How to Navigate the Tech Field: A Beginner's Guide

Polina Vorozheykina
Ashley Puls
Elisa Binette
All views are our own.
Agenda

Polina Vorozheykina: How to Join a Software Team

Ashley Puls: Industry Tools and Terminology

Elisa Binette: Demystifying Roles and Titles
How to Join a Software Team

Polina Vorozheykina, Software Engineer at New Relic
Bit of a Background
The First Week
1. Learn to recognise your own critic...
... and make it work for you
2. Calm self doubt
3. Write things down ...
Dagger = ?

Ratpack = ?
3. Write things down ...
... research...
... and ask for context and clarification
4. Seek new challenges
5. Take advantage of your onboarding time
6. Know thy stress response
The Lessons

● Learn to recognise and utilise your inner critic
● Calm self doubt
● Write things down, research and ask for context
● Seek challenges
● Take advantage of your onboarding time
● Know thy stress response
7. Rinse and Repeat ...
Spring = ?

Kafka = ?
7. Rinse and Repeat ...
Questions?
Agenda

- Polina Vorozheykina: How to Join a Software Team
- Ashley Puls: Industry Tools and Terminology
- Elisa Binette: Demystifying Roles and Titles
Industry
Tools and Terminology

Ashley Puls, Principal Engineer at New Relic
Sources for Images

- https://developer.amazon.com/docs/custom-skills/understanding-custom-skills.html
- https://commons.wikimedia.org/wiki/File:Reading-books.jpg
Get your hands dirty
Problem

Who should walk the dogs?
Solution

Family Chore Chooser
Solution

Next Generation Family Chore Chooser
Next Generation Family Chore Chooser

How do I interact with Alexa?
Next Generation Family Chore Chooser

How do I interact with Alexa?

**Application Programming Interface (API):** how software programs interact with each other
Next Generation Family Chore Chooser

How do I interact with Alexa?

Alexa Skills Kit
From Amazon’s Documentation

1. Customer asks a question or gives a command
2. Alexa identifies your skill’s name, analyzes and understands the customer’s request, then send your service a structured representation of the user’s request
3. Your service processes the request and returns a text and graphical response
4a. Alexa converts the returned text to speech and streams it to the device
4b. Your graphical representation (if any) is rendered in the companion app
5a. Customer hears the response from Alexa’s voice
5b. Customer sees a graphical representation in the companion app
From Amazon’s Documentation

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Learn how to learn
Next Generation Family Chore Chooser

What software do I actually need to write?
Next Generation Family Chore Chooser

What software do I actually need to write?

- Web Service
- AWS Lambda
Software Stack

Windows, High Sierra

Dell, Macbook

Operating System

Computer (hardware)
Software Stack

VM acts as its own computer.

Container is lighter and faster but not as isolated.

VM or container management layer

Virtual Machine

Docker Container

Hypervisor / Docker Engine

Operating System

Computer (hardware)
Software Stack

Runs web applications. Serves HTTP content.
Next Generation Family Chore Chooser

What software do I actually need to write?

- Web Service: Accepts HTTP requests.
- AWS Lambda: Accepts request without having to manage servers.
public class HelloWorldIntentHandler implements RequestHandler {

    @Override
    public boolean canHandle(HandlerInput input) {
        return input.matches(intentName("HelloWorldIntent"));
    }

    @Override
    public Optional<Response> handle(HandlerInput input) {
        String speechText = "Hello world";
        return input.getResponseBuilder()
                .withSpeech(speechText)
                .withSimpleCard("HelloWorld", speechText)
                .build();
    }
}
Core Building Blocks

- How data is represented
  - Numbers: int, byte, long, float, double
  - Strings and Objects
- Basic data structures
  - List, Set, Map, Tree, Stack, Queue
- Basic algorithms
  - Big O Notation
  - Bubble sort, quick sort, heap sort
Things you just need to know

● Focus on learning one language really well

● Understand version control (Git)
Know where to go to find the answer
Know where to go to find the answer
Reading

- Picture Books
- Single Word Books
- Simple Story Books
- Chapter Books
- Adult Books
Reading

Picture Books
Single Word Books
Simple Story Books
Chapter Books
Adult Books

Summer reading program
What is on your Summer Software Program?

- learn a language
- numbers
- data structures
- algorithms
Concepts

Get your hands dirty

Learn how to learn

Know where to find the answer
Questions?
Agenda

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Elisa Binette: Demystifying Roles and Titles
Demystifying Roles and Titles

Elisa Binette,
Senior Engineering Manager
What’s in a level?

**Entry Level**
- Just getting started
- Able to execute well defined tasks
- Some oversight required
- Focus is on growing as an engineer, learning existing tools, resources and processes
- Should expect to be mentored by a mid-level or above

**Mid Level**
- ~2-3+ years experience in role
- Able to execute tasks with some guidance
- Work is notably solid and well-factored
- Balances pragmatic delivery with being technically solid
- Able to pair with entry-level engineers

**Senior Level**
- Their technical work makes other people’s technical work easier
- Able to scope and stage work into well-defined milestones to avoid a monolithic deliverable.
- Identifies strategies to address technical problems affecting their team
- Able to mentor mid-level engineers

**Lead Level**
- Multiplies the effectiveness of others by facilitating cross-team work
- Anticipates technical issues; makes design decisions to avoid them
- Sought out for technical advice
- Executes from conception through delivery
- Mentors senior engineers
Building a Team
All the Things

www.acmemonitor.com

ACME MONITORING PRODUCT
Front End, Back End, Full Stack?

Front

Back

www.acmemonitor.com

ACME MONITORING PRODUCT
Example Front End Service

Example Back End Service

Login Service:
Authenticate user credentials
A Front End Web Developer toolbox includes:

- HTML (Hyper Text Markup Language)
- CSS (Cascading Style Sheets) and Frameworks
  - Bootstrap
- JS (JavaScript) and Frameworks
  - AngularJS
  - Backbone
  - Ember
  - ReactJS
- RESTful Services and APIs
Back End Web Developer

A Back End Developer Developer toolbox includes:

- Ruby
- Go
- Java
- Node.js
- Python
- PHP
- .NET
Full Stack Developer

Image: https://excellentwebworld.com/hire-full-stack-developer/
Site Reliability Engineer (SRE) and DevOps
Site Reliability Engineer Responsibilities

Knowledge and experience are a blend of engineering and operational skills. At New Relic, SREs are responsible for:

- Championing reliability best practices
- Guiding designs and processes with an eye toward resilience and low toil
- Reducing technical complexity and sprawl
- Driving the usage of tooling and common components
- Implementing software and tooling to improve resilience and automate operations
Database Administrator (DBA)

A DBA toolbox includes:

Knowledge of:

- Structured Query Language (SQL)
- Distributed computing
- Database Design
- Operating Systems
- Storage Technologies
- Networking
- Databases:
  - MySQL, PostgreSQL, MongoDB, Redis, SQL Server, etc
Systems Administrator (SysAdmin)

Image: http://www.loumug.org/being-a-better-sysadmin/
A SysAdmin toolbox includes:

Knowledge of:

- Networking, servers, and OS
- Identity & Access Management
  - LDAP
- Scripting/automation
  - PowerShell or Perl
- Monitoring Tools
- HTML
- Javascript
- ITIL
<table>
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<td>Engineer</td>
<td>Designs and develops features in collaboration with other engineers</td>
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<tr>
<td>Lead (Engineer); Architect</td>
<td>May be the team and/or technical lead</td>
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<tr>
<td></td>
<td>Defines technical roadmap and technologies</td>
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<tr>
<td></td>
<td>Helps other engineers do their best work</td>
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<tr>
<td>Product Manager</td>
<td>Defines feature roadmap and sets priorities</td>
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<td></td>
<td>Understands what the customer wants or needs to solve their problem</td>
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<td>Engineering Manager</td>
<td>Removes obstacles</td>
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<td>Supports the team</td>
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<td>Performance and Career Development</td>
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There’s something for everyone

- Figure out what you enjoy doing
- Learn things that are interesting to you
- Life experience counts
  - Take credit for the skills you have developed through other activities
  - Think about how things you already know apply to the role you want
Questions?
Thank You