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Module 1.6

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The Technical Landscape

1. Complete a visualization exercise. This is a self-reflection exercise that only requires you to close your eyes and think. Your goal is to picture your life two years from now, when you will be working in your new tech field. Take about five minutes to visualize what you want your day to look like at every point, from the time that you need to wake up, the types of clothes and commute that you want to have, all the way to imagining your ideal work environment. What kinds of projects are you working on? What are your team dynamics? There are no "wrong" visualizations, only yours.

In my visualization I work in a fun group environment. A team that cares about each other. With constant learning opportunities and skill labs to keep everyone upskilled and fresh, the workspace breeds quality in every corner. You can ask for help. You can say that you don’t know without the fear of losing your job/position in the company. Your team compliments your own skillsets and everyone is great at what they do. Working remotely with the option to be on site will be available. Not necessary to be on site, but available if you want. Just to get out for a bit. I want to develop apps and sites that are family friendly in most cases. Even grandma and grandpa won’t have any trouble using it. Focusing on entertainment, helping people connect to each other. Maybe bring back the concept of making home movies with apps user friendly enough to make them look like Marvel quality dynamos. Think up ways to improve everyone’s quality of life. Like an app that spams everyone with information on how to get the government to lower rent. It is too high! Can we do nothing???

I have enough income to finally start a family. A foster mom for a group home of kids possibly. One who would be willing to adopt should the right feelings come up. All the neighborhood parents would know where their children were as their bikes littered my lawn. I’d be the fun mom with the best snacks and games. Great at the duties of my job and managing time well enough that I could still go to school events and help with homework. Then make apps or websites with tutoring functions that could better help with the homework.

1. **Find twenty job descriptions that you believe you would be a good fit for at the end of your program. Bookmark them and note the common requirements.**

**1.**

### 3. [Software engineer](https://www.indeed.com/jobs?q=software+engineer&l=)

**National average salary:** [$109,907 per year](https://www.indeed.com/career/software-engineer/salaries)

**Primary duties:** A software engineer uses their knowledge of coding and applications to create software for companies and individuals. Typically, they create software programs, mobile applications and communication channels or content management systems (CMS) that are specific to a company and its needs. Software engineers should have great communication skills to work with clients to establish their needs. To become a software engineer, you need to earn a Bachelor's Degree in Software Engineering or Development, Information Technology or Computer Programming.

**2.)**

**4.**[**Full stack developer**](https://www.indeed.com/jobs?q=Full+stack+developer&l=)

**National average salary:** [$113,011 per year](https://www.indeed.com/career/full-stack-developer/salaries)

**Primary duties:** Full-stack developers use their knowledge of front-and back-end development to create back-end coding and visual designs for websites. They may also be responsible for creating mobile applications for the websites they create. Full-stack developers need a Bachelor's Degree in Computer Science, Software Development or Computer Programming. They should also have advanced knowledge in a variety of coding languages including Python, JavaScript and CSS.

**3.**

**7.**[**Mobile developer**](https://www.indeed.com/jobs?q=mobile+developer&l=)

**National average salary:** [$125,186 per year](https://www.indeed.com/career/mobile-developer/salaries)

**Primary duties:** Mobile developers are responsible for designing mobile applications. They may be required to restructure company websites to fit a mobile format or create an app for a video game. They can work specifically for corporations or as sole-proprietors enlisting their services to others. To become a mobile developer, you should have a Bachelor's Degree in Information Technology, Computer Programming, Information Systems Management or a related area. You should also have previous work experience in the IT industry.

**4.**

**9.**[**Site reliability engineer**](https://www.indeed.com/jobs?q=site+reliability+engineer&l=)

**National average salary:** [$128,537 per year](https://www.indeed.com/career/site-reliability-engineer/salaries)

**Primary duties:** Site reliability engineers communicate between development operation engineers and software engineers to address potential website errors or confusing messaging that could affect its effectiveness to the user. They use coding libraries from DevOps engineers and the designing capabilities of software engineers to make necessary changes to the website's makeup.

To become a site reliability engineer, you should have a bachelor's degree in an area like software development, information systems management or computer programming. In addition, you should also have a few years of experience working as a software developer, system engineer or a related area.

**5.**

**11.**[**Software architect**](https://www.indeed.com/jobs?q=software+architect&l=)

**National average salary:** [$138,958 per year](https://www.indeed.com/career/software-architect/salaries)

**Primary duties:** Software architects are responsible for using their expert knowledge of software development to oversee a team of IT professionals, including software developers. They delegate tasks related to software program creation, maintenance and updates so that the company or client they work for receives top-tier software as a result.

Software architects typically have a Bachelor's Degree in Computer Programming, Software Engineering or Development or Information Systems Management. In addition, for those without a bachelor's degree, significant experience in a related role, certification or both can greatly enhance your qualifications.

**6.**

**13.**[**Software engineering manager**](https://www.indeed.com/jobs?q=Software+engineering+manager&l=)

**National average salary:** [$144,954 per year](https://www.indeed.com/career/software-engineering-manager/salaries)

**Primary duties:** A software engineering manager works within an IT department for a company or as part of an IT firm. As the title implies, these professionals use their extensive expertise in software engineering to direct a team of entry and mid-level software engineers in creating and maintaining software programs. To become a software engineer, candidates should have a Bachelor's Degree in Software Engineering, Information Technology, Computer Programming or another area. Following their bachelor's degree, it may be beneficial to get a master's degree in an area like business administration or software engineering.

**7.**

**1) Web Developer**

Web developers are programmers that work on building websites or web-based applications. These web applications are usually built using a client-server model. Web developers possess expertise in front-end languages like HTML, CSS, and, JavaScript and back-end technologies like PHP, Python, or Java.

A good understanding of design, user interface, and wireframing is also necessary for web development. You may also need to learn about search engine optimization and some SEO tools.

If you hope to land a web development job, you would require a bachelor’s degree in IT or software engineering or some relevant experience in building websites. You can start with learning HTML and CSS to gain clarity in web development fundamentals and then move ahead with other technologies.

**8.**

**2) Programmers**

While developers are responsible for the overall design and scope of the product, programmers work on specific parts of the project. They are thus responsible to convert the product design into instructions that a computer can understand. Programmers usually work on several languages like Java, C#, PHP, SQL, JavaScript, etc.

You can consider this career path if you plan to stay heavily connected with coding. Being a programmer requires skills like problem-solving, analytical thinking, decision making, listening, and attention to detail.

A bachelor’s degree in software engineering is necessary to start out as a programmer. You can consider joining internships in good software development companies while you acquire the necessary skillset. This can give you the much-needed edge to secure a job as a programmer.

**9.**

**5) Network Engineer**

The main job of a network engineer is to plan, design, implement and oversee the computer network that supports in-house services. These services could be in terms of data, voice, calls, and wireless network services.

As a network engineer, you need to hold extremely strong technical expertise and in-depth knowledge in computer networking. A bachelor’s degree is usually needed. Pursuing additional networking courses will give you an added advantage.

**10.**

**7) User Experience Designer**

User experience is one of the most important factors that define the success of your product. UX designers collect user feedback to decide how the product flow can be made better. This requires a keen eye for visual design and an in-depth understanding of how your customers think.

To get your career started as a UX designer, you would need a bachelor’s degree in either engineering or design. Familiarising yourself with wireframing tools is important. You can start by studying product management to build a better understanding of this role.

**11.**

**17) Applications Engineer**

Application engineers are usually hired to work closely with a sales team. Their primary job is to identify the challenges that customers are facing while using or applying their company’s solutions. They need to have strong knowledge about industry trends and the specific products they are focused on.

If you are looking to start a career as an application engineer, the most important skills you require are good communication and an ability to understand customer problems. A bachelor’s degree in computer engineering is also needed. Some companies can also expect a few years of prior experience before hiring for this role.

**12.**

**Front End Engineer**

* **Average Salary:**[**$125,501**](https://ziprecruiter.com/Salaries/Front-End-Software-Engineer-Salary)

A front end engineer specializes in developing and optimizing the user interface (UI) using user experience (UX) design principles. UI includes visual features like layouts, format, and aesthetics.

Front end engineers use their analytical skills to fix bugs and provide a seamless visual display of the customer-facing web pages. This ensures compatibility with the different browsers, devices, applications software, and operating systems.

**13.**

**Mobile Application Developer**

* **Average Salary:**[**$120,068**](https://ziprecruiter.com/Salaries/Mobile-Application-Developer-Salary)

Mobile developers write code specifically for mobile devices applications. Mobile applications software development became popular in the early 2000s when the mobile and smart devices industry boomed. A mobile application developer should be skilled with mobile operating systems like iOS and Android, as well as Java, Swift, Objective-C, and APIs.

**14.**

**Full Stack Engineer**

* **Average Salary:**[**$110,091**](https://ziprecruiter.com/Salaries/Full-Stack-Software-Engineer-Salary)

Full stack engineers, or full stack developers, work on the front end design process and backend database design. They can work by themselves to design, create, and develop a fully operational web application while also designing the end-user interface and the complex systems and databases that run it.

**15.**

**Software Developer**

* **Average Salary:**[**$107,510**](https://ziprecruiter.com/Salaries/Software-Developer-Salary)

A software developer creates, designs, installs, and tests software programs built specifically for a software company from scratch. They ensure that the processes and applications are working, analyze queries, and work with various interfaces, frameworks, and databases. Software developers must have [**experience with coding languages like Ruby**](https://careerkarma.com/subjects/best-ruby-bootcamps/), Python, JavaScript, C++, and C#.

**16.**

**1.**[**Video game designer**](https://www.indeed.com/q-video-game-designer-jobs.html)

**National average salary:** [$54,223 per year](https://www.indeed.com/career/video-game-designer/salaries)

**Primary duties:** A video game designer, also called a game developer, has specialized knowledge in designing and implementing gaming systems that are both engaging and interactive. They use creative skills like storytelling and world-building to program complete environments in which a game can take place. From setting to props to characters, game developers code all the factors that create the gameplay experience for a user.

**Skills:** DirectX, OpenGL, Unity 3D, WebGL, C, C++, Java, Swift, JavaScript, HTML5

**17.**

**5.**[**Security engineer**](https://www.indeed.com/q-security-engineer-jobs.html)

**National average salary:** [$109,778 per year](https://www.indeed.com/career/security-engineer/salaries)

**Primary duties:** Security engineers, often referred to as "white hat" or "ethical" hackers, work to create systems, methods and procedures that test the security of a given software. Their main goal is to exploit security flaws and discover vulnerabilities to fix them before the systems reach the end-user to provide an optimal experience.

**Skills:** Python, Ruby, C, C++, reverse engineering

**18.**

**6.**[**Front-end engineer**](https://www.indeed.com/q-front-end-engineer-jobs.html)

**National average salary:** [$109,915 per year](https://www.indeed.com/career/front-end-developer/salaries)

**Primary duties:** A front-end engineer, sometimes referred to as a web developer, specializes in the development of user interface ( UI) design for the user-facing side of an application or website. This involves visual design elements, including layout and aesthetics, and a thorough understanding of how people interact with and use computer programs.

They also need to know code that runs on different operating systems, browsers and user devices to ensure cross-browser compatibility. They also focus heavily on optimizing visual presentation using principles of user experience (UX) design.

**Skills:** UX and UI frameworks, CSS, JavaScript, HTML

**19.**

**10.**[**Mobile developer**](https://www.indeed.com/q-mobile-developer-jobs.html)

**National average salary:** [$123,264 per year](https://www.indeed.com/career/mobile-developer/salaries)\*\*

**Primary duties:** Mobile developers write code for applications specifically designed to run on mobile devices, such as smartphones and tablets.

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

**20.**

**12.**[**Back-end engineer**](http://www.indeed.com/q-back-end-engineer-jobs.html)

**National average salary:** [$128,677 per year](https://www.indeed.com/career/back-end-developer/salaries)

**Primary duties:** A back-end engineer, or back-end developer, works within complex systems to create smooth functions behind the user interface, focusing on the core logic, design, implementation, scalability and performance of a system. They mainly create and manage databases, integrating data systems, logging systems and caching systems using Application Programming Interfaces (APIs).

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

1. **Subscribe to at least three industry newsletters, podcasts, publications, or blogs. Refer back to the Tech Industry Media Resources List to find three that you will enjoy.**

**1.**

[**https://blog.runcloud.io/best-newsletters-for-developers/**](https://blog.runcloud.io/best-newsletters-for-developers/)

**2.**

[**https://www.nocsdegree.com/**](https://www.nocsdegree.com/)

**3.**

[**https://www.codeproject.com/script/Membership/Modify.aspx**](https://www.codeproject.com/script/Membership/Modify.aspx)

Resources/notes to save for future reference for self study

https://careerkarma.com/blog/types-of-software-engineering-jobs/

**What Do Software Engineering Professionals Do?**

A software engineer develops computer programs and operating systems using engineering principles and techniques. Programming and coding languages help software engineers to convert their thoughts and ideas to an operational and functional command that the computer can follow. Listed below are some of their tasks.

* **Use programming languages.**Software engineers use programming languages to develop fully functioning, and operational computer commands for implementation into software systems.
* **Identify issues within systems.**They locate problems, issues, and bugs within computer systems and amend these issues to improve the computer system quality.
* **Define user needs.**Another software engineering task is analyzing a user’s needs and demands to improve their user experience and developing a software application that meets those needs.
* **Researching and presenting.**They must investigate any improvements they could be making and then present their improvement plan to their company, detailing how they can enhance the existing software and protect it from cyber attacks.

## The Highest-Paying Types of Software Engineering Jobs in 2022

* Systems Software Developer | $138,141
* Backend Engineer | $126,880
* DevOps Engineer | $126,245
* Front End Engineer | $125,501
* Mobile Application Developer | $120,068
* Backend Developer | $114,654
* Security Engineer | $111,691
* Full Stack Engineer | $110,091
* Software Developer | $107,510
* Software Application Developer | $92,732
* **Collaboration with other divisions.**Software engineers collaborate with programmers, system analysts, and other engineers to determine a project’s needs and goals and develop a course of action.

**What is the difference between a software engineer and a software developer?**

A software engineer applies the principles of engineering to design, develop, maintain, test and evaluate computer software. This is often a highly collaborative activity that requires teamwork skills. A software engineer uses components of a hardware system to create the tools to develop software and tends to solve issues on a large scale.

A software developer, in contrast, builds software that runs across various types of computers, using finished tools to build apps and write complete programs. This is role tends to be more solitary, allowing developers to use many of the same skills as their engineering counterparts but on a limited scale.

[**https://www.thinkful.com/blog/deferred-tuition-living-expenses/**](https://www.thinkful.com/blog/deferred-tuition-living-expenses/)

**How It Works**

Deferred  Tuition with Living Expenses is available for all of our full-time programs.

When you enroll with [Deferred Tuition](https://www.thinkful.com/deferred-tuition/#outcomes), you’ll pay $0 upfront. After you graduate and get hired into a qualifying position, you’ll start to pay us back in fixed, monthly payments.

With the added convenience of Living Expenses, you’ll receive $1,500 per month to be used toward your bills while you learn full-time.

* You need to stay enrolled in the program in order to continue receiving your Living Expenses payments
* You'll receive the Living Expenses payments from our partner, Ascent Funding
* If you opt-in to our Tuition Refund Program, it applies only to the tuition portion of your loan; you’ll still have to pay back the Living Expenses loan after you graduate, even if you’re not hired within 6 months
* A qualifying position is any job  offer paying $40,000 per year or more salary, or contract job offer lasting at least 3 months and paying $3,333 per month or more

Thinkful

Software Engineers run websites, make apps functional, and ensure we can shop online. Put simply, they make the web work.

Average salary increase

$17K

Common Job Titles

Application Developer

Web Developer

DevOps Engineer

Security Engineer

Game Developer

Job Skills

Node

React

JavaScript

Front-end Development

Back-end Development