# Tech guide

**An indispensable tech guide for jobseekers**

By Startuplifers

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# About Startuplifers:

Startuplifers connects talented Nordic tech, design and business students and graduates with the best startups in the San Francisco Bay Area.

With this mission in mind, we've sent over 250 ambitious students and graduates to fast-growing startups in the San Francisco Bay Area to learn from the world's largest tech ecosystem.

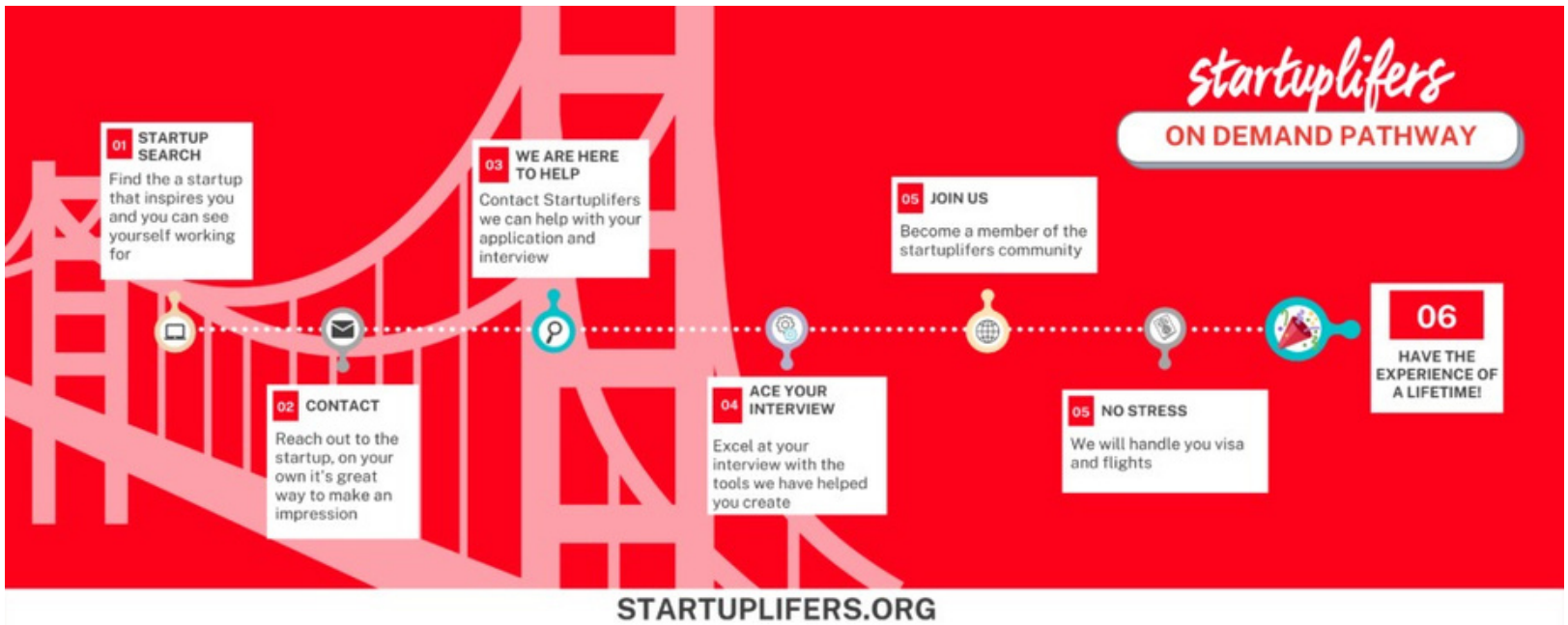
The goal is to help them find the confidence to create world-changing innovations themselves. And that's why we do it not-for-profit.

We have expanded Startuplifers positions with our on-demand program and also added remote positions making it possible to work from anywhere in the world.

## How you can get involved:

The On-demand program provides a shortcut to students and recent graduates who want to kickstart their careers at a startup. If you are eager to work at a startup in Silicon Valley or another hub in the US, but you have not found a suitable position on ourJobsite yet, then On-demand is for you!

With On-demand, you get to take a more active, personalized approach to your U.S. startup job search compared to the other path, where you apply directly to open positions that we list on our jobsite. Also take a look at our blog where you can read about our inspiring alumni stories. Don't forget to listen to our podcast as well!



## The purpose of this tech guide:

In today's society, we have all kinds of computer and software engineering positions with different terminology, programming languages, and purpose. It can be difficult to know what a position means or what tasks or programming languages are associated with that position. This tech guide is dedicated to the organization of Startuplifers, our members, and our future talents. This Tech guide has also been created with lots of material from a former employee Juho Toivonen at Startuplifers.

# Frontend engineer:

A front-end engineer is also called a web developer, specializing in the user interface and user experience which involves the visual design, aesthetics, and an understanding of how people use the applications or websites.

Frontend (client-side) tasks include:

-Create everything you will see in the webpage in your browser.

-Do little checkups but the heavy lifting is in the backend (for example “Is email address correct”).

-Structure (HTML), styles (CSS), functionality (JS)

-Frameworks/Libraries: React, Vue, Angular, Backbone (all in Javascript)

*Languages and skills:UX and UI frameworks, CSS, JavaScript,HTML*

# Backend engineer:

Backend engineers work behind the user interface to create smooth functions there focusing on logic, performance, and scalability. Some tasks include:

-Handling data and all the logic.
-Handle databases and backend software
-Frameworks/Library:
-Ruby on Rails (Ruby)
-Django, Flask, Tornado (Python)
-Spring (Java)
-Node.Js, Express, Sails (Javascript)
-Databases such as PostgreSQL, MySQL, MariaDB, MongoDB, ElasticSearch

*Skills and languages:Java, C, C++, Ruby, Perl, Python,Scala, Go*

# Fullstack engineer:

Fullstack engineers are fully fluent in both frontend and backend engineering. They can design and engineer both the user experience and user interface and also the complex backend

systems behind the frontend. They can engineer a fully functional web application. Full-stack refers to the entire depth of a computer system application. Also requires DevOps and mobile development skills these days.

As a full-stack developer, you may be involved in the following activities:

-Translate user requirements into the overall architecture and implementation of new systems.
-Manage projects and coordinate with the client.
-Write backend code in Ruby, Python, Java, and PHP languages.
-Writing optimized front-end code HTML and JavaScript.
-Understand, create and debug database-related queries.
-Create test code to validate the application against client requirements.
-Monitor the performance of web applications & infrastructure.
-Troubleshooting web applications with a fast and accurate solution.

*Skills and languages:UX and UI frameworks, CSS, JavaScript,HTML, Java, C, C++, Ruby, Perl, Python, Scala, Go, Kubernetes, Docker, Apache Mesos, Jenkins, HashiCorp stack (Terraform, Vault, Consul, Nomad)*

# UI/UX Designer:

UX/UI designers are usually responsible for the user experience. Everything in the design that interacts with the user is user interface and/or user experience.

*Skills and languages: HTML, CSS, and Javascript*

# Quality Assurance engineer:

A QA engineer reviews, tests, assesses, and writes software to validate the quality of an application. The individuals create automated tests and methods to make sure systems are running as they should.

*Skills and languages:Python, Ruby, Selenium WebDriver*

# Mobile developer:

These developers write code specifically for functions on mobile devices such as smartphones and tablets.

*Skills:iOS and Android operating systems, Java, Swift, Objective-C*

The different categories of mobile development can be divided into these or also some positions may require one or more of these categories.

## Android

- Android-specific platform development
- Language option: Java or Kotlin
- Have a separate development environment (Android Studio) with virtual devices.

## iOS

- iOS-specific platform development
- Language option: Objective-C or Swift
- Have separate development (Xcode) with virtual iOS devices
- Limitation:
  -Can be only developed in macOS, therefore you need Apple computer or virtualize macOS or Hackintosh

## Hybrid(uses web technologies)

- Utilizes web technologies with device APIs creating native support.
- The app is an actual web browser that executes code.
- Framework/Libraries:
  -React Native
  -Flutter
  -Xamarin
  -Ionic

# Software integration engineer/embedded systems engineer:

Software integration engineers use coding to program hardware like consumer devices, home security alert systems, electronics, interfaces, real-time systems, etc.

*Skills: C, C++, Assembly, Java, proprietary technologies/frameworks/toolkits*

## Data scientist:

Develop software programs that analyze information and do statistical analysis for organizations.

*Skills: SQL, R, and Python*

Data engineering positions can also be divided into these categories:

## Data Engineer

- Most like to be a software engineer which specializes in data handling and manipulation
- Not necessary anything to do with data science
- Keywords
  -Python & Java

- Databases
- Cloud platform (Google GCP, Amazon AWS, Microsoft Azure)
- Big data (Hadoop, Kafka, Spark)

## ML Engineer

- Between software engineering and data science
- Feed data into models defined by data scientists
- Responsible for taking theoretical models and helping them scale to production-level models
- The algorithms developed by machine learning engineers enable a machine to identify patterns in its programming data and teach itself to understand commands and even think for itself.

# Other web developers include:

## DevOps Engineer (Developer Operations engineer)

A DevOps engineer introduces processes, tools, and methodologies to support the needs of the software development life cycle.
This includes everything from coding to maintenance and updates.
Tasks include:

- Building pipelines so the software can be tested easily and even published to production (CICD - Continuous Integration & Continuous Delivery).

Frameworks:

-Kubernetes/Rancher
-Docker/Vagrant
-Virtual Machines
- Jenkins
- Apache Mesos
- HashiCorp stack (for example Terraform, Vault, Consul and Nomad)

## Cloud Engineer

Including cloud architect, cloud software engineer, cloud security engineer, cloud systems engineer, and cloud network engineer. A cloud engineer develops and implements policies for the use of cloud services, manages requests for new technologies and also establishes a secure cloud environment.

- Cloud platforms includes: Google GCP, Amazon AWS, and Microsoft Azure.

- Tech stacks: Kubernetes, Rancher OS

# Security Engineer:

As a security engineer, you keep a company's security systems up and running. This involves implementing and testing new security features, planning computer and network upgrades, troubleshooting, and responding to security incidents.

Tasks include:

- Identifying security measures to improve incident response
- Responding to security incidents
- Coordinating incident response across teams
- Performing security assessments and code audits
- Developing technical solutions to security vulnerabilities.
- Researching new attack vectors and developing threat models
- Automating security improvements
- Create reports on vulnerabilities and also eventually solve them yourself depending on what kind of engineer you are.

These days cybersecurity is very needed everywhere it is not unusual that cybersecurity engineers also work in DevOps or combined with another engineering position. This development has gone incredibly fast in recent years and Cyber security breaches are counted for losses of over 4.2 billion dollars in the US alone. Having experience as a Backend engineer and full-stack engineer is also useful for Security engineering. Many Security engineers have experience in software engineer positions.

*Some relevant programming languages for security engineers:*

*Java, JavaScript, Python, SQL, PHP, C, and Powershell.*

# Final comments:

Reasons why companies would want to have a certain language could be the following:

-One of few options on the platform (mobile, 2 languages on each platform)

-Knows frameworks for that language (no time wasted)

-Rivals can’t steal code.

- Only option due to restrictions (data science, R, or Python)

- You lock your programmers to only work for a particular company.

Some companies also work in multiple coding languages which is not always a good thing because it could be a sign of a lack of project management.

## Thank you!

Thank you for reading this guide! We hope that you will have use of this content in the future!

/Startuplifers