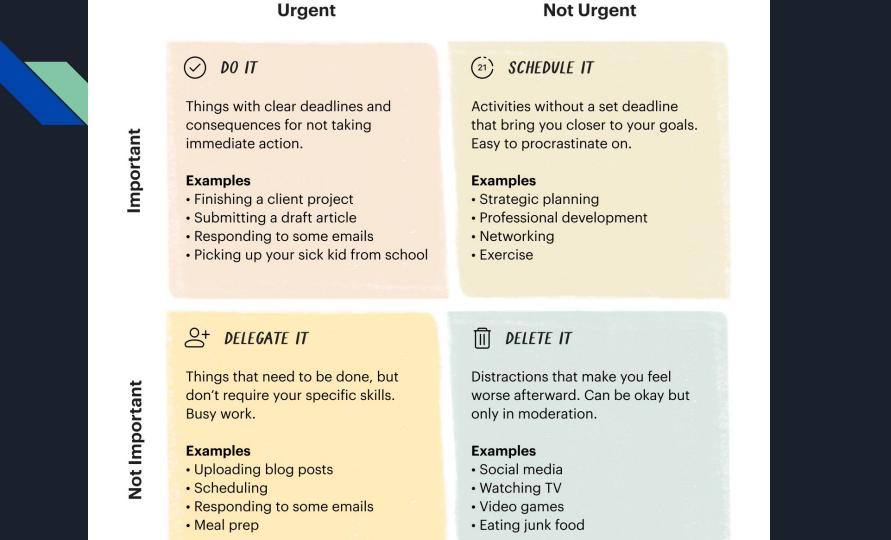
Prioritization

I RANKED ALL OF YOUR
ASSIGNMENTS BY
PRIORITY SO YOU WON'T
WASTE TIME ON UNIMPORTANT STUFF



EVERYTHING IS AN "A"
PRIORITY EXCEPT FOR
"PERSONAL LIFE."





Estimation

I NEED A BUDGET ESTIMATE FOR MY PROJECT, BUT I DON'T HAVE A SCOPE OR A DESIGN FOR IT YET.



OKAY, MY
ESTIMATE
IS \$3,583,729.

YOU DON'T KNOW ANYTHING ABOUT MY PROJECT.



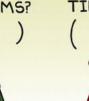
THAT MAKES TWO OF US.



IT WILL TAKE FOUR WEEKS TO BUILD THE APP, UNLESS THERE ARE UNFORESEEN PROBLEMS.



HOW OFTEN DO WE HAVE UNFORESEEN PROBLEMS?



ONE HUNDRED PERCENT OF THE TIME.



THEN
WHAT'S
THE POINT
OF ESTIMATING A
COMPLETION
DATE?

I WAS
HOPING
TO MAKE
YOU STOP
TALKING,
BUT IT
DIDN'T
WORK.

Estimation

- It's difficult to be accurate
- Known Kowns, Known Unknowns, Unknown Unknowns, Unknown Knowns
- Luckily, for the first 1-2 years, you are not responsible for the whole project

How?

- Break down the project, tackle the unknowns head on
- Ideally break it down to 1-2 day granularity, good balance

Algorithm

- What experiments?
- Ballpark estimate
- If length > 1 week, start breaking down to 1 week chunks
- Recurse

Questions?