What I wish I knew in comp 20

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Josie Barth

Hi! I'm Josie Barth



I took comp20 fall 2016
Graduated from Tufts in 2018
Software Engineer at HubSpot
Big Data Infrastructure team

Overview

- A little about HubSpot & what I do there
- Journey from comp20 to first internship/full time job
- How Tufts prepares you for industry
- How Tufts doesn't prepare you for industry
- How to fill in those gaps
- Finding the right job for you

What does HubSpot do?

Mission statement: Help millions of organizations grow better

How: Build software and systems to empower small to medium-sized businesses

Secret sauce: Inbound methodology



NOT SURE IF



Inbound in practice









- Q what dishwasher has
- Q what dishwasher has Google Search
- what dishwasher has the best ratings
- what dishwasher has the shortest wash cycle
- Q what dishwasher has the best reviews
- what dishwasher has the best warranty
- what dishwasher has the least repairs



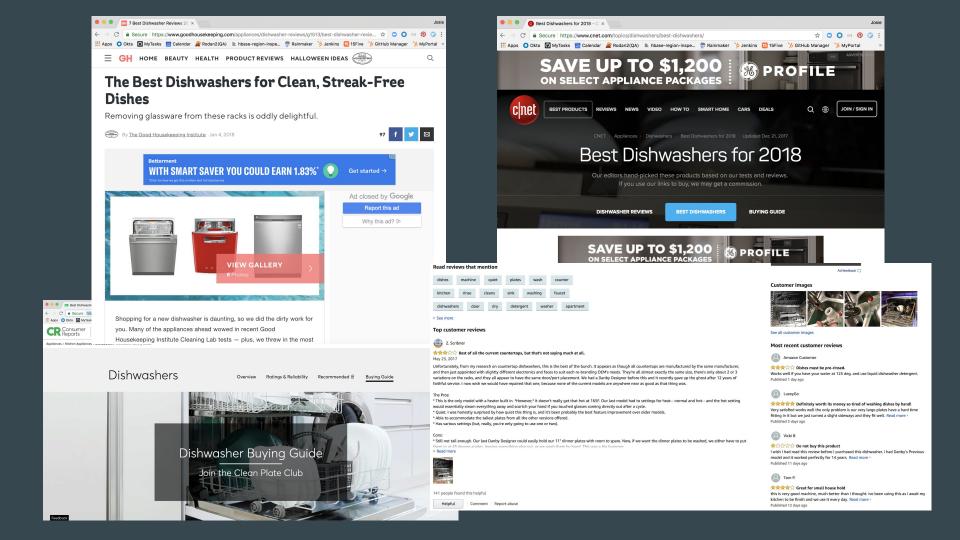
er is

ier is - Google Search

er is the best

- what dishwasher is the quietest
- what dishwasher is best for hard water
- what dishwasher is made in the usa
- Q what dishwasher is best for me





Back to HubSpot

HubSpot builds tools to help people market and sell the way consumers want to shop and buy. These tools include:

- Blogging
- Social Media
- Email
- Analytics
- Workflows and automation
- Contact management
- Reporting
- Chat
- The list goes on....

Where does my role fit into the picture

- Database Infrastructure
- Build tooling, automation, and monitoring for HubSpot's datastores
- Work with Apache open-source solutions for databases and data processing
 - HBase, Spark, and Hadoop
- Skillset: database knowledge, working with distributed systems, learning from a larger open-source community

How did I get here: My Tufts CS roadmap

- I had no prior CS experience before college (took comp11 my freshman spring)
- Sophomore fall applied for an internship at a company near my hometown (wasn't a huge reach, but a way to get my foot in the door)
 - Interviewed with: compl1, comp15
 - Interned with: above + comp40
- Junior fall applied to HubSpot for summer internship.
 - Interviewed with: above + comp20, comp105 (programming languages)
 - Interned with: above + comp115 (databases) + comp120 (web engineering) + comp170 (computation theory)
- Accepted a full time offer at HubSpot at the end of my internship
 - Finished with: above + compl11 (operating systems) + compl60 (algorithms)

A note on classes

- No magic set of courses that is going to prepare you perfectly for your first job
- Take classes that are interesting to you
- Don't let the number of courses you've taken limit the opportunities you go after
 - It's okay to not feel ready or totally prepared
 - Trust your ability to learn

How Tufts prepares you for industry

- Learn how to solve large problems (comp40) and complex problems (comp105)
- How to collaborate with others (pair programming) and use resources (office hours, TAs)
- Learn how to learn (your classes are challenging and it's a lot of work, you learn how to adapt)

How Tufts does not prepare you for Industry*

- I would have not passed my coding interview at HubSpot without taking comp20
 - Hit a source API, transform the data according to spec, post your solution to another API
- Very little exposure with solving problems that don't have a clear spec or that aren't fully defined
- How to pick a stack and evaluate trade offs, system design
- How to use 3rd party tools and technologies, read documentation that isn't necessarily complete
- How to google, use stackoverflow, read articles, follow tutorials
- How to fail

*Comp20 is the exception

- Tufts CS courses teach you how to solve hard problems, but comp20 covers the bare minimum to get you started in industry
 - Client/Server relationships
 - Git & GitHub
 - o APIs
 - JavaScript
 - Data persistence
 - Security
- Comp20 teaches you how to think about an entire system, use industry relevant tools, and how to fail (think: group project)
- There is no other professor more dedicated to your success than Ming

Emailing Mike Bayer (creator of Alembic)

Re: Creating a new schema name during migration with Alembic >









Josie Barth josie.barth@gmail.com <u>via</u> googlegroups.com to sqlalchemy-alembic ▼

Thu, Mar 2, 2017, 10:26 AM





One clarifying edit:

Regarding my example table,

```
table args = {u'schema': 'OurHouse'}
```

should not be commented out. I was playing around with the migration and I got it to work when I took out all references to the schema 'OurHouse' that I wanted to attach my tables to. The tables by default migrated to the "public" schema without issue. Further, if I manually added the schema 'OurHouse' to PostgreSQL before attempting to migrate, I was able to then migrate my tables to the schema without issue. My question still remains if it's possible to create a new schema name during migration so the tables can also be created without error. Thanks!

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mike bayer <mike_mp@zzzcomputing.com> to sqlalchemy-alembic ▼

You want to just create the schema, op.execute("CREATE SCHEMA OurHouse")

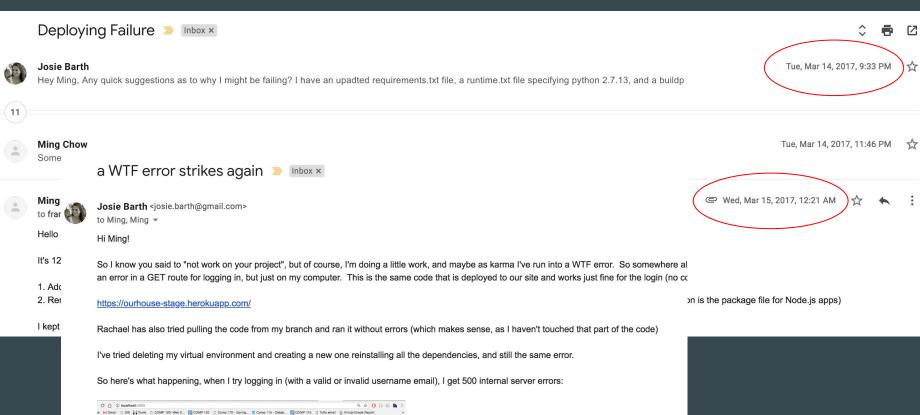
Thu, Mar 2, 2017, 12:35 PM







Build failure emails with Ming at 12am



How to bridge the gap between school and industry

- Take comp20 (you're already here, so check!)
 - Try to convince Ming to teach compl20 too if he isn't;)
- Even if you're a still early in your studies, apply for internships as soon as possible (even if you don't feel ready)
 - It doesn't have to be super flashy, but getting some experience is key, OR
 - Build something for someone else (a website, an app, etc), OR
 - Talk to your professors about research!
- Work on projects in groups

Finding the right job for you

- Things to consider
 - Company size
 - Team structure
 - Growth & Impact
- Tips for applying

Company size

Small

wear lots of hats

(maybe) easier to make an impact

fewer boundaries for new technologies

iterate quickly

fewer people to learn from

Big

more specialization and expertise

(maybe) harder to make an impact

(likely) established infrastructure

deliberate decisions

(possibly) stronger mentorship

Team Structure

The people who you work with day to day will likely have the biggest impact on your experience. Questions to consider:

- Team size?
- What your team owns: End to end? Small parts?
- Mentorship? Resources for learning?
- What is dev process like and how are tasks distributed?
- Moving teams?

Growth and Impact

- Will the skills you gain be useful elsewhere
- What're your career growth paths
 - Individual contributor
 - Tech lead/people management
- How much autonomy do you have over a product
- What impact does that product have

Tips for Applying

After spending 3 days recruiting for HubSpot at Grace Hopper, here are my tips:

- Don't lie on your resume, it will bite you during an interview
 - o If you aren't comfortable answering questions about a technology on your resume, don't include it
- When expressing interest about working at a particular company, be specific as to why that company
 - You will be remembered if you do a little research
- If you have a connection, reach out!
 - Recruiters heavily rely on referrals
 - Engineers are expensive to recruit employees are often given incentive to help with this process

And finally I couldn't end this talk without pitching...

Why HubSpot?

Learn, Grow, Impact













ES6

Awesome People







Thank you! **Questions?**