CS50 for MBAs

Recruiting Software Engineers

A Look Back

- Computational Thinking
- Programming Languages
- Algorithms, Data Structures
- Internet Technologies
- Web Design
- Cloud Computing
- Privacy, Security
- Database Design
- Web Programming
- Mobile Strategies

Recurring Themes

- Tradeoffs
- Abstraction

This Time

Recruiting Software Engineers

- Conceptual overview of technical roles in software development
- Best practices for finding and hiring great technical engineers

45%

“Time I spend recruiting”

–Dustin Moskovitz, Co-Founder of Asana & Co-Founder of Facebook

- The best way to get started is to focus on getting your first technical hire or co-founder

- Full-Stack Engineer
- Front-End Engineer
- Back-End Engineer
- iOS Engineer
- Android Engineer
- DevOps Engineer
- Database Administrator
- Cloud Computing Engineer
- QA Engineer
- Data Scientist
- Machine Learning Engineer
- UX Designer
- UI Designer
- VR Developer
- …

Airbnb, Inc. [US] https://www.airbnb.com/careers/departments/engineering

Welcome | Departments | Locations | Engineers | University

Open Positions

Position	Location
China Performance Marketing Lead	Beijing, China
Data Visualization Engineer	San Francisco, United States
Engineering Manager	San Francisco, United States
Engineering Manager, Analytics Products	San Francisco, United States
Leader, Engineering Operations	San Francisco, United States
Security CSIRT Analyst	San Francisco, United States
Security CSIRT Engineer	San Francisco, United States
Security Engineering Manager	San Francisco, United States
Software Engineer	Portland, United States
Software Engineer (Seattle)	Seattle, United States
Software Engineer - Frontend (Portland)	Portland, United States
Software Engineer, Android	San Francisco, United States
Software Engineer, Android (China)	Beijing, China
Software Engineer, Booking Experience	San Francisco, United States
Software Engineer, Business Travel	San Francisco, United States
Software Engineer, Cities	San Francisco, United States
Software Engineer, Data Engineering	San Francisco, United States

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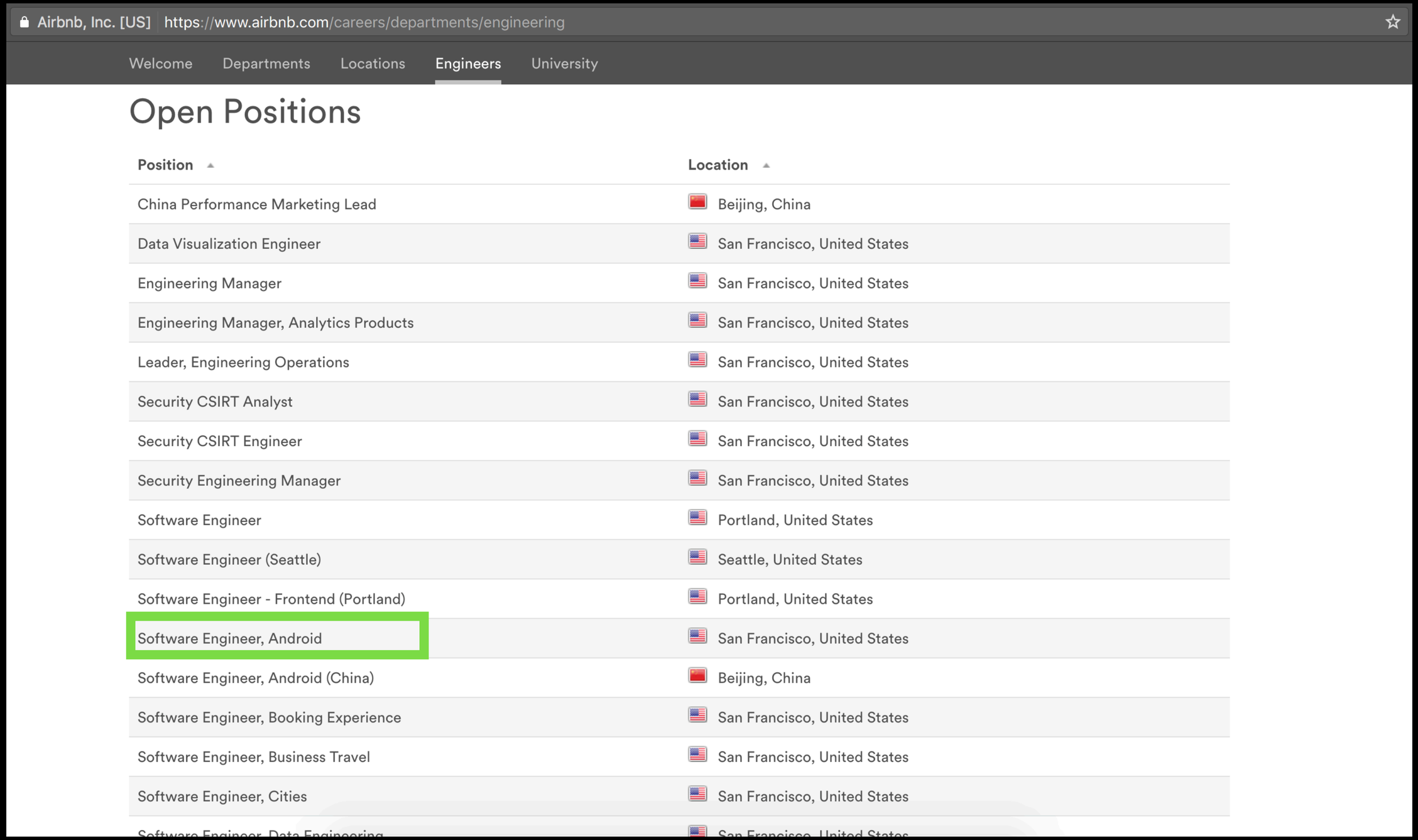
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- Bash
- C
- C++
- C#
- Clojure
- Erlang
- F#
- Go
- Haskell
- Java
- JavaScript
- Objective-C
- OCaml
- PHP
- Python
- R
- Ruby
- Scala
- Scheme
- SQL
- Swift
- …

June 2, 2014

Apple Launches Swift, A New Programming Language For Writing iOS And OS X Apps

*Posted Jun 2, 2014 by **Frederic Lardinois** (@fredericl)*

At its WWDC developer event today, Apple surprised all of the developers in the audience by launching a new programming language called Swift. This new language seems to be poised to replace Objective-C as the main programming language on Apple's platforms.

Swift will use the same LLVM compiler and runtime as Apple's Objective-C implementation, so Swift and Objective-C code can live side-by-side in the same application. The language provides access to all of the Cocoa and Cocoa Touch features developers are currently used to from Objective-C.

It should feel familiar to those who are already used to Objective-C. Apple says, and is

Crunchbase

Apple

FOUNDED
1976

OVERVIEW
Apple is a multinational corporation that designs, manufactures, and markets mobile communication and media devices, personal computers, portable digital music players, and sells a variety of related software, services, peripherals, networking solutions, and third-party digital content and applications. Apple provides many products and services, including iPhone; iPad; iPod; Mac; Apple TV; a portfolio ...

LOCATION
Cupertino, CA

CATEGORIES
Consumer Electronics, Retail, Hardware, Electronics

WEBSITE
http://www.apple.com

Full profile for Apple

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Get a weekly recap of the biggest tech

April 18, 2017

Facebook announces React Fiber, a rewrite of its React framework

Posted 10 hours ago by ***Frederic Lardinois*** *(@fredericl)*

Facebook has completely rewritten React, its popular JavaScript library for building user interfaces. The company hasn't previously talked much about React Fiber, as the project is called, but it has actually been working on it for a while. It's now ready to talk about this project publicly in more detail (after word about it started spreading last year) and the plan is to put this rewrite into the hands of developers once React 16.0 launches later this year. It's already in use on Facebook.com today, which clearly indicates that Facebook itself thinks it's ready for prime time.

Crunchbase

React –

DESCRIPTION
React is a JavaScript library for creating user interfaces by Facebook and Instagram.

WEBSITE
https://code.facebook.com/projects/176988925806765/

Full profile for React

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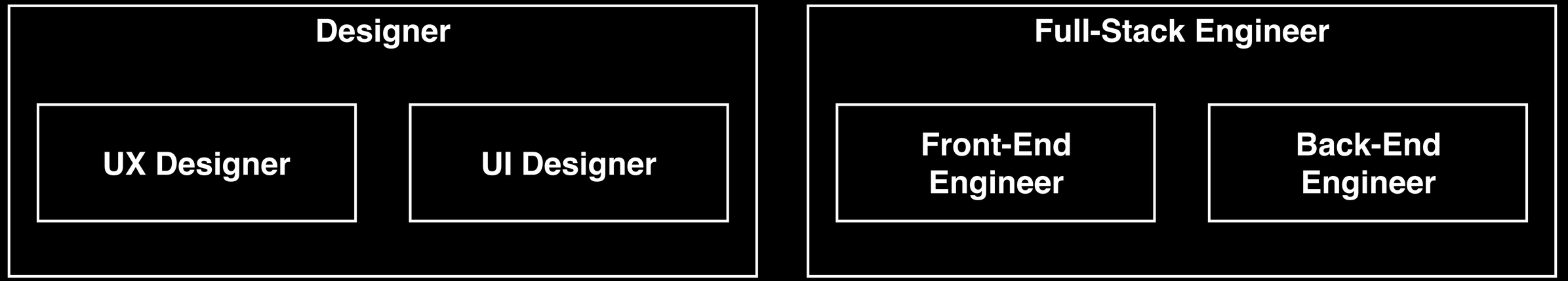
- ability to learn fast is critical
- strong generalist engineers
- culture fit just as important as current skills

Designer

Full-Stack Engineer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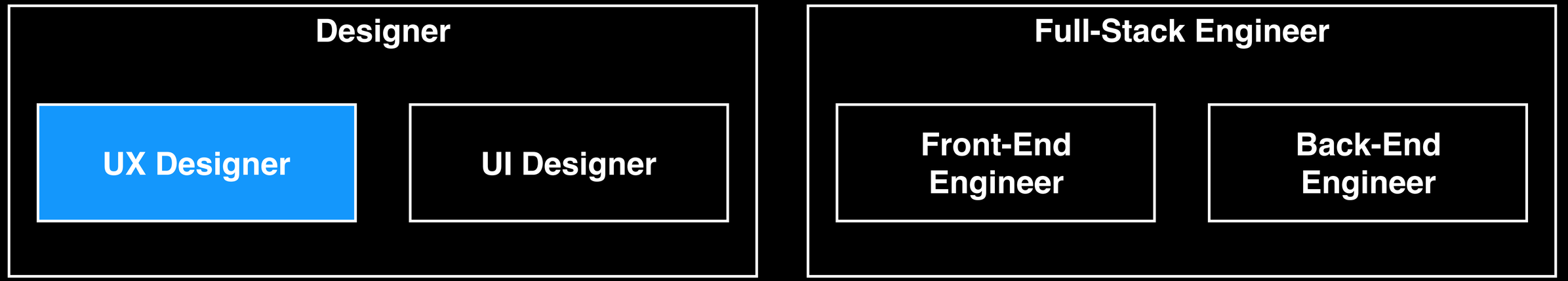
Full-Stack Engineer
Front-End Engineer
Back-End Engineer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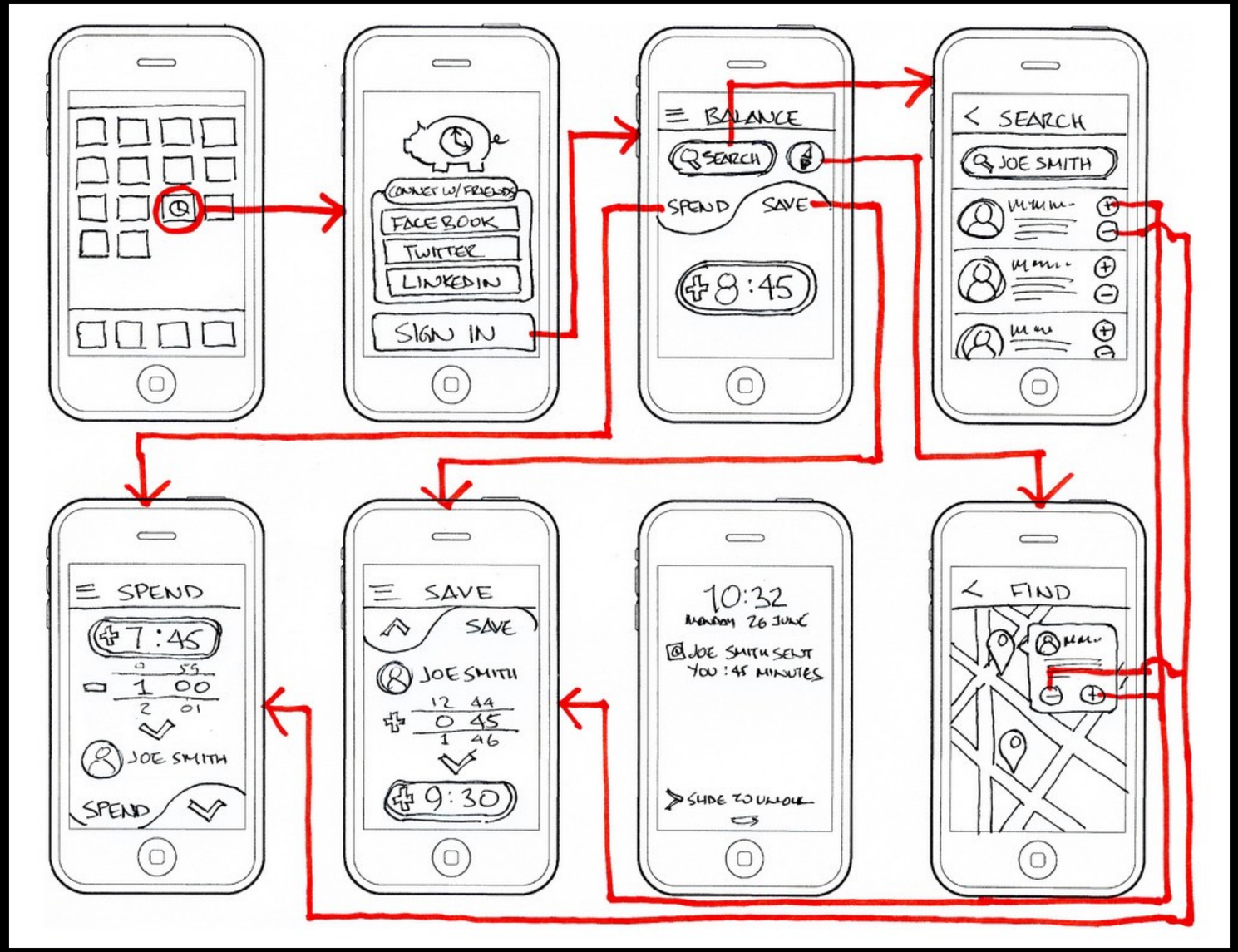
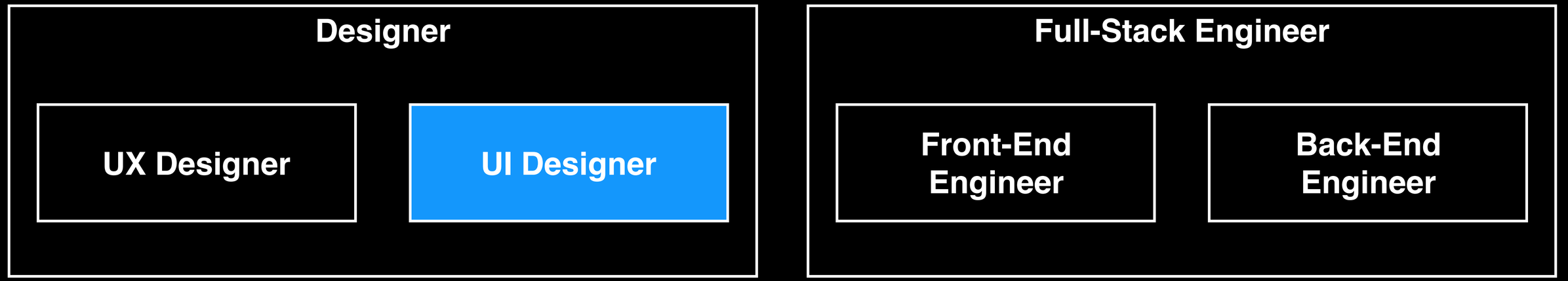


appfutura.com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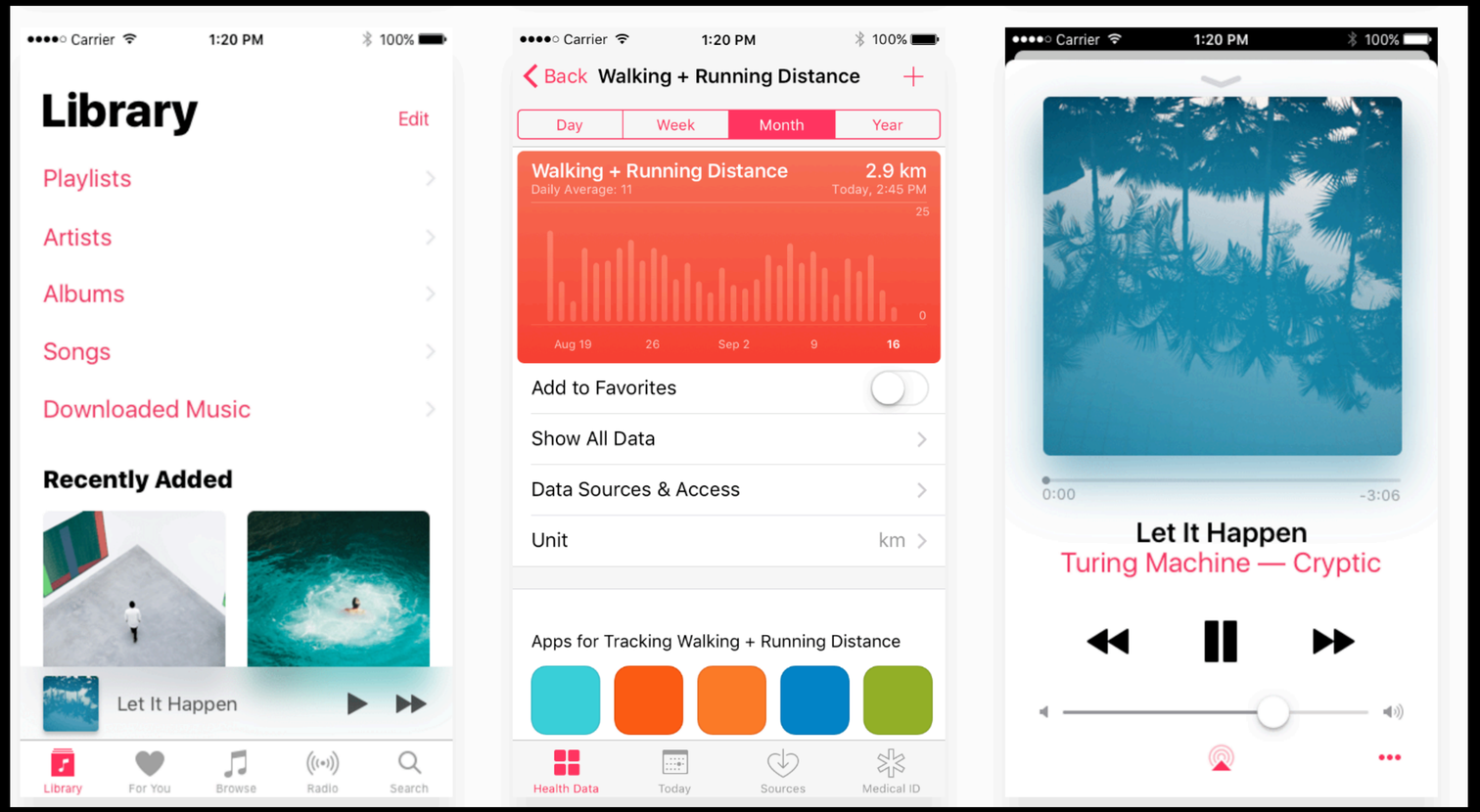
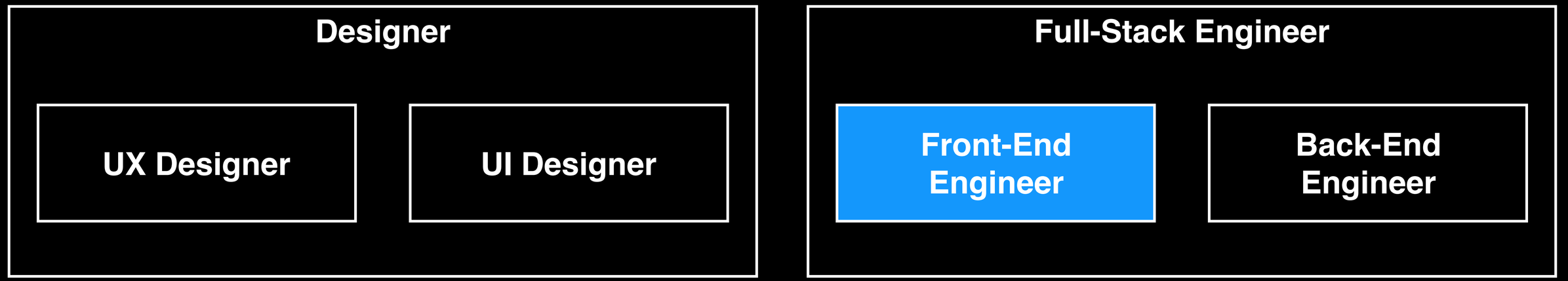


facebook.design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UI Designer
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Front-End Engineer
Back-End Engineer

- “Writes code that runs on the client.”
- HTML, CSS, JavaScript
- Can use frameworks like Bootstrap, Foundation

CS50 IDE
File Edit Find View Go Window
Share
stripe.html
Collaborate
Outline
Debugger
workspace/
~/workspace/ $
MacBook
Chrome File Edit View History Bookmarks People Window Help
Stripe, Inc [US] https://stripe.com
stripe
Products
Developers
Company
Support
Sign in
NEW! Updates to Atlas: The best way to start an internet business, now open to U.S. founders.
The new standard in online payments
Stripe is the best software platform for running an internet business. We handle billions of dollars every year for forward-thinking businesses around the world.
EXPLORE THE STACK
CREATE ACCOUNT
slack
WARBY PARKER
MacBook
T-Mobile LTE 11:55 AM
Stripe, Inc
stripe
NEW Updates to Atlas: The best way to start an internet business, now open to U.S. founders.
The new standard in online payments
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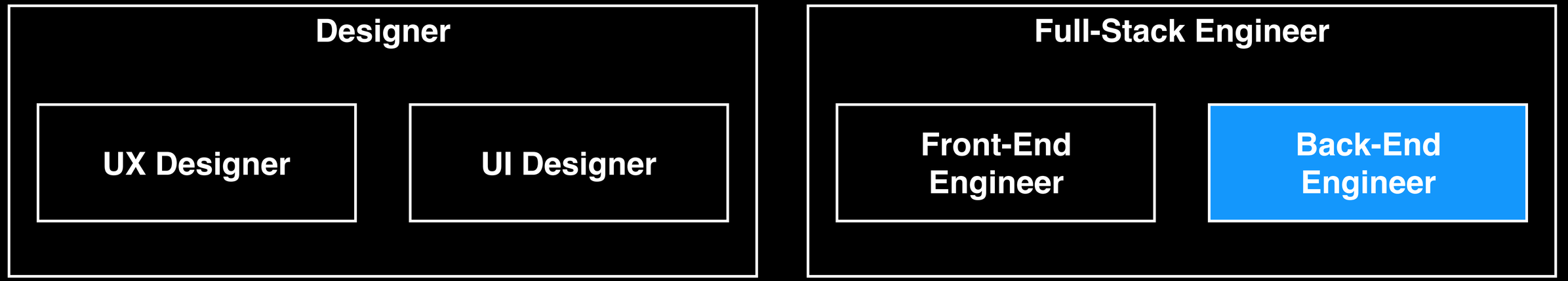
EXPLORE THE STACK


Designer
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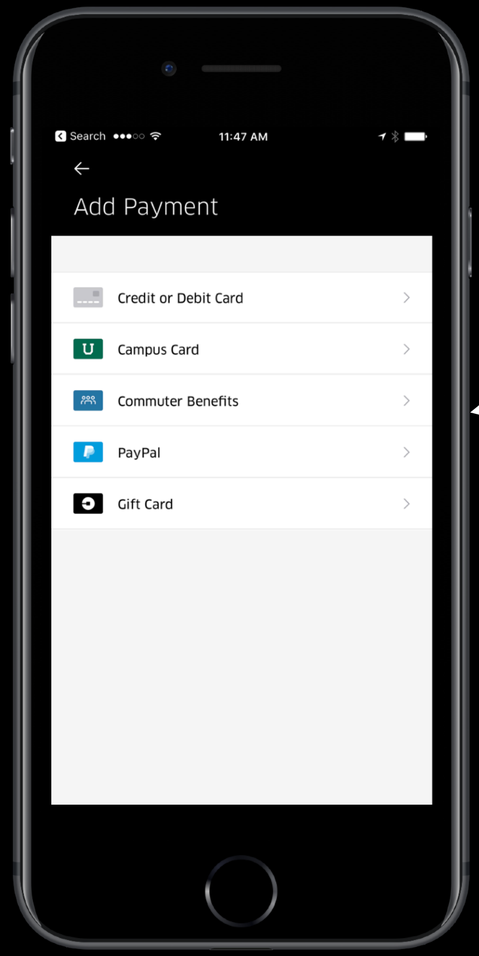
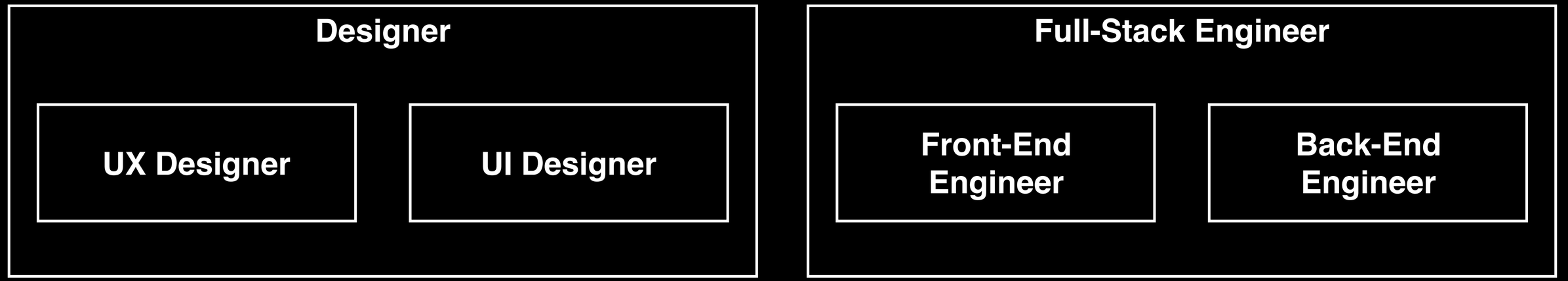
UI Designer
Full-Stack Engineer
Front-End Engineer
Back-End Engineer

- “Writes code that runs on the server.”
- Python, Ruby, JavaScript (+Node js), Java, PHP, SQL
- Django, Ruby on Rails
- APIs
- Databases
- Servers



{ Payments API }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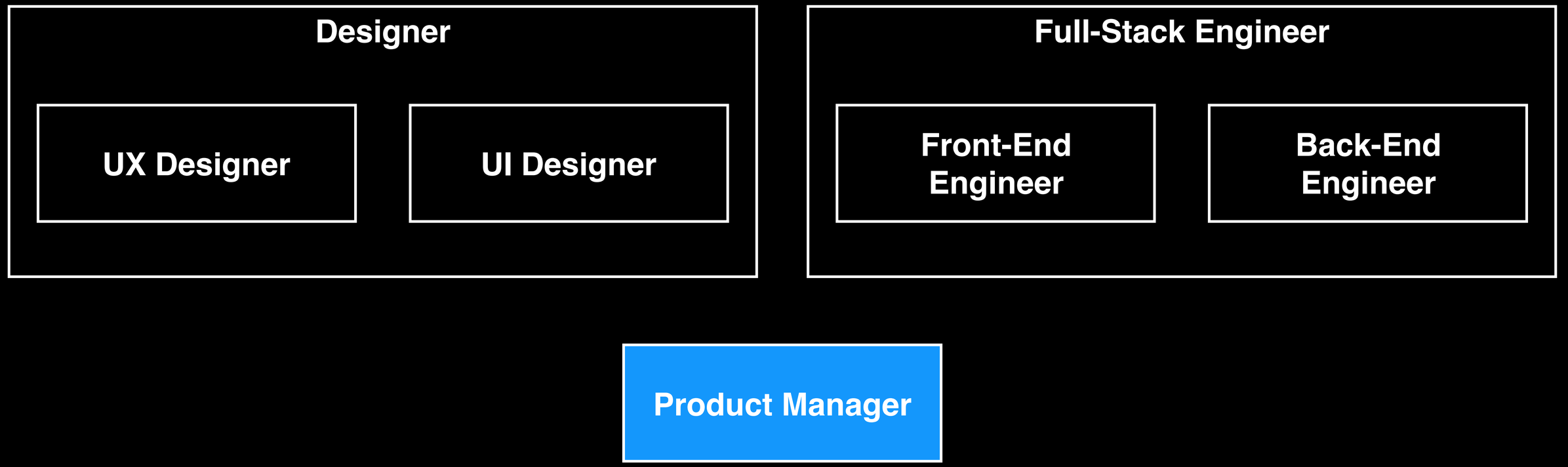
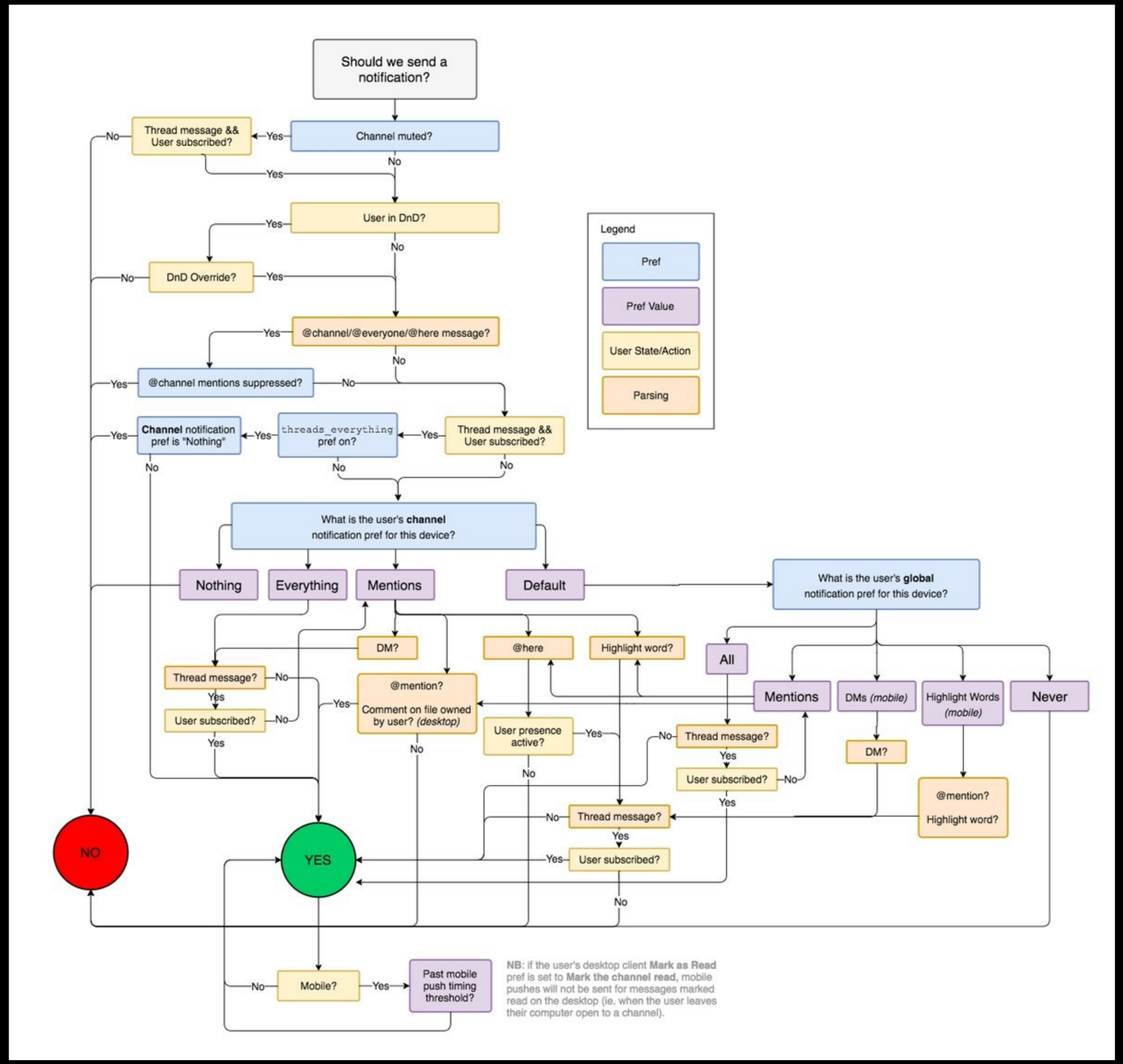
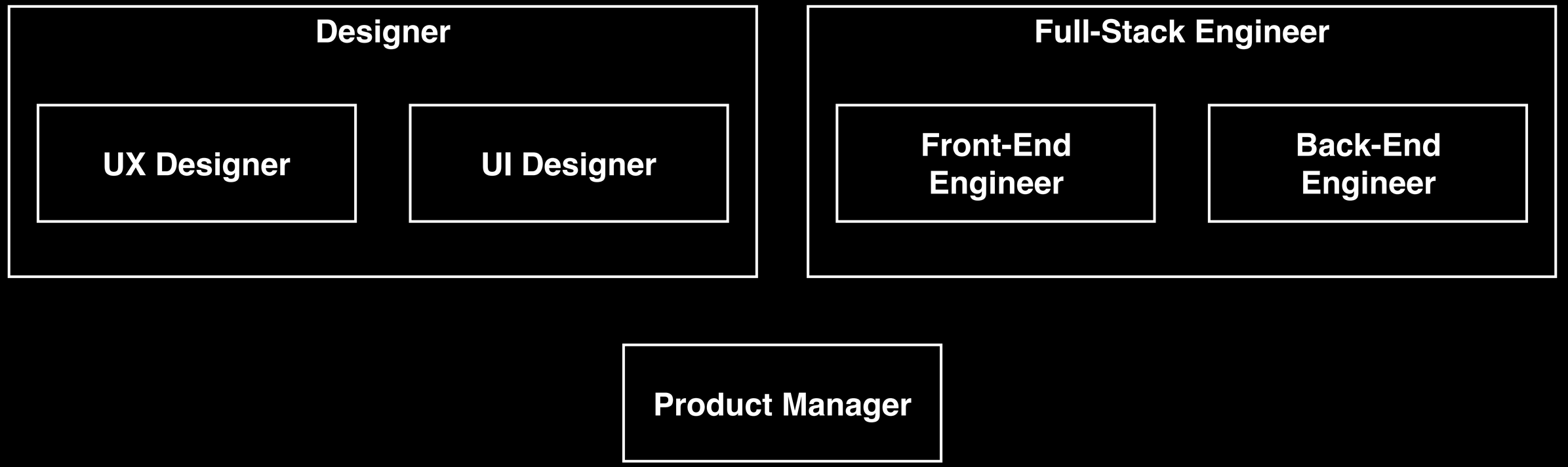

Designer
UX Designer
UI Designer
Full-Stack Engineer
Front-End Engineer
Back-End Engineer
Product Manager

- What features should we build?
- Customer feedback
- Business logic


Should we send a notification?
Channel muted?
Yes
No
Thread message && User subscribed?
Yes
No
User in DnD?
Yes
No
DnD Override?
Yes
No
@channel/@everyone/@here message?
Yes
No
@channel mentions suppressed?
Yes
No
Thread message && User subscribed?
Yes
No
threads_everything pref on?
Yes
No
Channel notification pref is "Nothing"
Yes
No
What is the user's channel notification pref for this device?
Nothing
Everything
Mentions
Default
DM?
Thread message?
Yes
No
User subscribed?
Yes
No
@mention? Comment on file owned by user? (desktop)
Yes
No
@here
Highlight word?
User presence active?
Yes
No
Thread message?
Yes
No
User subscribed?
Yes
No
Thread message?
Yes
No
User subscribed?
Yes
No
NO
YES
Mobile?
No
Yes
Past mobile push timing threshold?
What is the user's global notification pref for this device?
All
Mentions
DMs (mobile)
Highlight Words (mobile)
Never
DM?
@mention? Highlight word?
Legend
Pref
Pref Value
User State/Action
Parsing
NB: if the user's desktop client Mark as Read pref is set to Mark the channel read, mobile pushes will not be sent for messages marked read on the desktop (ie. when the user leaves their computer open to a channel).

slack.com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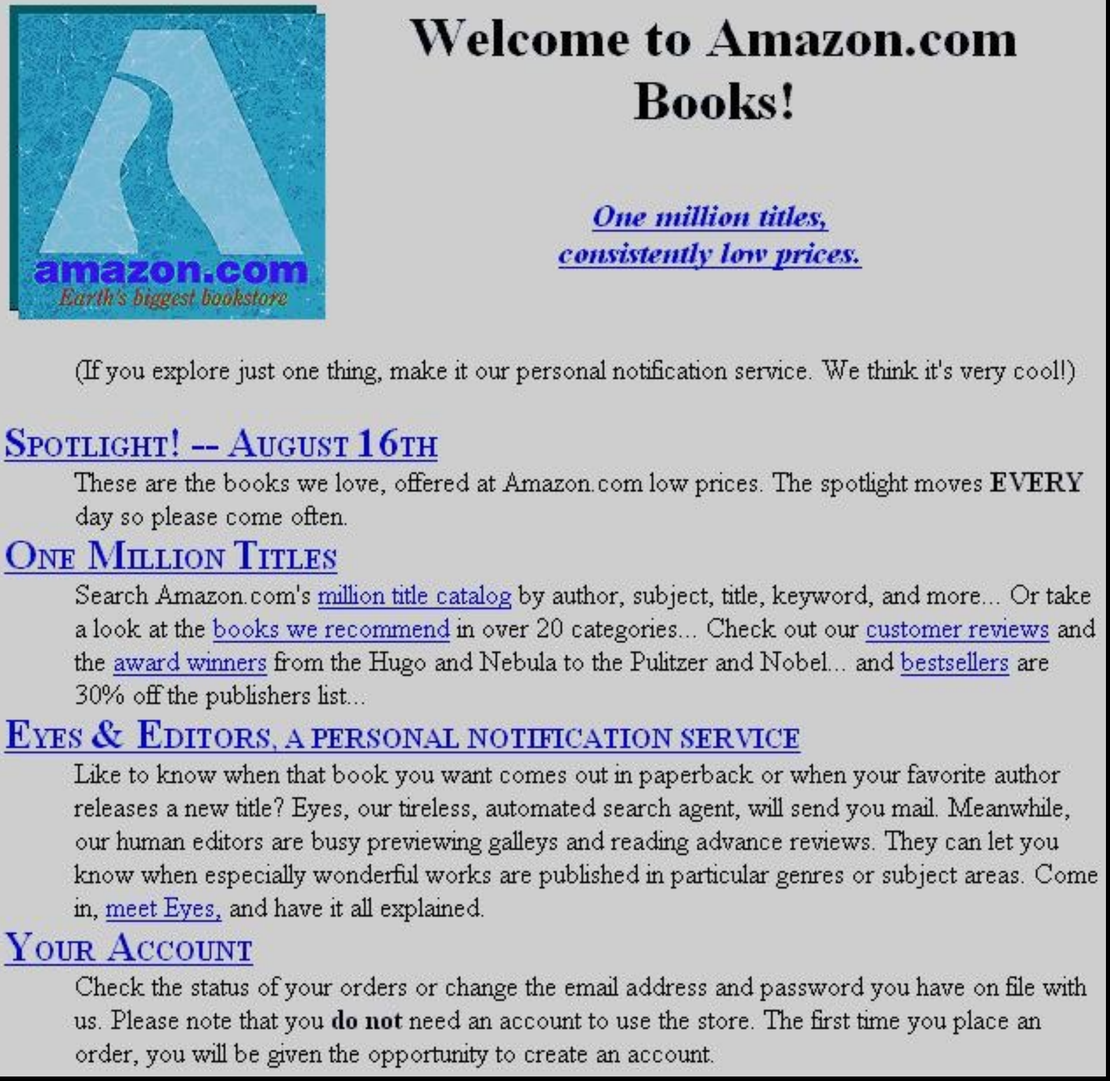
Product Manager

- What about other roles, like iOS Engineers, Android Engineers, Data Scientists?
- Do I need to hire all these roles to get started?

1999



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2004

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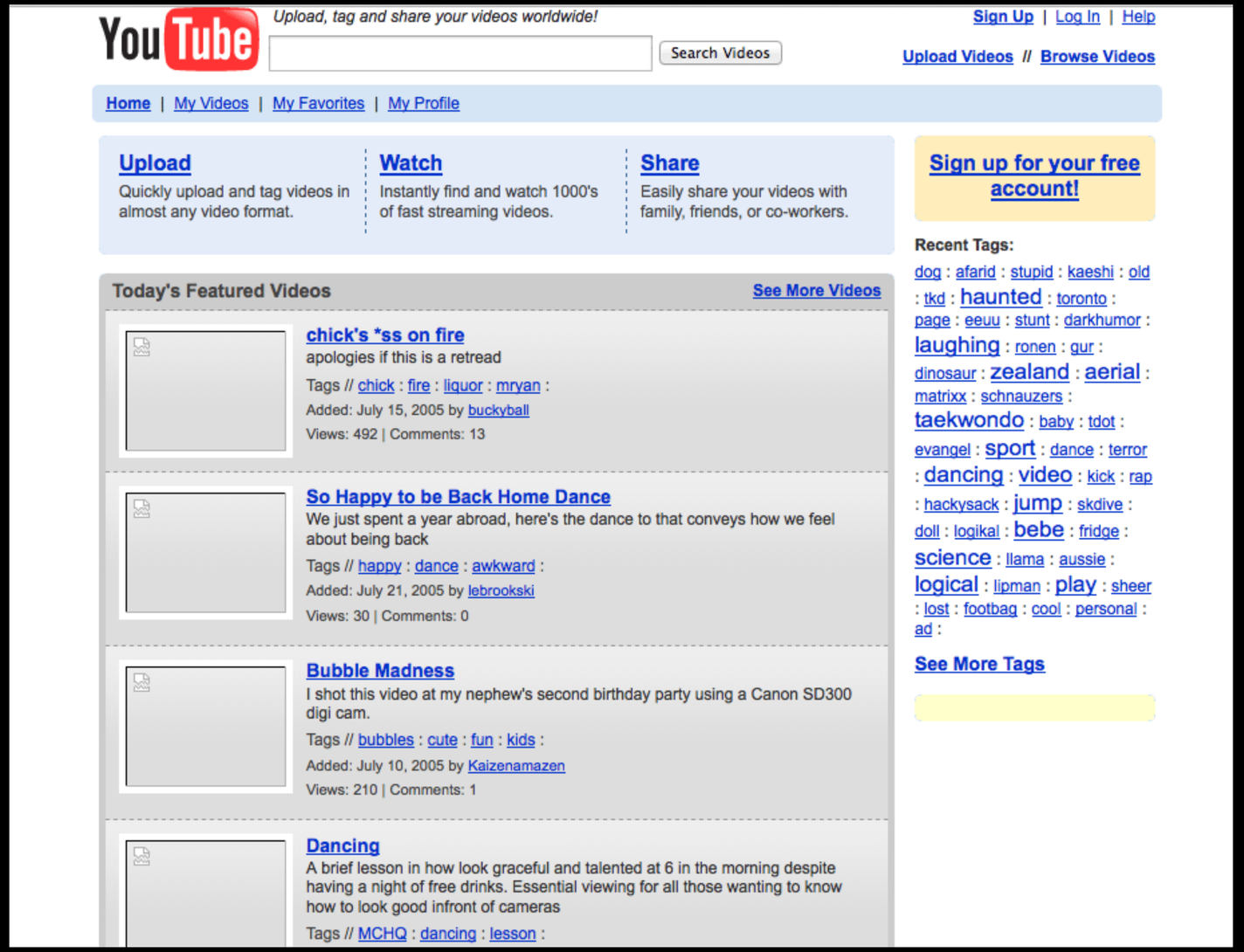
2005



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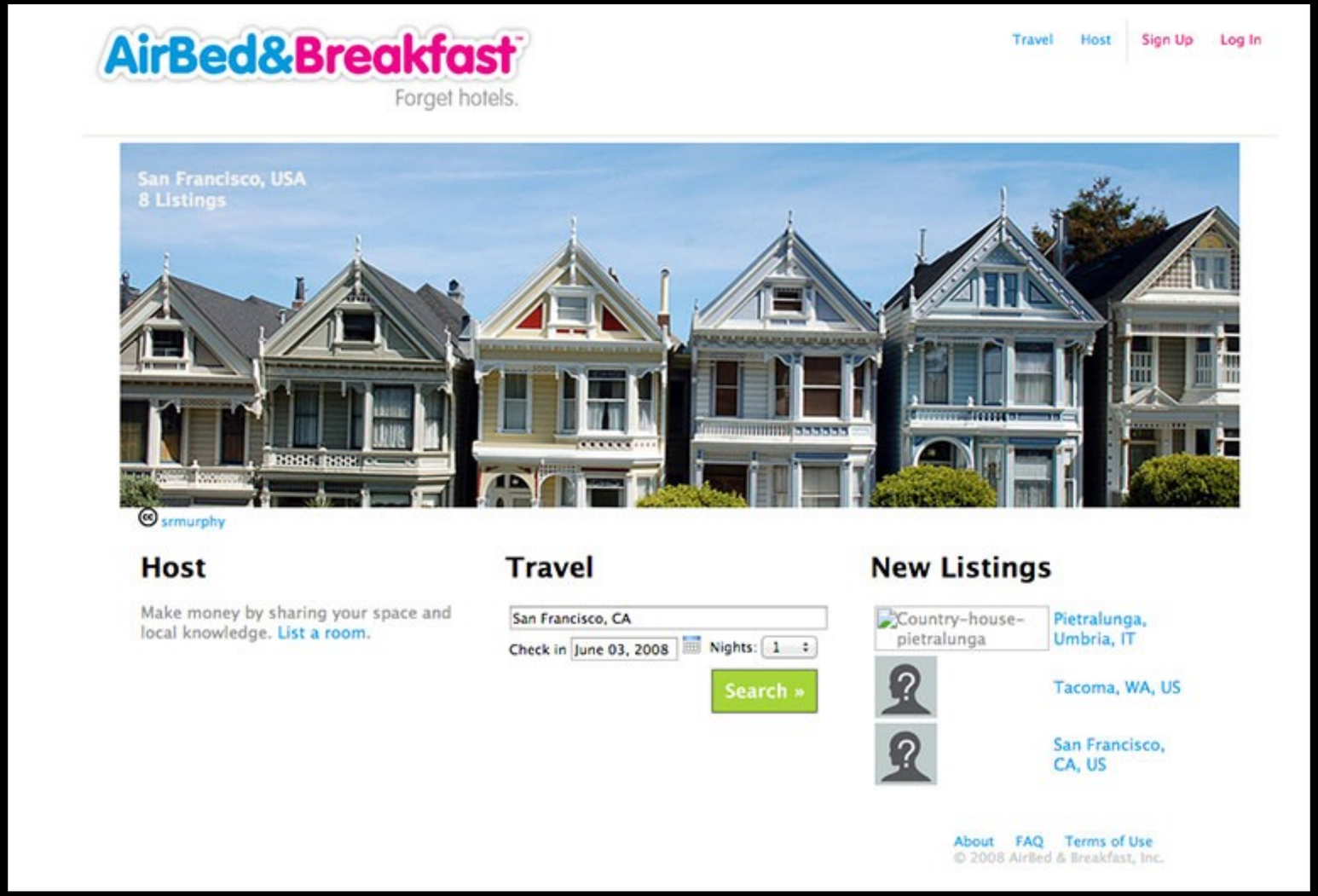

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2010

ubercab

One Click Car Service

Username: Password: Login

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- Where do I want my customers to interact with my product? (web app, native iOS, native Android, hybrid app)
- How much time & effort is needed to build the product in each platform? (web < native)
- What technical people do I have in my team? What are they comfortable with?
- Is there existing software or infrastructure I can pay for to get started?

Stripe (company) Ruby (programming language) Parenting

Why did Stripe choose to use Ruby for its backend language?

Answer Request Follow 89 Comment Share 2 Downvote

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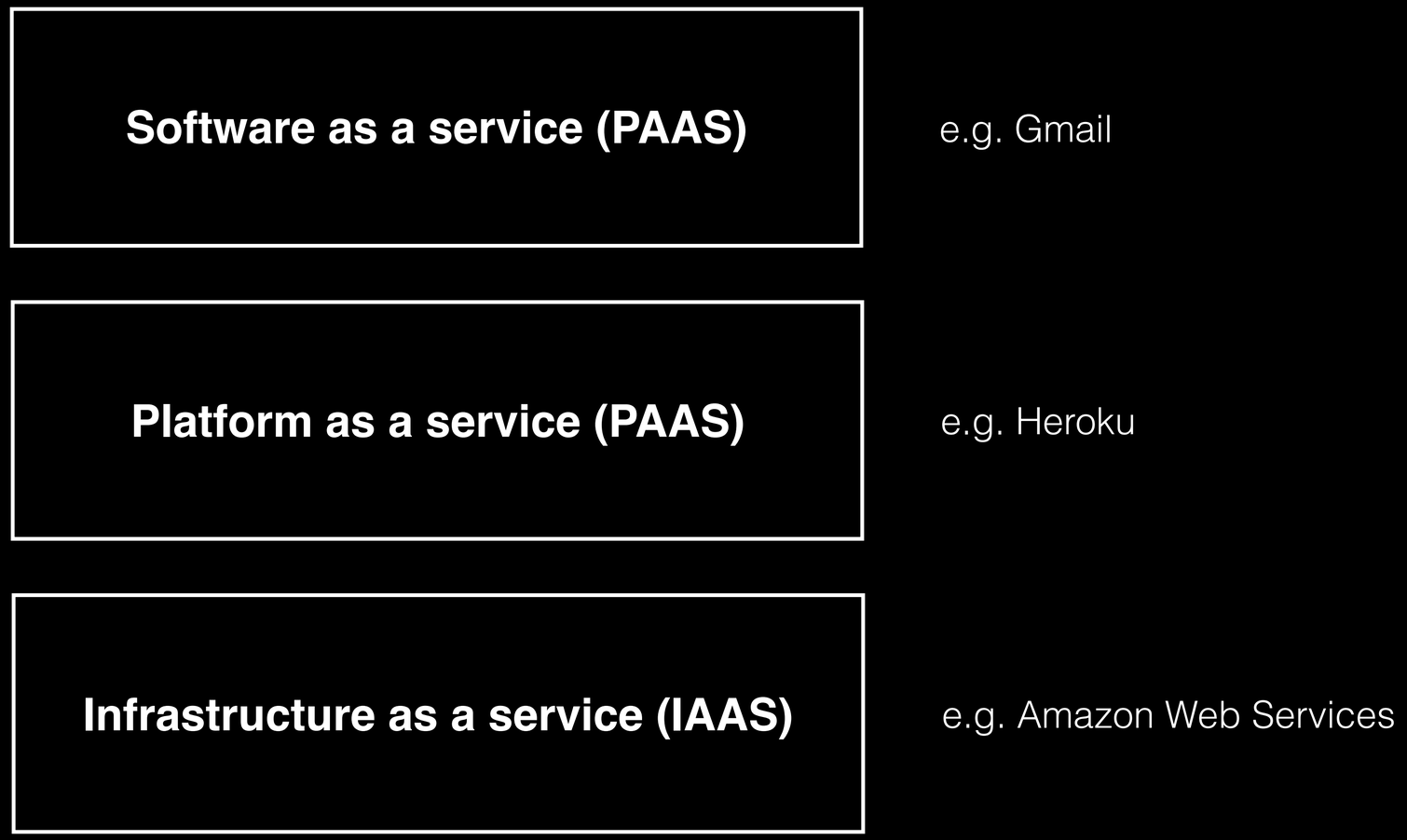
1 Answer

Patrick Collison, works at Stripe
Updated Jun 8, 2016 · Upvoted by John Collison, works at Stripe and Robert Cezar Matei, was CTO of a Ruby-based startup

Ruby is a pretty good general-purpose language. It's reasonably powerful, it has a large community, there are lots of actively-maintained libraries, and it's sufficiently widely deployed that you're unlikely to hit big, unexpected problems. When we were starting out, John and I also already happened to know it pretty well. We chose it because it was a sane default.

Picking Python would probably have worked out equivalently well. Between the Ruby and Python, each is a little better in some areas, but the differences between them are fairly slight.

quora.com


Software as a service (PAAS)
e.g. Gmail
Platform as a service (PAAS)
e.g. Heroku
Infrastructure as a service (IAAS)
e.g. Amazon Web Services

- Full-stack, front end, back end, designers, mobile native
- Strong generalist engineers
- Focus on getting the first hires / technical co-founder
- Get started with the resources available
- Use existing software and infrastructure as needed

- Conceptual overview of technical roles in software development
- **How to find and hire great technical engineers**

- Sourcing
  - Personal networks of people who've already worked with you (#1 strategy by far)
  - angel.co, indeed.com, monster.com, …. (be prepared to go through a lot of noise)
  - When asking for introductions, write emails that are easy to forward
  - Go to events where technical people hang out (hackathons, developer conferences, meetups)

- Attention
  - Company is solving an interesting (and hard!) problem
  - Having people say good things about you (press or word of mouth)
  - Tech talks with cool demos

- Do your homework! Don’t spam.

dhh / gist:1285068

Created 6 years ago

Star 104 | Fork 5

Code | Revisions 1 | Stars 104 | Forks 5

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gistfile1.txt — Raw

```
1  Hi David,
2  I came across your profile online and wanted to reach out about Development
3  Opportunities here at Groupon. The company is growing, and we're always
4  looking for folks with solid skills that can make positive contribution to
5  our continued success. Any chance you'd be open to a quick conversation
6  about opportunities, or for any possible networking potential? If so, let me
7  know when you're free and we can set up a time to chat. Also, if you are
8  interested, it would be great if you could forward a current resume over
9  that I can take a look at. I look forward to hearing back from you! Please
10 let me know if you have any questions.
11 Cheers,
12 <Yet Another Clueless Tech Recruiter>
```

- Remote is an option
- People willing to relocate
- Freelance versus full-time

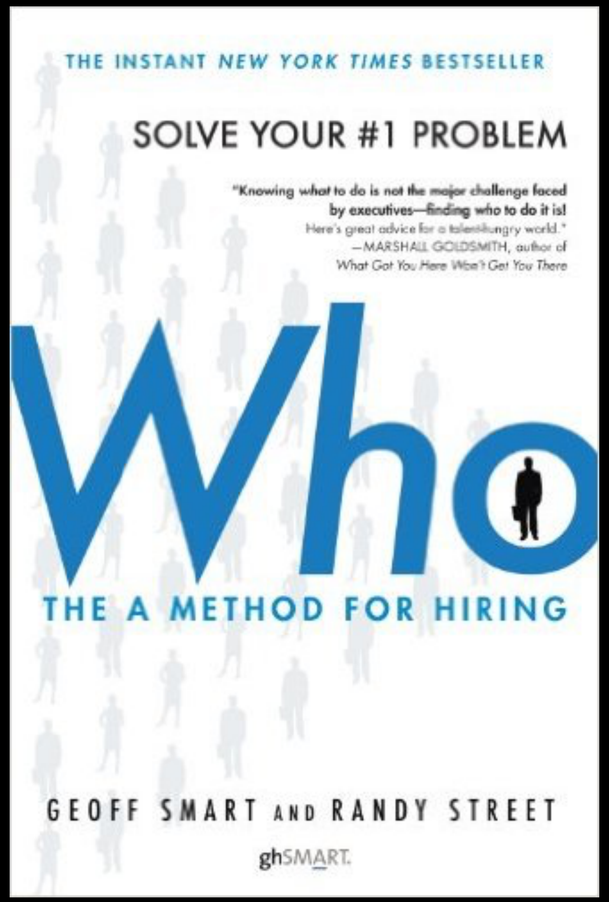
- Spend more time on it
- Audition for roles
- Hire people you like
- Have a set of cultural values
- Don’t compromise
- Be generous (equity over comp)
- Always be recruiting
- Fire fast
- Don’t hire if you don’t need to

Sourcing Resources

- Full-time
  - Referrals from your network! ***
  - angel.co **
  - indeed.com *
  - monster.com *
- Freelance
  - toptal.com **
  - upwork.com *

- Harvard
  - Email Prof. David Malan
  - HSA Dev
  - Computer science mailing lists
  - Attend technical events

Suggested Reading



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- https://www.quora.com/What-are-the-best-methods-for-recruiting-software-engineers-today
- https://www.quora.com/Why-did-Stripe-choose-to-use-Ruby-for-its-backend-language
- https://blog.bufferapp.com/the-humble-beginnings-of-google-tumblr-youtube-and-more-and-what-they-can-teach-us-about-starting-small
- https://thehustle.co/proof-that-your-favorite-startup-started-out-awful
- https://labs.spotify.com/2014/03/27/spotify-engineering-culture-part-1/
- https://labs.spotify.com/2014/03/27/spotify-engineering-culture-part-2/

Recruiting Software Engineers

Christian Saravia
christian@cs50.harvard.edu