




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



HOW THE ANALYST DESIGNED IT



HOW THE PROGRAMMER WROTE IT



WHAT THE BETA TESTERS RECEIVED



HOW THE CONSULTANT 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 CUSTOMER 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





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



Important

Urgent



DO IT

Things with clear deadlines and consequences for not taking immediate action.

Examples

- Finishing a client project
- Submitting a draft article
- Responding to some emails
- Picking up your sick kid from school

Not Urgent



SCHEDULE IT

Activities without a set deadline that bring you closer to your goals. Easy to procrastinate on.

Examples

- Strategic planning
- Professional development
- Networking
- Exercise

Not Important



DELEGATE IT

Things that need to be done, but don't require your specific skills. Busy work.

Examples

- Uploading blog posts
- Scheduling
- Responding to some emails
- Meal prep



DELETE IT

Distractions that make you feel worse afterward. Can be okay but only in moderation.

Examples

- Social media
- Watching TV
- Video games
- Eating junk food

Estimation

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



Dilbert.com DilbertCartoonist@gmail.com

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



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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.



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HOW OFTEN DO WE HAVE UNFORESEEN PROBLEMS?



ONE HUNDRED PERCENT OF THE TIME.



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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?