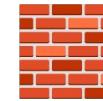


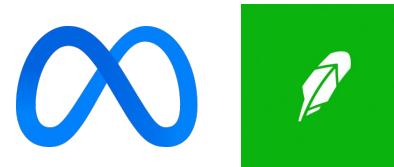
Every engineer wants to be senior

... but most hit a wall



I'm Alex

- My goal: **Make you a high-performing senior engineer** 💪
- Previously a Tech Lead at Course Hero, Meta, and Robinhood
- Prior to Taro, making \$750k/year as a top TL leading 15+ engineers
- Coached dozens of engineers to ⚡ senior promotions at top companies





1st Half: E4 Exceeds Expectations

2nd Half: E4 Exceeds Expectations

3rd Half: E4 Exceeds Expectations

4th Half: Promotion to E5 (Senior)

*Alex also spent 2 years at mid-level equivalent prior to Meta

Mid-Level 😊

Meta

E4

\$306,684

Alex's Mentorship 🌱

1 year promotion

5+ Engineers

Senior 😎

Meta

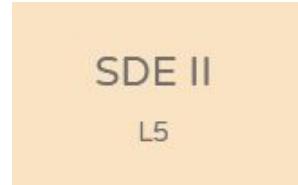
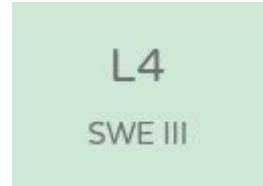
E5

\$475,444

*Almost all other E4 mentees got promoted in 1.5 years!

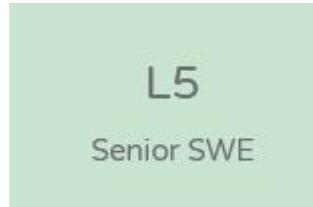
What's Mid-Level?

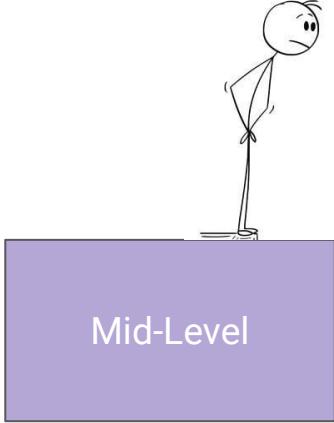
- Most engineers take 2-4 years to get this promotion
- The median software engineer is in this band
 - Very wide: 2 - 10 YOE
- 2+ YOE to qualify for these interviews
- Is often a terminal level
 - Google L4
 - Amazon SDE 2



What's Senior?

- Most engineers take 4-7 years to get this promotion
- If you're senior (using the standards of a top tech company), you're further ahead than most
- 5+ YOE to qualify for these interviews
- If mid-level isn't terminal, senior is





The senior promotion is first real struggle for the **overwhelming** majority of engineers. 😢

Objectives

-  Truly understand the **difference** between a mid-level engineer and a senior engineer
-  Have the right **mindset** to behave as a senior engineer
-  Identify your **technical gaps** to senior engineer
-  Figure out your **fundamental gaps** to senior engineer
-  Define a clear **roadmap** to senior engineer

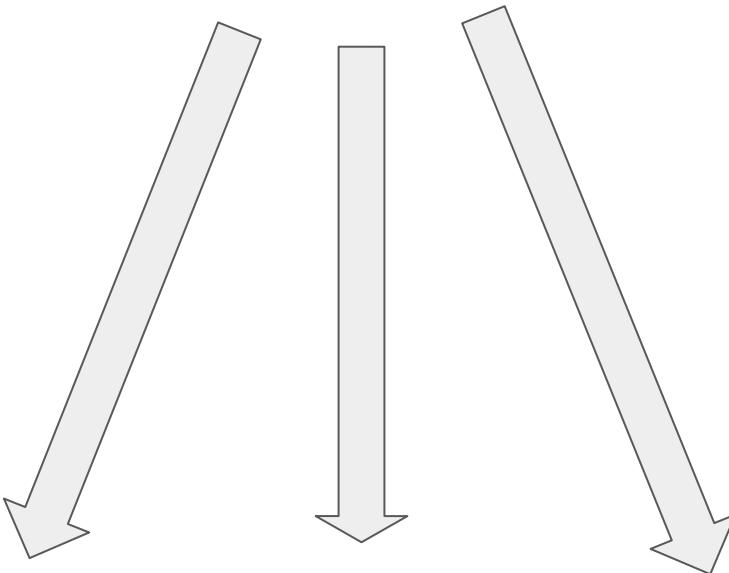
Why Is The Senior Promotion So Hard?



The Struggle To Senior

- ① It's a fundamental dynamic shift 
- ② Not everyone everywhere can be senior 
- ③ You need to be deliberate about it 
- ④ It's ambiguous ?
- ⑤ It's lagging 

Junior Engineer Skills

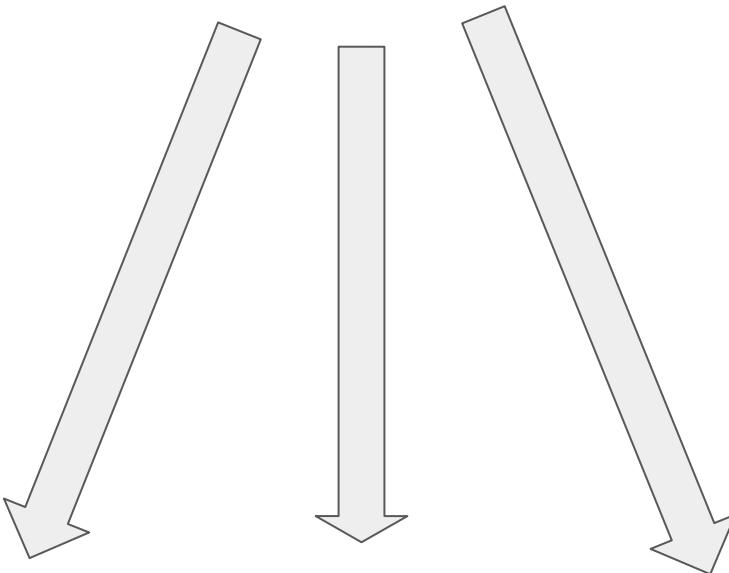


Writing &
reviewing
code

Debugging

Being
independent

Mid-Level Engineer Skills



Writing &
reviewing
code 💪

Debugging 💪

Being
independent 💪

Senior Engineer Skills

Process optimization

Product sense

Project management

Writing and reviewing code



Debugging



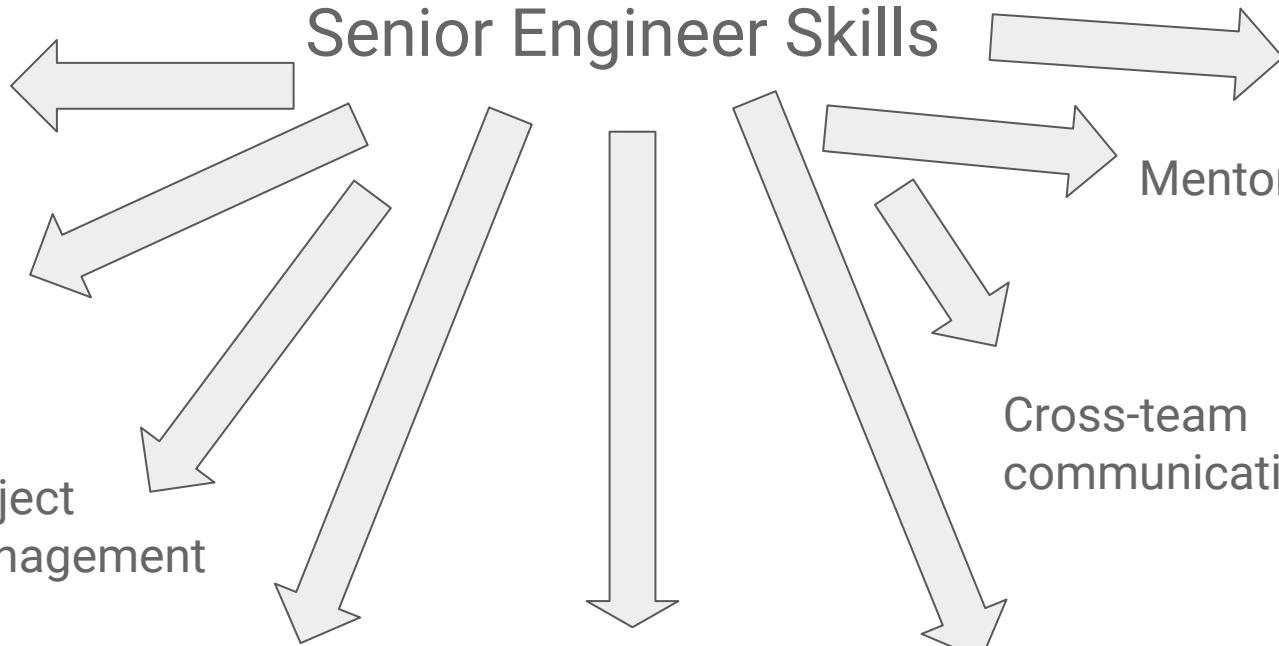
Being independent



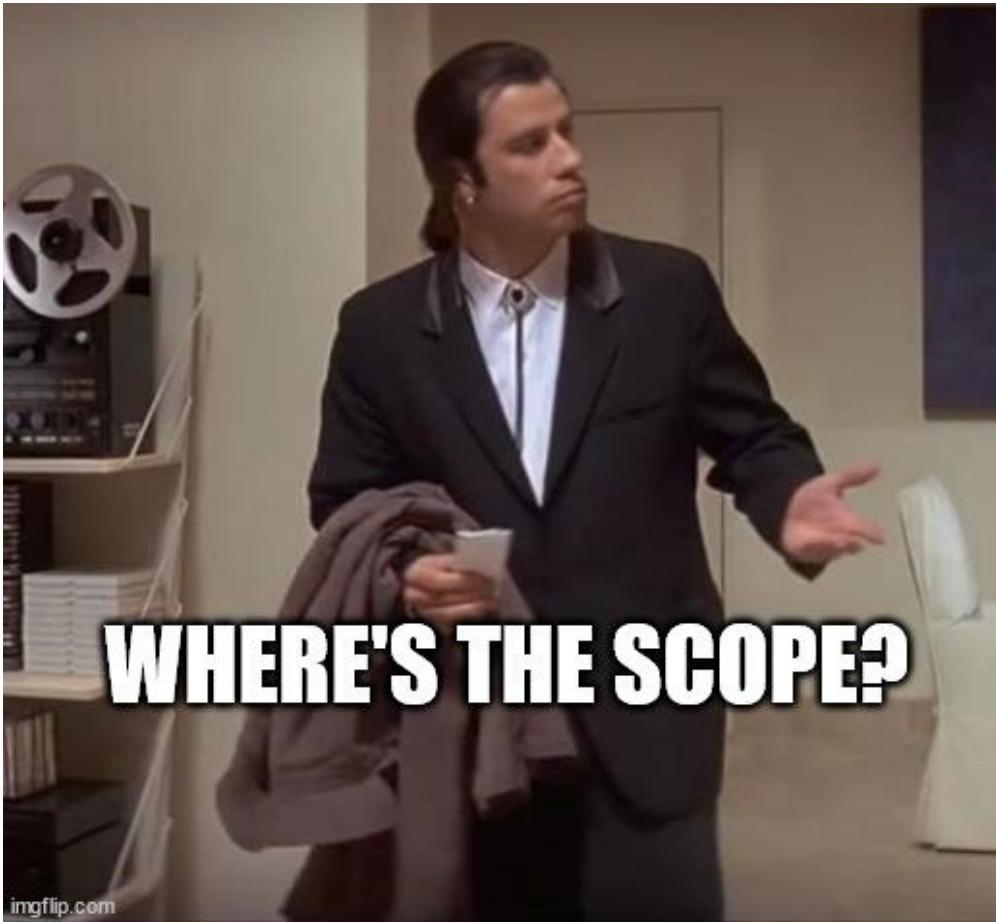
System Design

Mentorship

Cross-team communication



The Reason Why Mid-Level Is Terminal



WHERE'S THE SCOPE?

L3
SWE II

+ Hard Work =

L4
SWE III

Talk to your
manager 

L4
SWE III

+ Hard Work =

L4
SWE III

Make a plan 

L3

SWE II

L4

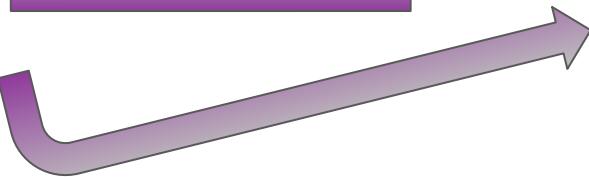
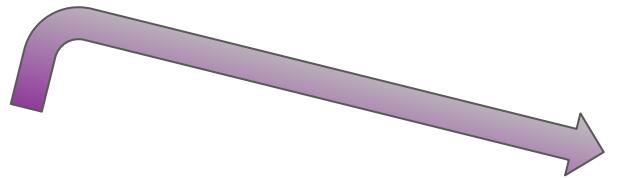
SWE III

L4

SWE III

L5

Senior SWE



**TECHNICAL
SPECIALIST**



**GENERALIST
TECH LEAD**





"I'm operating at senior - Can I get promoted now?



"That's great! Now do it for 6 more months."

**To become senior, your behavior must
fundamentally change.**

At A Glance: Mid-Level Vs. Senior



L4

SWE III

Extremely capable engineer,
very independent with solid
code quality

L5

Senior SWE

Leader on a team who brings
up others and sets the
example. Stellar code quality
and end-to-end delivery

L4
SWE III

Works on
medium
complexity large
tasks spanning
1-3 months

L5
Senior SWE

Owns high-complexity projects spanning
3-9 months

L4

SWE III

Subject matter expert (often a stack-specific slice of a domain), e.g. iOS Facebook Feed Reactions

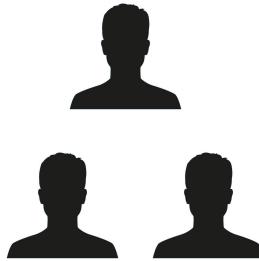
L5

Senior SWE

Domain leader, e.g. Facebook Feed Reactions

L4

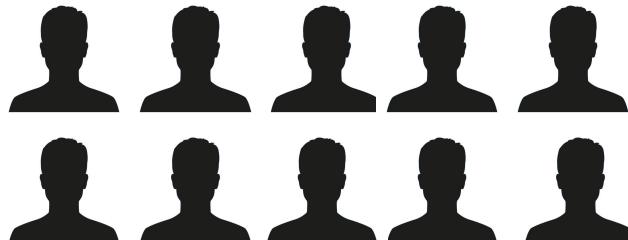
SWE III



1 - 3 engineers

L5

Senior SWE



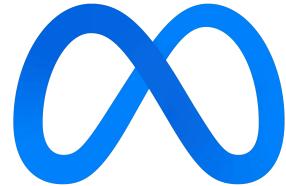
4 - 10 engineers

Structuring Your Growth



A red "Keep Calm" poster featuring a gold crown icon above the text "KEEP CALM AND MAKE A PLAN". The word "MAKE" is in a large, bold, black font, while "A PLAN" is in a smaller, stylized black font. The poster has white borders on the left and right sides.

KEEP CALM
AND
MAKE A PLAN



Meta Engineering Performance Axes

1 Impact 

2 Engineering Excellence 

3 Direction 

4 People 

Impact

Definition: The business value you delivered, (hopefully) defined through OKRs and KPIs



Engineering Excellence



Definition: Depth and scope of technical ability (i.e. matters connected to the code in some way)

WRITE

GOOD

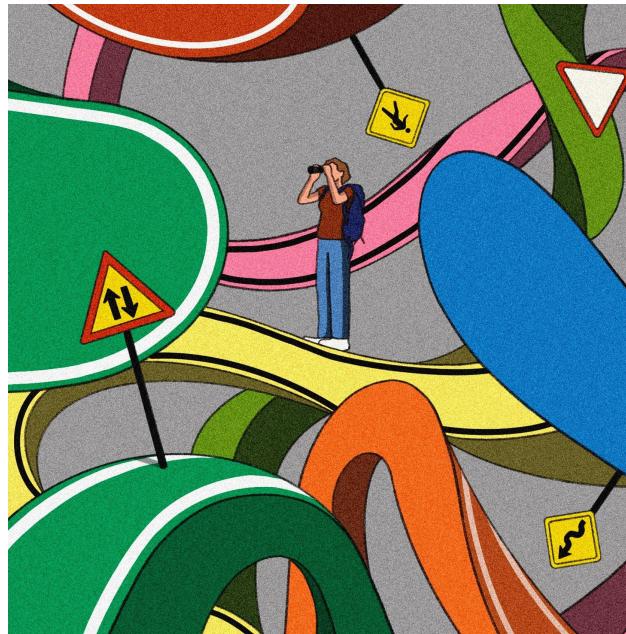
CODE



Direction



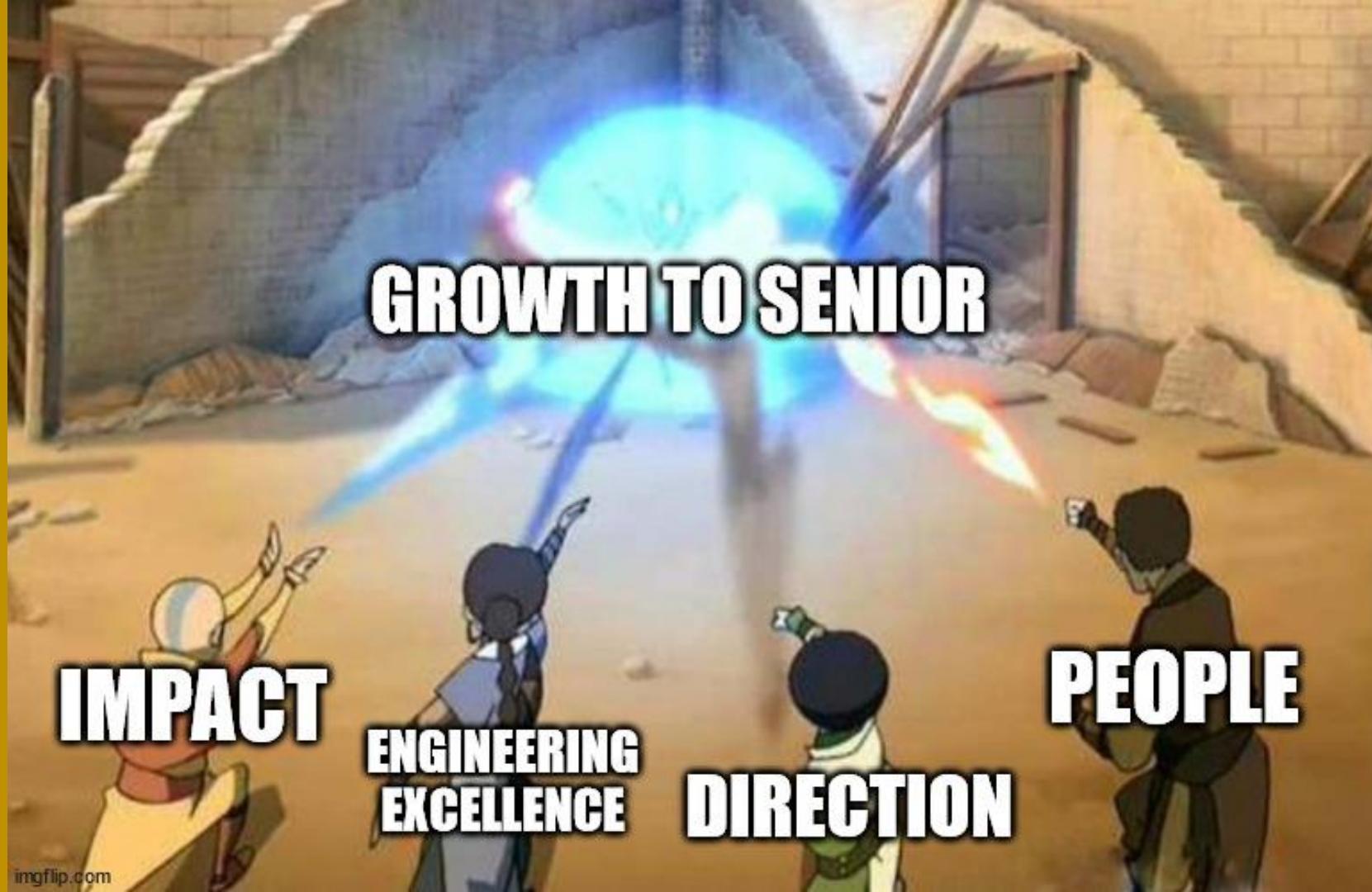
Definition: Ability to influence, make, and discover high-quality decisions



People

Definition: Track record bringing people together and making them better





This Is NOT A Checklist

- You can get to L5 while missing many items here
 - This is expected due to the multiple paths
 - However, you should be doing 50%+ of items
- Senior is when you start developing an identity
 - Find your strengths and adapt to your situation

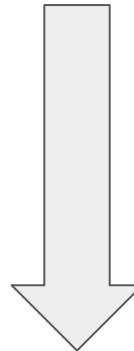


Finding The Right Team



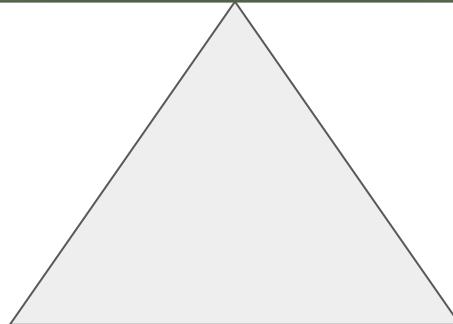
The Right
Team
**Makes
All The
Difference**

Chaotic,
undefined 0 to 1
effort without
clear success
criteria 🤯



Product with momentum but
also with room to grow ⚖️

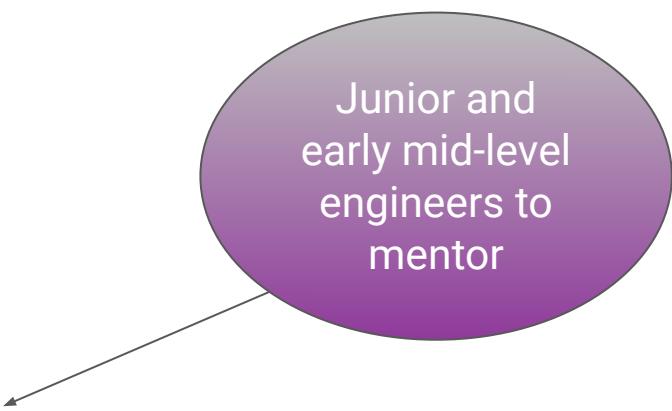
Incredibly
well-defined
product that's
been optimized
into oblivion 😞



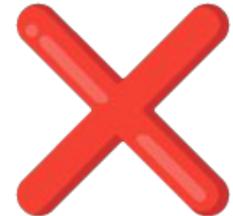
Senior and
Staff Engineers
to learn from

Junior and
early mid-level
engineers to
mentor

Not too many
mid-level
engineers
(competition)



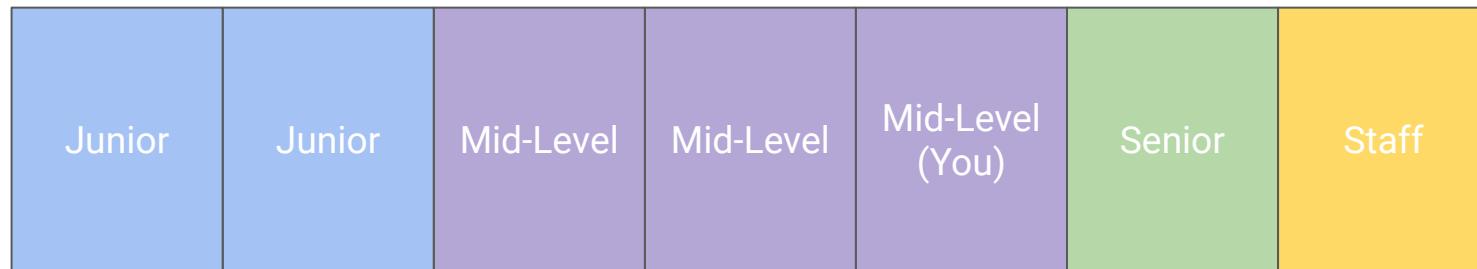
Junior	Mid-Level	Mid-Level	Mid-Level	Mid-Level	Mid-Level	Senior
--------	-----------	-----------	-----------	-----------	-----------	--------



Junior	Mid-Level (You!)	Senior	Senior	Senior	Senior	Staff
--------	---------------------	--------	--------	--------	--------	-------



Mentorship



Mentorship

Impact

The Goggles



**CONSTRAINED
MID-LEVEL ENGINEER
WORLDVIEW 😞**



**ENLIGHTENED
SENIOR ENGINEER
WORLDVIEW 😲**



*"I will always make sure that I
deserve to be a pit boss by
creating the best projects"*

*"This project doesn't
have enough scope"
"Let's expand this project
scope to make it exciting"*

*"The process sucks but
"This process sucks, and
that's just the way it is"
I will make it smooth"*

*"Argh, why is this SEV
I must figure out this SEV,
interrupting my feature work
to shield the team"*



Mentee

“One day you’ll have these goggles that enable you to see the world in a completely different way.”



“Uh... okay.”

**ONE YEAR
LATER...**



Mentee

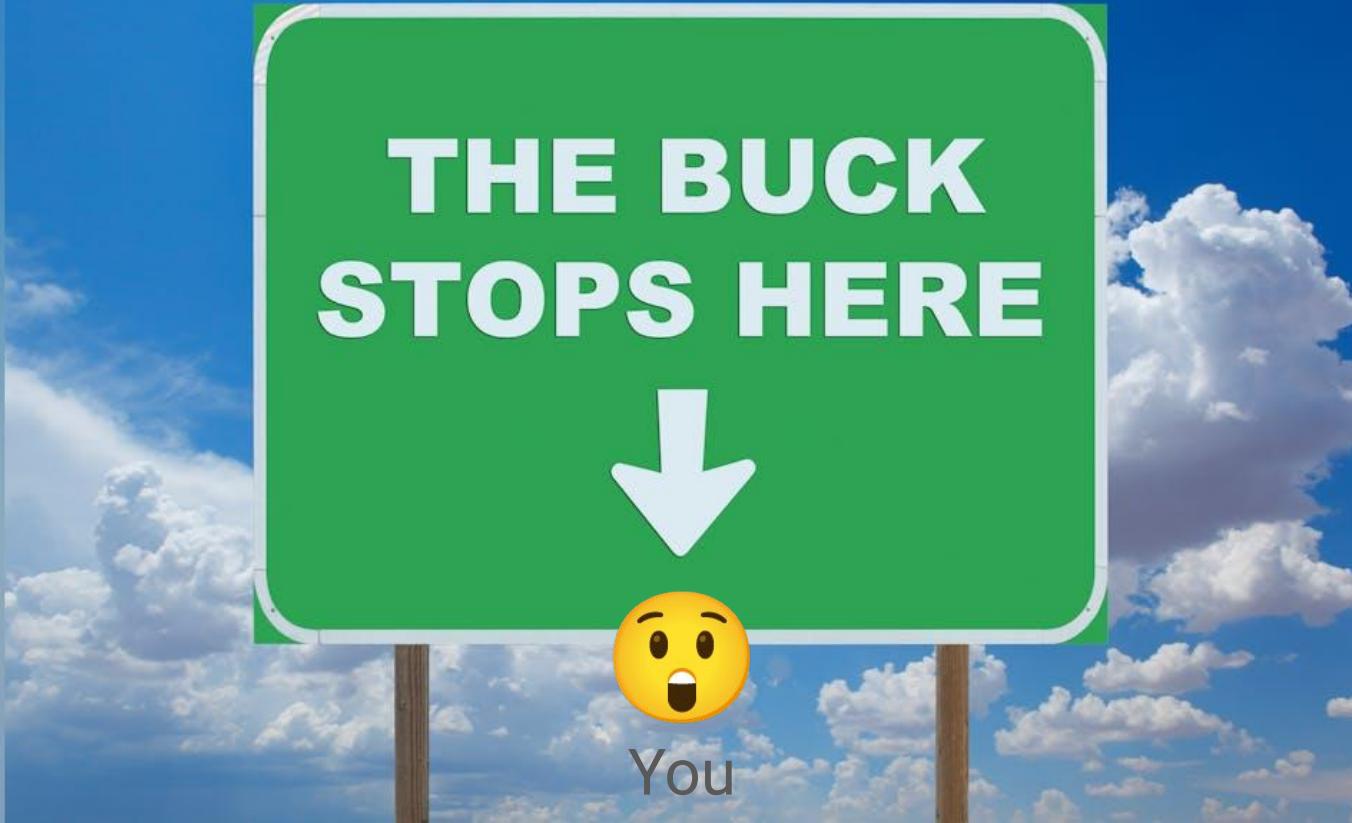
“ALEX, YOU WERE
RIGHT - I HAVE THE
GOGGLES NOW!”



“Told you they were
real 😊”

**See the world through the lens of
opportunity, not limitations.**

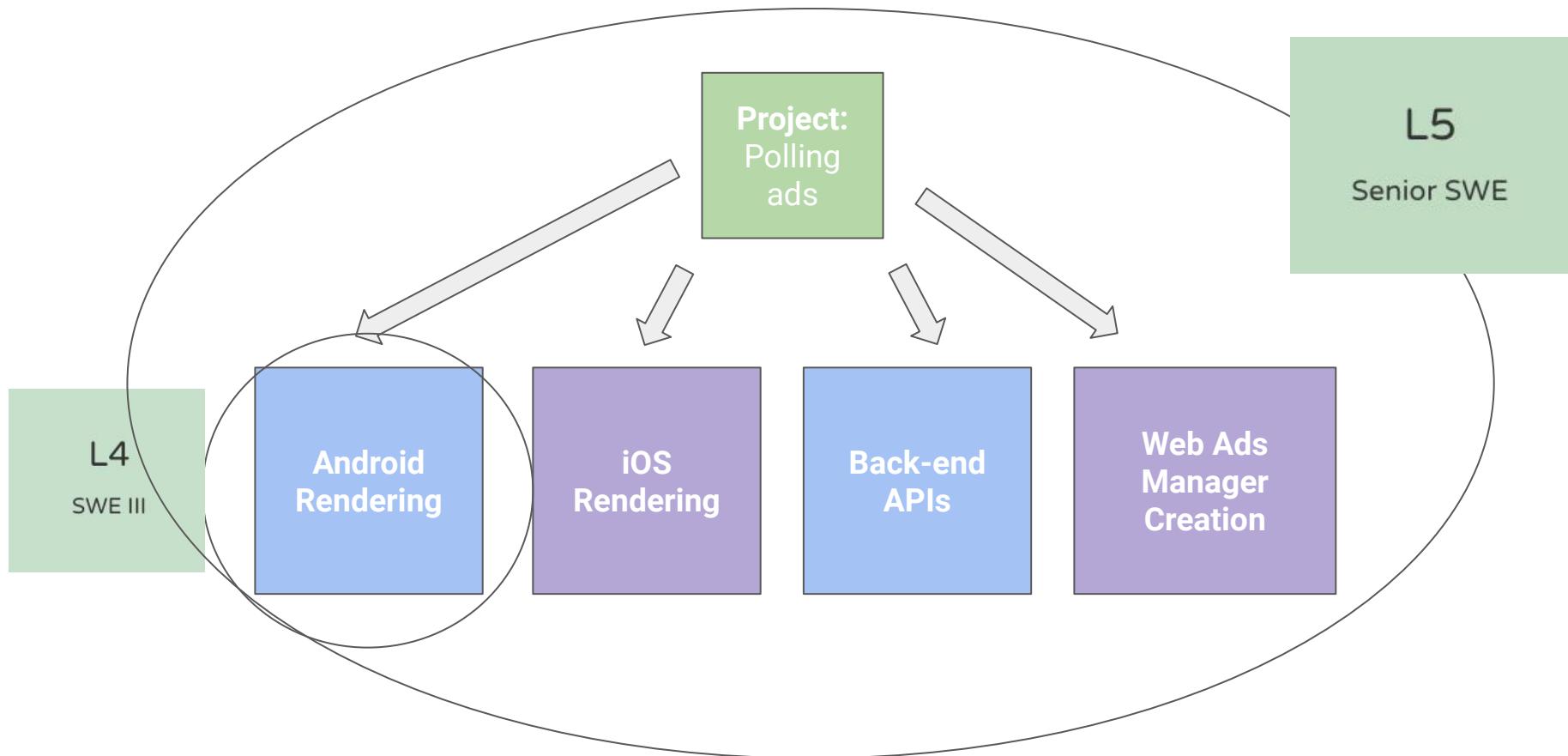
Take Greater Ownership



The Buck Stops With You

- Impact “points” != The business impact of the projects you work on
 - The credit is subdivided based on ownership
- Junior to early mid-level engineers aren’t held responsible for impact
- Senior is the 1st level where impact truly matters





Fill In The Gaps



Everything Is Your Problem

- As a senior engineer, you don't have the ability to run away anymore
- If something is wrong, it's your responsibility to fix it
 - Doesn't matter how unfamiliar the issue is
- Issues L4s tend to avoid:
 - Outside of their stack
 - Non-technical



L4

SWE III



Product requirements
aren't clear at all

Scope creep from
executives

Designs don't cover several
use cases

Engineer on another stack
is falling behind, putting
timeline at risk

XFN dependency is
falling through

L5
Senior SWE

Product requirements aren't clear at all

Scope creep from executives

Designs don't cover several use cases

Engineer on another stack is falling behind, putting timeline at risk

XFN dependency is falling through



Engineering Excellence

Code Quality



Stellar quality,
scalable, bugs
are *rare*

Good quality,
bugs are
uncommon

Code works

Senior Engineer

Mid-Level Engineer

Junior Engineer

Allow YouTube videos to play in full screen #18

Closed

Gear61 opened this issue on Feb 11, 2022 · 0 comments



Gear61 commented on Feb 11, 2022 • edited

Owner ...

Will invest more time trying to get this to work: <https://github.com/cprcrack/VideoEnabledWebView>

Genesis SO thread for the library: <https://stackoverflow.com/questions/15768837/playing-html5-video-on-fullscreen-in-android-webview>





prnvptl commented on Feb 18, 2022 • edited by Gear61

...

Closes [#18](#)

Enables Youtube video full screen with a clean UX

- User will be able to go to full screen and back
- Video will NOT reset or go out of sync with this interaction
- No need to go outside of the app for the lesson at all :^)
- Uses Kotlin and cleans up the watch content fragment
- Uses out of the box WebView with a custom chrome client

After trying many solutions, I managed to stitch this one together which uses a custom chrome web client and overrides `onShowCustomView` and `onHideCustomView` which in turn, implements hiding and showing a full-screen video. Refactored some code in the `WatchContentFragment`.

Detailed explanation of changes

Alternate solutions:

1. [Youtube Video Player API](#): costs \$ after 10K queries / day. implementation is possible but cumbersome and will require more effort

2. [android-youtube-player](#)

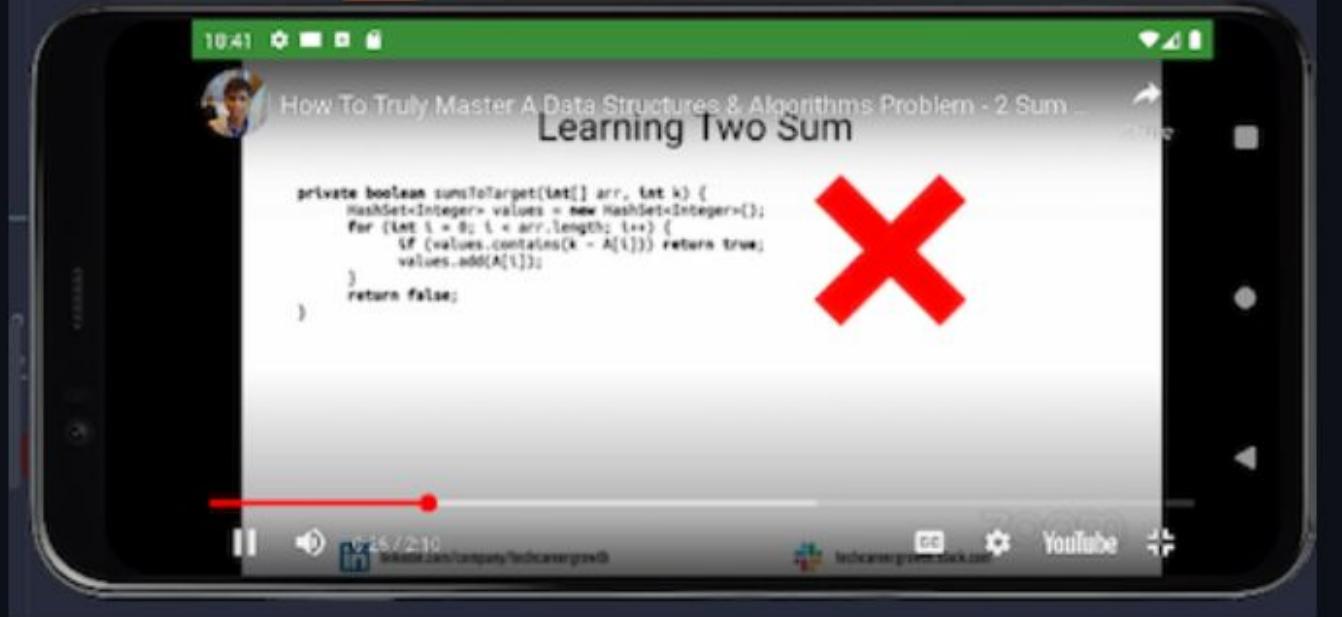
Allows for ALOT of customizability, however seems like overkill for now, and would also require much more effort to even get a simple web view working like the current web view. A simple solution of showing full screen would just be to show a button outside of the web view. not the best UX.)

Sources:

- <https://stackoverflow.com/questions/15768837/playing-html5-video-on-fullscreen-in-android-webview/16179544#16179544>
- <https://github.com/akhgupta/WebviewVideo>

Alternate approaches





Test plan

Code Review



E4

Alex

~125 commits
landed

~150 commits
reviewed

E5

Alex

~185 commits
landed

~365 commits
reviewed



Senior engineers usually review far more code than they write to uplift the team



Code Review: Mid-Level vs. Senior

L4

SWE III

L5

Senior SWE

- Review code in the codebase they're familiar with
- Comments can be insightful but don't produce fundamental change
- Regularly reviews code in codebases they aren't familiar with (outside tech stack or product domain)
- Leaves deep comments suggesting fundamental improvements



Android
Feed Ads

Android
Organic
Stories

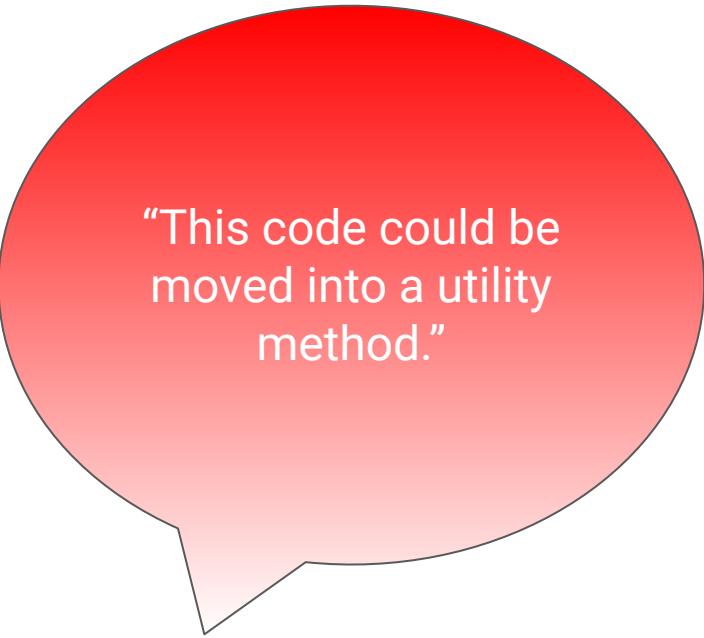
Android
Reel Ads

Android
Story Ads

Android
Ads Survey

iOS Story
Ads

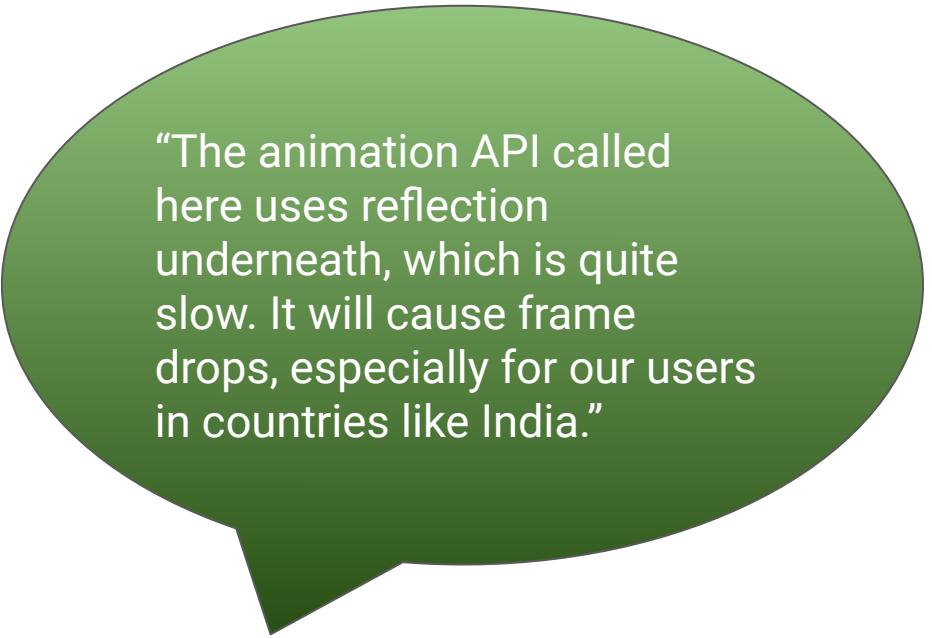
Android
Ads Infra



“This code could be moved into a utility method.”

L4

SWE III



“The animation API called here uses reflection underneath, which is quite slow. It will cause frame drops, especially for our users in countries like India.”

L5

Senior SWE

Debugging



L4
SWE III



"I'm busy, so good luck with that 😞"



L5
Senior SWE

"I'll fix it, so the team can focus 🛡"



Types Of Bugs Fixed: Mid-Level vs. Senior

L4

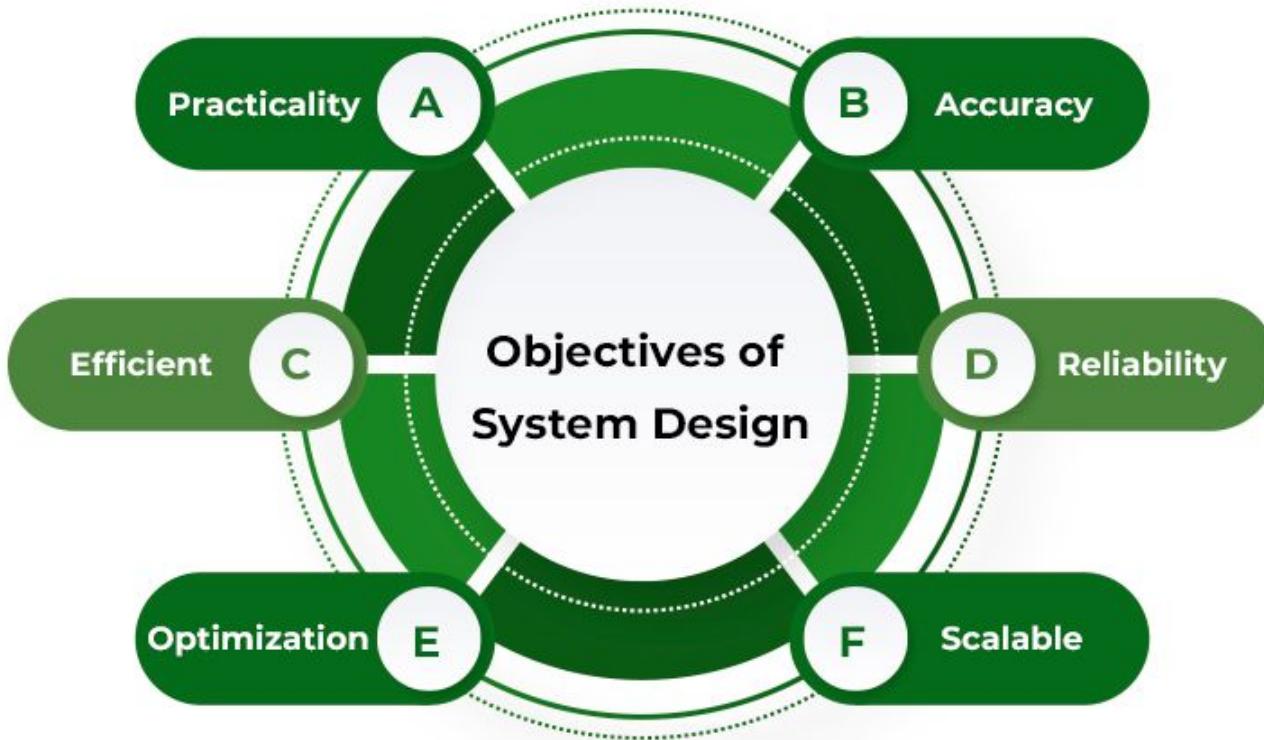
SWE III

L5

Senior SWE

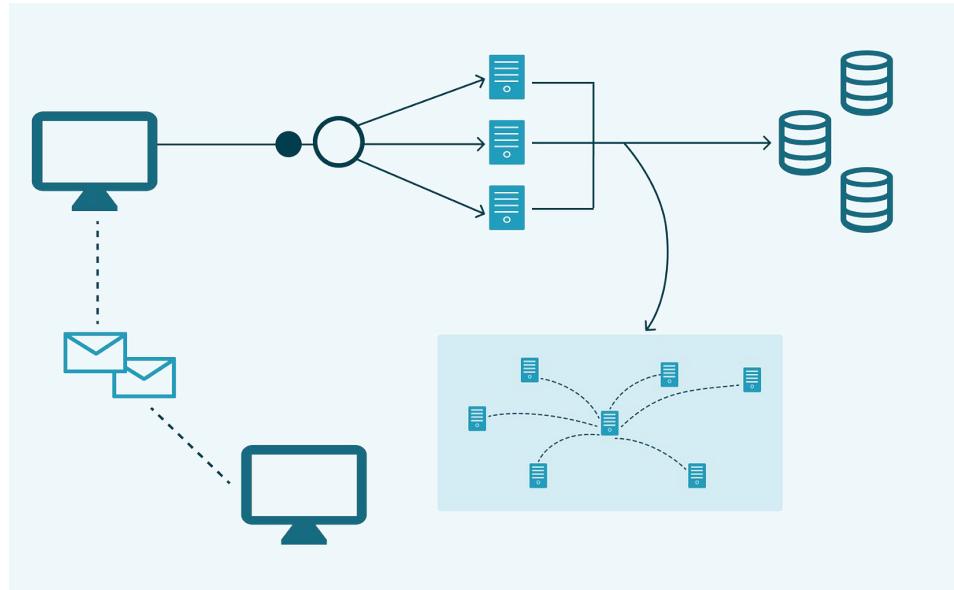
- In a familiar codebase they own
 - Isolated to their part of the stack
 - Not that urgent
 - Well-defined, repro info
- In a codebase they aren't familiar with
 - Cuts across multiple tech stacks and teams
 - Is urgent, high-pressure
 - Ambiguous, near 0 info

System Design



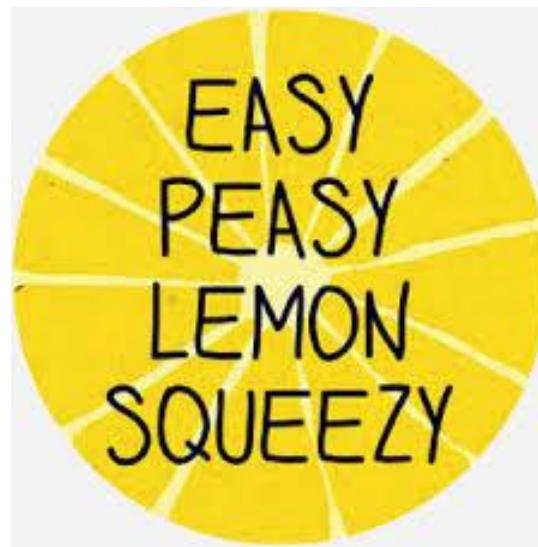
You Can Code? Here's The Next Level

- *System design is **the** core technical skill to go from mid-level to senior*
- This is effectively a hard requirement as senior engineers operate on a longer-time scale
 - You can't just hop into a 3+ month project
- Think proactively



How To Do REAL System Design

- ① Create a detailed system design document
- ② Get feedback on it through high-quality technical discussion



Writing The Doc

- Edge cases
- Data model
- Data flow
- Trade-offs
- Compute costs
- Scalability



Getting Feedback

- Set up a *tech review meeting*
 - At least 45 minutes
 - Prevent rabbit-holing and scope creep
- Add core technical stakeholders to the doc beforehand, cc them
- Highlight complex, ambiguous portions



Direction

Just 1 Sentence Is Enough



I CAN WORK WITH THAT

Handling Ambiguity: Mid-Level vs. Senior

L4

SWE III

L5

Senior SWE

- Focused on *how* to get the code working
- They have technical ambiguity but not product/people ambiguity
- Focused on how to get the *team* working
- Dealing with both technical and non-technical ambiguity
- Need to figure out *what* things to work on to complete a project

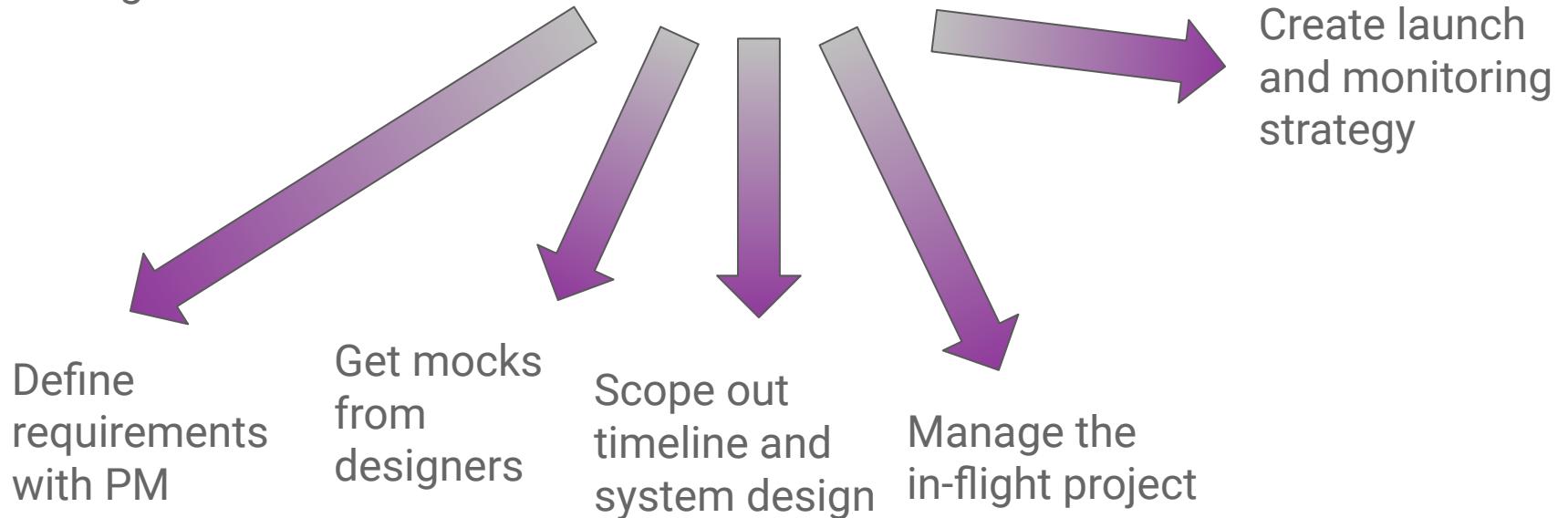


Alex's
Manager

“Figure out polling
sticker ads”

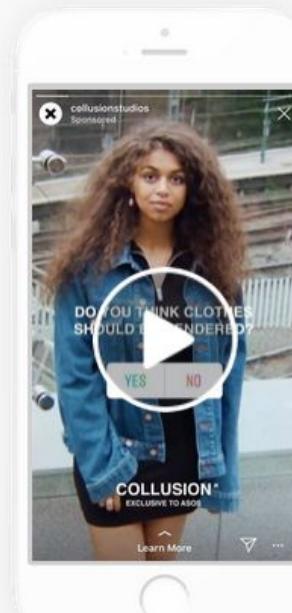
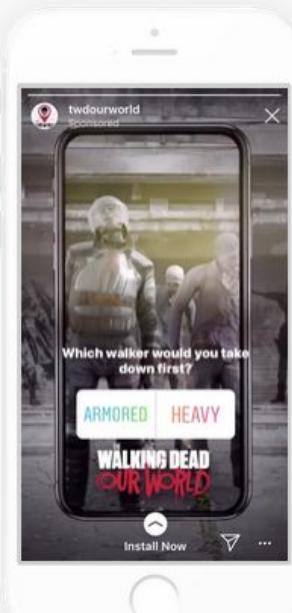


Jocelin Ho (Alex's
Tech Lead At
Instagram)



Introducing Interactive Stories ads

Interactivity adds a whole new dimension to the world of stories ads on Instagram that help bring people closer to brands. Interactive ads in Instagram Stories, starting with the polling sticker, allow businesses to be more engaging and playful in order to build better connections. Not only do they help stories ads stand out, but they can generate more impact for your campaigns by encouraging people to watch longer. In 9 out of 10 beta campaigns, the polling sticker increased 3-second video views³.



**Get good at turning almost nothing into
something meaningful.**

Work Towards The Team Goal

An illustration of three diverse business people (two men and one woman) working together to pull a large blue arrow upwards. The arrow is angled upwards and to the right, symbolizing progress and achievement. The background features a target with an arrow hitting the bullseye, a bar chart, and several clouds. On the right side of the image, there is a large, bold text message.

BECOME
A BETTER
**TEAM
PLAYER**

L4

SWE III

“I will do this, and
I will do it well.”

Project

L5

Senior SWE

“Why are we doing
this?”

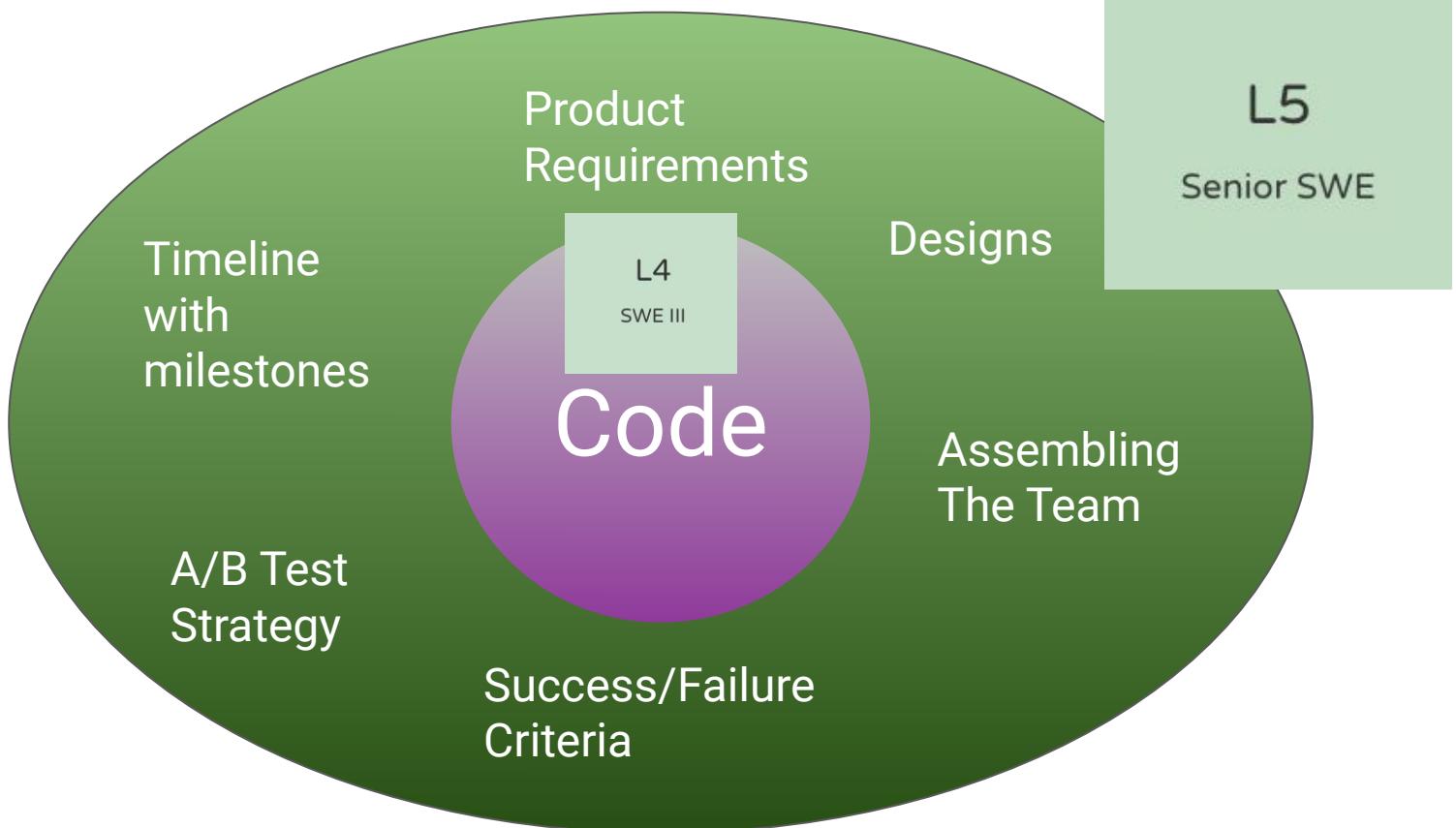
Question Every Project

- ① How does this help us achieve our goal?
- ② Is there something else that's better for the goal?
- ③ How do we know if this project is a success?
- ④ How do we know if this project is a failure?

What's The Plan?



What Goes Into A Project?





Outline

– Taro Playlists Master Spec

Timeline

POCs

Context

What Do We Have Now?

Web

Mobile

Jobs To Be Done

Requirements

Use Cases

Taro Playlists Master Spec

Timeline

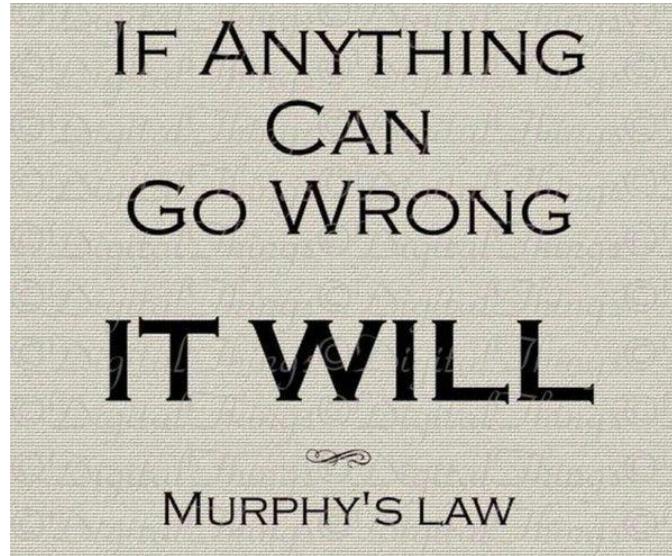
Day	10/24	10/25	10/26	10/27	10/28
Tasks	Add “Playlists” entry point on profile	Button to add content to a playlist from its page	Save video to playlist	0 playlists case when on “My Playlists”	Playlist sharing (dynamic link)
	Initial playlist screen (hardcode playlist IDs)	Search UI for adding content to a playlist	Save Q&A to playlist	Rearrange videos in a playlist	Ability to delete playlists
	Button to start creating	Empty state for search UI	Show edit button on	Ability to remove	<i>Internal doafoodina</i>

Project Management



Get It Across The Finish Line

- Planning is just the first step
 - Even if you plan well, it's likely something unexpected happens
- There is a lot of value in maintaining a steady hand, leading everyone forward
- Be attentive to problems and decisively address them as quick as possible



```
graph TD; A((Recurring meeting once every 1 to 2 weeks)) --> C(( )); B((Retrospective)) --> C(( )); D((Regular well-written status updates)) --> C(( )); E((Clear blockers and resolve thrash)) --> C(( ));
```

Recurring meeting once every 1 to 2 weeks

Retrospective

Clear blockers and resolve thrash

Regular well-written status updates



People

Meetings



Meetings: Mid-Level vs. Senior

L4

SWE III

L5

Senior SWE

- Active participant in meetings
- Mostly comfortable in meetings about their domain
- Has meetings put on their calendar
- Driving meetings, holding everyone accountable
- Can adapt and add value to meetings about unfamiliar territory
- Puts meetings on others' calendars

How To Lead A Meeting

- Set the agenda beforehand 
- Push participants to pre-read 
- Speak with conviction, but know when to compromise 
- Have clearly defined goals, ideally time-mapped 
- Don't be afraid to push people back on track 
- Define action items as necessary 

Build A Strong Internal Network



Relationships: Mid-Level vs. Senior

L4

SWE III

L5

Senior SWE

- A strong collaborator with others
 - Network is limited to within the team
 - Mostly working with other engineers
- Adds values to others, make them do their jobs better
 - Network is expansive outside the team
 - Has several strong allies outside of engineering

L4

SWE III

L5

Senior SWE

“They were nice to work with.”



XFN Partner

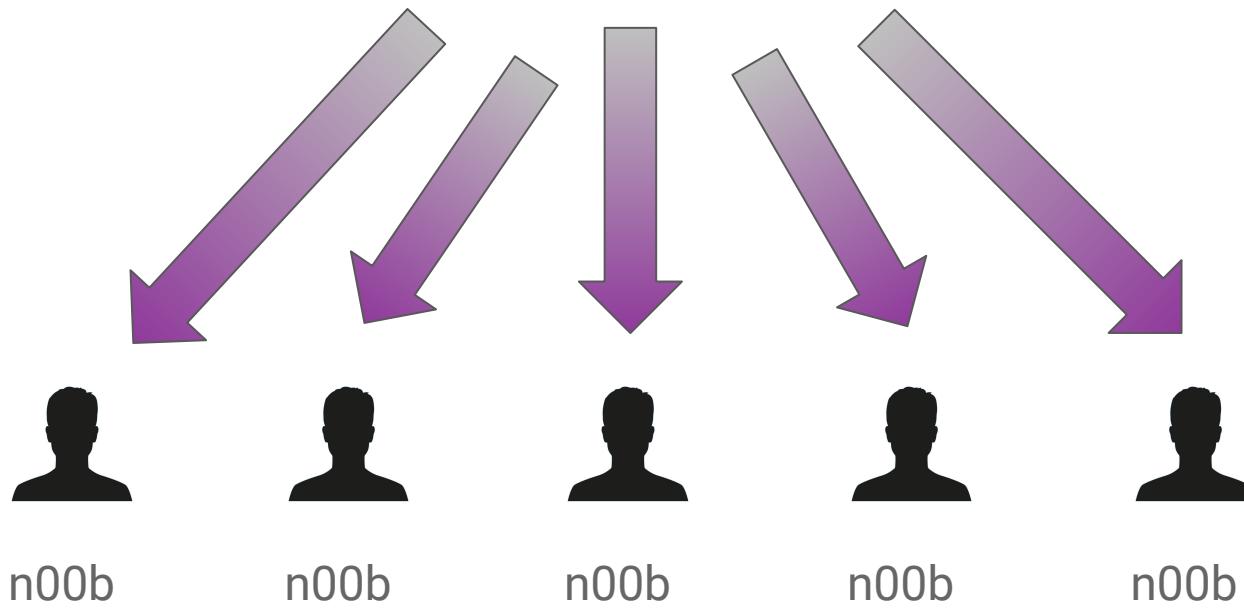
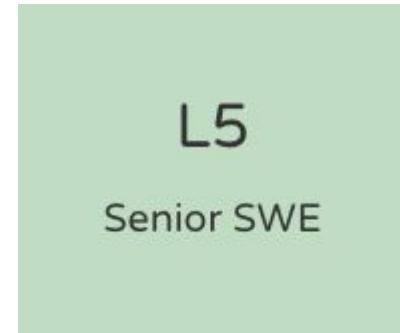
“They elevated my work - I wouldn’t have been able to smoothly contribute without them.”

Ways To Strengthen 💪 Your Network

- ① Deepen the relationships (add more value)
- ② Go outside your team
- ③ Go outside your tech stack
- ④ Go outside of engineering

Onboarding





Multiplicative Onboarding Impact

- ① Centralize knowledge in a wiki
- ② Abstract away setup into scripts
- ③ Office Hours
- ④ Brown Bags

Mentorship



Passive Mentorship Avenues

 **Code review**

 **Meetings**

 **Technical design documents**

 **Answering questions**

Consider Taking On An Intern

- The mid-level to senior transition is a great time to have an intern
- Lightweight way to train up your active mentorship skills
- If you can teach a concept to an intern, you can teach it to anybody!



Active Mentorship Tips

① Set up a recurring 1 on 1 (table stakes)

② Be selfless to build trust, earn loyalty

③ Have a vision for their growth

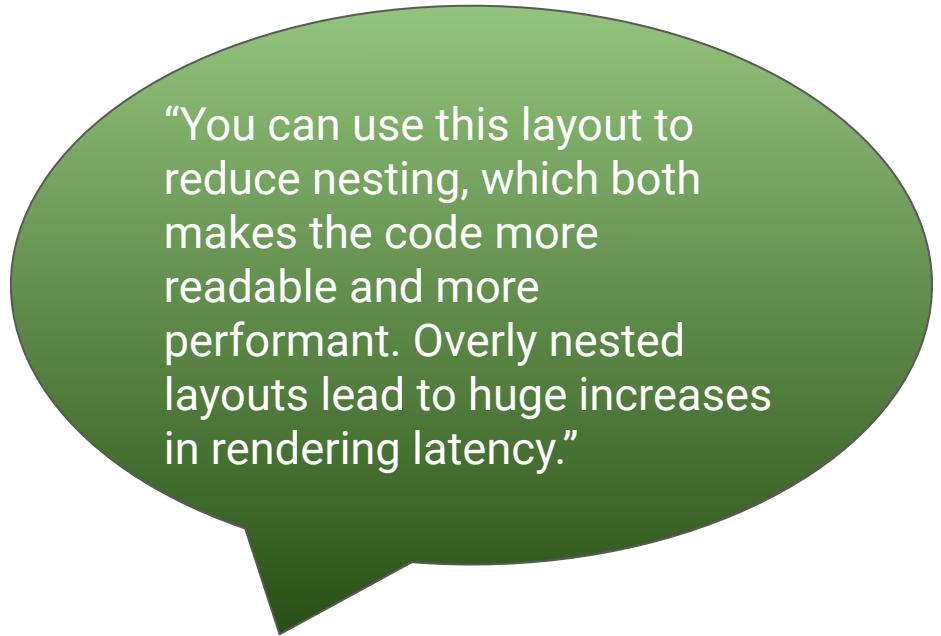
④ Ensure their well-being



“Use this layout
instead - It's cleaner.”

L4

SWE III



“You can use this layout to
reduce nesting, which both
makes the code more
readable and more
performant. Overly nested
layouts lead to huge increases
in rendering latency.”

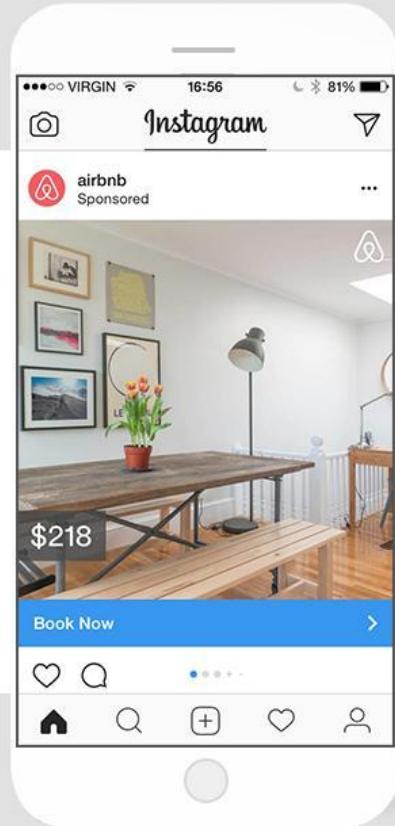
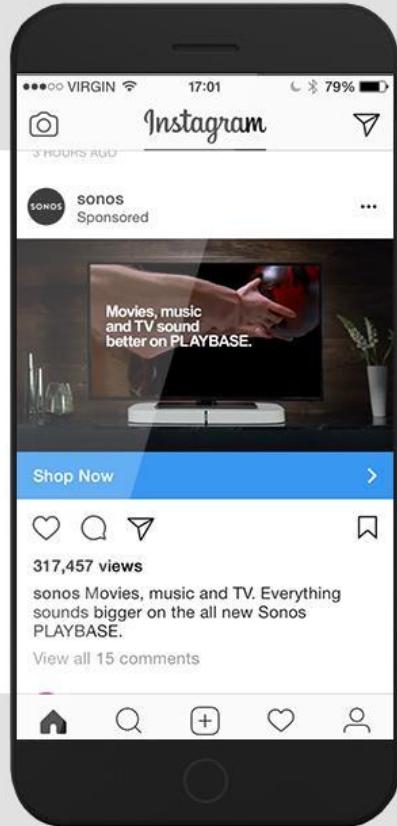
L5

Senior SWE

Don't just tell them *what*, explain the
why.

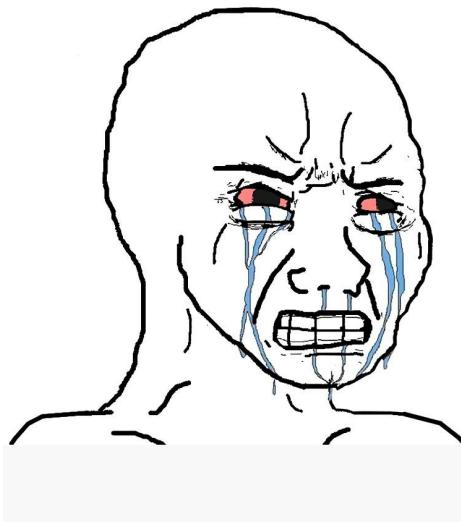
Senior Project Case Studies

Instagram Ads Testing Tool

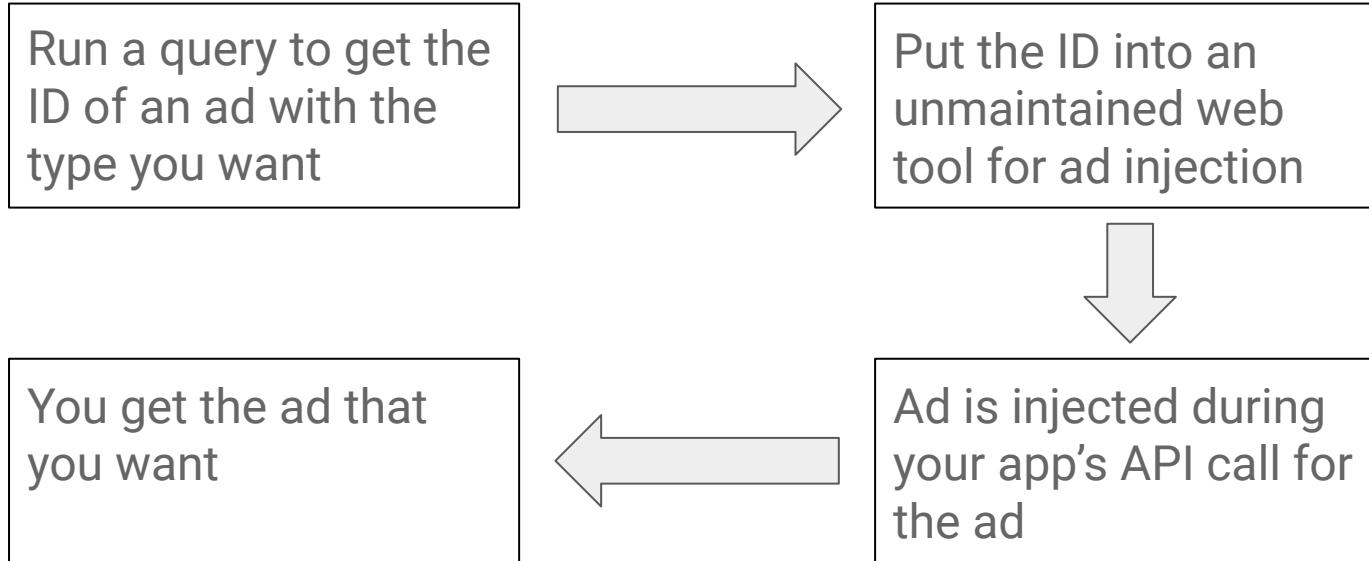


Situation: Instagram Ads mobile engineers need to test ads rendering a lot. As an ultra-mature ads business, Meta supports many different ad types

Problem: Testing the ad format you wanted sucked



Ad Injection (Old Way)



- Doesn't work if the chosen ad isn't live anymore
- Doesn't work if the web tool is broken
- Doesn't work if ads API is broken

Ad Injection (New)

Choose the ad type
you want a simple GUI
in-app



You get the ad that
you want

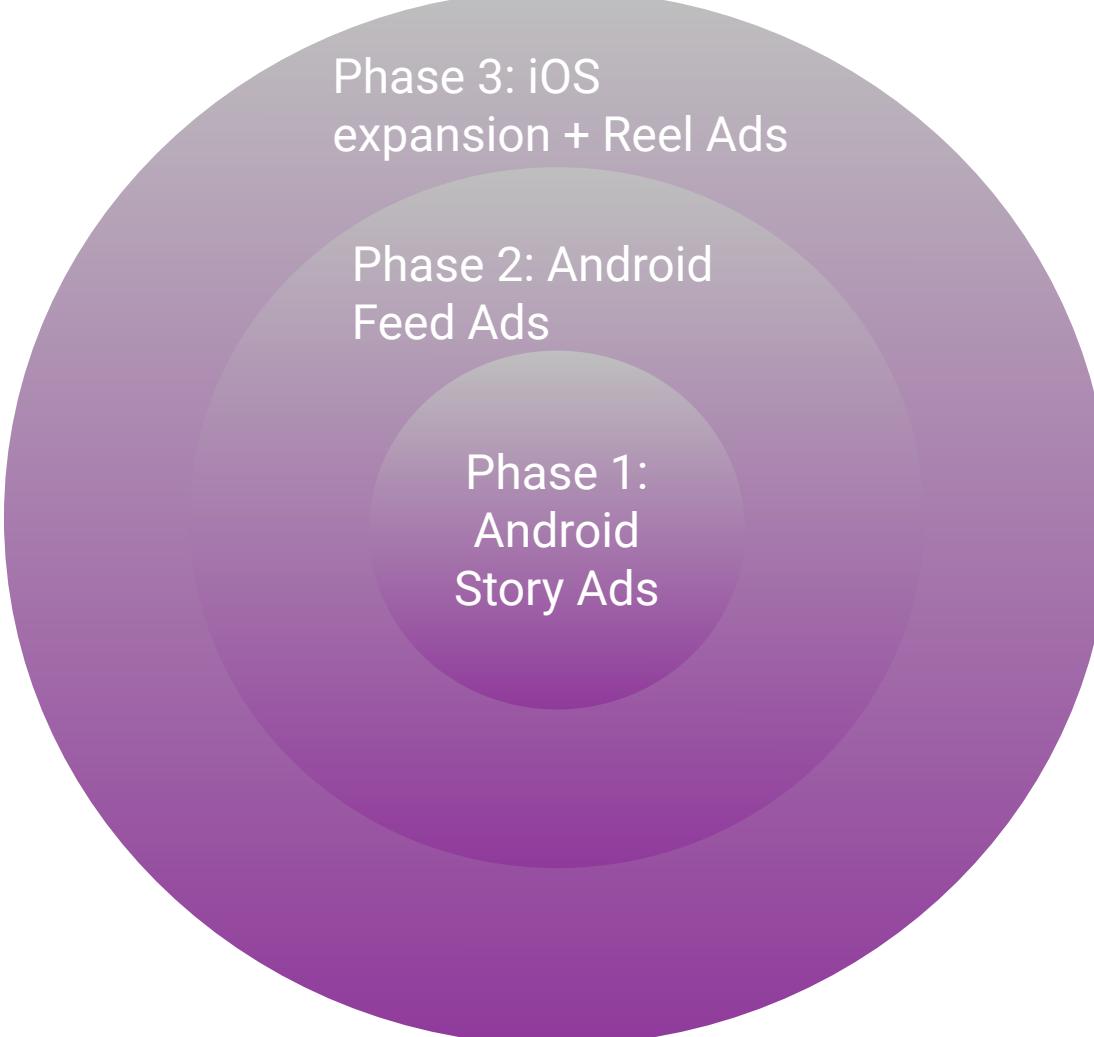


The implementation was
extremely simple. The GUI is
simply backed by hard-coded
JSONs.

Phase 1: Built
by my intern

Phase 2: Built
by my
mentee's
intern

Phase 3: Built
by iOS intern
and FTE
mentees



Phase 3: iOS
expansion + Reel Ads

Phase 2: Android
Feed Ads

Phase 1:
Android
Story Ads

Ad ID Injector

✗ Requires writing a query

✗ Cannot be done by non-engineers

✗ Very prone to breaking as it
stresses end-to-end flow

✗ Needs your computer

On Device Ad Picker

✓ Only requires the ability to read

✓ Can be used by non-engineers

✓ Rarely breaks as it's front-end only by
mocking the API response

✓ Purely on-device

Learnings



- 1 Where there's pain, there's opportunity
- 2 Don't always wait for permission - Just build it
- 3 Simple solutions can have great impact
- 4 Momentum is infectious
- 5 Work through others

Instagram Ads Survey Cleanup Workstream



Survey

How satisfied or dissatisfied are you with the ads you see on Instagram?

Very satisfied

Somewhat satisfied

Neither satisfied nor dissatisfied

Somewhat dissatisfied

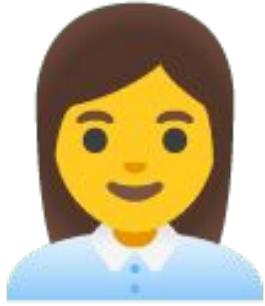
Very dissatisfied

Continue

Situation: Instagram runs a very rare (but important) survey to gauge ads quality. It is owned by an ads quality team which is mostly ML and back-end engineers.

Problem: Without proper mobile ownership, the survey sucked and had tons of bugs.





Alex's Manager

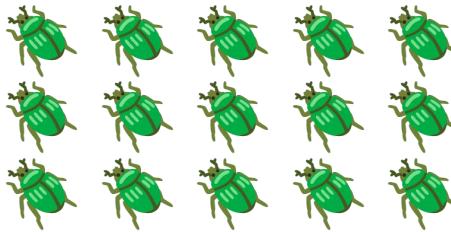
“Alex, go add this new ads format to be judged in the ads quality survey.”



“Alright, stepping through a minefield is always fun.”



Alex Thoroughly
Testing The Ads
Quality Survey



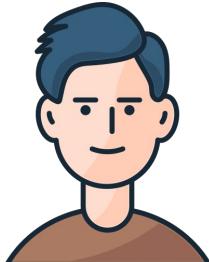
“I need to organize these bugs into a spreadsheet. From there, we can create a workstream, and I’ll leverage mentee minions to get them fixed.”



Alex Analyzing The Bugs



Story Ad Background
Color Stripped Away



“This is a SEV2 that has cost us
\$500,000+ in lost revenue from
incorrect ads quality signal.”

Senior MLE (Ads Ranking)

Learnings



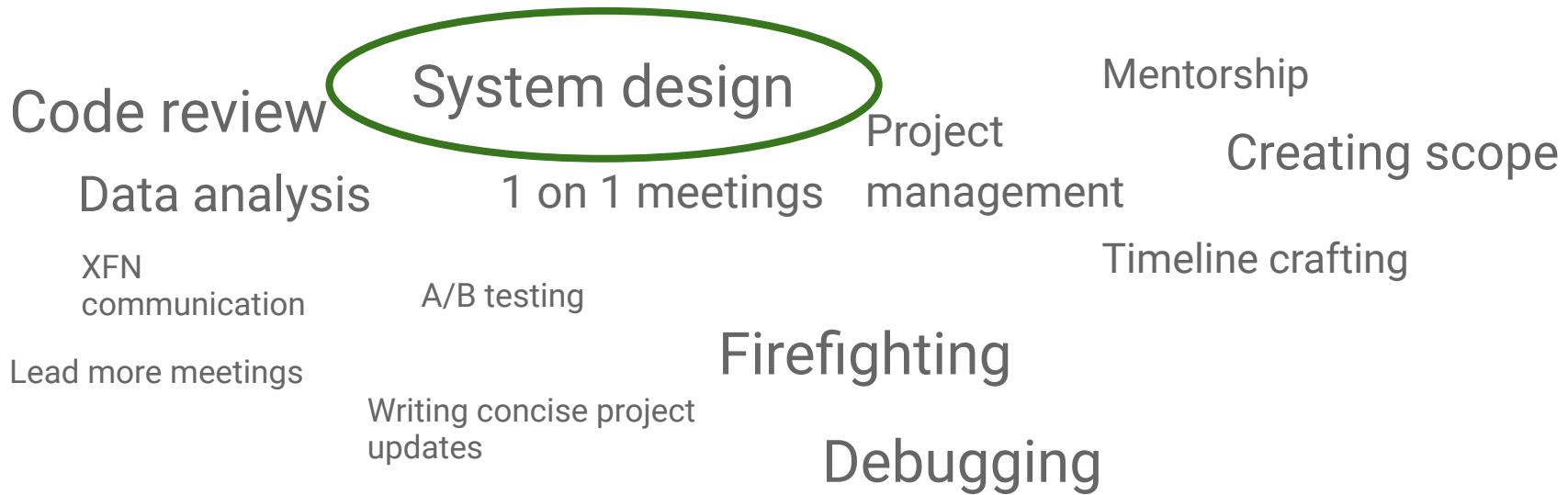
- 1 Bugs are an excellent source of scope
- 2 Be curious: Dig deeper and do the right thing
- 3 Bundle small issues into a broader workstream
- 4 Figure out the impact
- 5 Work through others

Conclusion

Plot Your Growth Journey



Becoming Senior Requires Tons Of New Skills



**Don't get overwhelmed. Pick 1,
improve it, move on. Repeat.** 💪

L4

SWE III

Engineering Excellence

L4.5

SWE III

- Stellar code quality (standard-setting PRs) 
- Expansive, in-depth code review 
- Thorough system design 
- Efficient debugging of gnarly bugs 
- Larger firefighting presence 

L4.5

SWE III

People, Direction

L5

Senior SWE

- Sharpened product sense and presence in roadmapping 
- Project management 
- XFN communication 
- Mentoring other engineers 
- Process optimization 



Mentorship, Leading
Meetings, Aligning XFN,
Defining System Design,
Cross-Team Firefighting

Your Ultra-Strong Technical
Foundation 

Go Deeper: Follow Through

A photograph of a dirt road curving through a lush, green forest. The trees are dense with various shades of green leaves. A small, semi-transparent black rectangular box is positioned in the center-left of the image, containing a motivational quote.

THERE'S A
LONG ROAD
AHEAD OF US.

WE'D BEST
START
WALKING.

Work backwards and plan things out.

See opportunities, not limitations.

Connect people and uplift them.

The buck stops with you.

Only need 1 sentence.



Professor Alex's Homework For You

- ❑ Work with your manager to create a growth plan
- ❑ Start writing system design docs for your projects
- ❑ Publish extremely high quality pull requests
- ❑ Review 2 commits for every 1 commit you write
- ❑ Set up 1 on 1s with people outside your domain
- ❑ Take related courses to build up skills
- ❑ Join outside SEV meetings

Title

What does a good senior project look like?

Body

Add more details - the more information you share, the better the community can help you!





Effective Communication For Engineers

NAIL YOUR PROMOTION
AS A SOFTWARE ENGINEER

A course by:
ALEX CHIOU



Frontend System Design Masterclass - Building Playlists



Managing Up: Build Effective Relationships With Your Boss

Group Office Hours With Alex - Get Personalized Career Advice Privately

OFFICE HOURS
with
ALEX CHIOU

Event details

Monday, April 29, 2024 9:30am PDT to
Monday, April 29, 2024 10:30am PDT

[Add to Google Calendar](#)

[Add to Apple Calendar](#)

[Add to Outlook Calendar](#)

Taro Premium

This event has ended



22 people attended

thank you

