



Developer Types



Front-end Developer

A front-end 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: JavaScript, HTML, CSS, UX and UI frameworks (React, Vue, etc)

[StateOfJs: Front-end Frameworks](#)

[UI vs UX](#)

[Meta Front-End Developer Professional Certificate](#)



What is a framework?

A framework is a structure you can use to build software.

Benefits: improve developer productivity and software quality (quality, reliability, robustness)

It **defines:** a specific model to follow when building software.

It **provides:** libraries/packages, APIs, development assets, tools, documentation and guidelines, best practices, howtos and cookbooks, example apps



Mobile Developer

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

Skills:

- OS: iOS and Android operating systems
- Languages: Java, Swift, Objective-C, Kotlin, JavaScript
- Frameworks: Flutter, Xamarin, React Native, Native Script, Ionic

[Meta Android Developer Professional Certificate](#)

[Meta iOS Developer Professional Certificate](#)



Back-end Developer

A 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, PHP, Python, Ruby, .NET, JavaScript + frameworks (e.g. ASP.NET, Spring for Java, Node.js and Express for JavaScript, Django for Python, Symfony for PHP, Ruby on Rails for Ruby, etc)

[Statista: Most used web frameworks among developers worldwide](#)

[Meta Back-End Developer Professional Certificate](#)



Full-stack Developer

A software engineer who is fluent in front-end and back-end skills and responsibilities is referred to as a full-stack engineer. These individuals possess all the skills necessary to create a fully functional web app, from the front-facing user experience to the complex systems behind it.

Skills: UX and UI frameworks, CSS, JavaScript, HTML, Java, C, C++, Ruby, Perl, Python, Scala, Go, Kubernetes, Docker, Apache Mesos, Jenkins, HashiCorp stack

[The Complete 2022 Web Development Bootcamp](#) (by Dr. Angela Yu)



Embedded Systems Developers

Embedded System: a microprocessor-based piece of hardware with software designed to perform a dedicated function

In the modern era of smart devices and the internet of things, embedded systems developers use coding languages to program hardware like consumer devices, home security alert systems, electronics, interfaces, real-time systems and serial data transmissions.

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



DevOps Engineer

DevOps (development and operations) engineers apply processes and methodologies to streamline product development, improvement and maintenance as well as facilitate communication between development and operations teams.

Under a DevOps model, development and operations teams are no longer “siloed.” Sometimes, these two teams are merged into a single team where the engineers work across the entire application lifecycle, from development and test to deployment to operations, and develop a range of skills not limited to a single function.

Their work requires familiarity with the processes used by back-end developers to build, deploy and integrate across technologies, like cloud computing services. These engineers are familiar with cloud technologies such as AWS or Azure.

Skills: Kubernetes, Docker, Apache Mesos, Jenkins, HashiCorp stack



Data Scientist

A data scientist, or data engineer, develops software programs that analyze information. This often puts them in charge of statistical analysis, machine learning, data visualization and predictive modeling, providing an organization with metrics that can help determine how a product will grow to fit the needs of the business.

Skills: R, Python, Julia, data science frameworks (TensorFlow, Keras, PyTorch, Scikit-learn, Pandas, Numpy, etc)

[Machine Learning Specialization](#)

[Modern Artificial Intelligence with Zero Coding](#)



Big Data Developer

This type of developer writes software programs to store and retrieve vast amounts of data in systems such as data warehouses, ETL (Extract Transform Load) systems, relational databases, data lakes management systems, etc.

A big data developer is often familiar with frameworks and systems for distributed storage and processing of vast amounts of data such as MapReduce, Hadoop, and Spark. Languages used by Big Data Developers include SQL, Java, Python, and R.

Skills: Hadoop, Apache Spark, SQL, No-SQL

<https://techvidvan.com/tutorials/big-data-developer-skills>



Game Developer

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

Frameworks: [Top 10 Game Development Frameworks](#) (as of 2020), [Top 7 Game Development Platforms For Developers](#)



3D Graphics Developer

A 3D graphics developer uses specialized knowledge to create software for rendering, lighting, shadowing, shading and management of scenes. They work closely with game developers to code graphic assets for both the gaming and video production industry. Their skills are also useful in front-end development, creating visually engaging and intuitive user interfaces.

Skills: DirectX, OpenGL, Unity 3D, WebGL, C, C++, Assembly

[How to Become a Graphics Developer and Bring Game Concepts to Life](#)



Security Engineer

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



Quality Assurance Engineer

A QA engineer tests, reviews, assesses and writes software to validate the quality of an application. These individuals create automated tests, tools and methods to make sure systems are running as expected, catching errors and working to account for their solutions.

Skills: Python, Ruby, Selenium WebDriver



CRM Project Manager or Developer

A customer relationship management (CRM) project manager or developer works with systems that collect user and consumer data, creating programs that gather useful metrics for adjusting the needs of a given program. They may be tasked with improving customer satisfaction or sales by optimizing the tools used by customer support and sales representatives.

Skills: SAP, Salesforce, SharePoint, Enterprise Resource Planning (ERP)



Language/Compilers Developer

As a language developer, you would do the job of a linguist, but in the virtual world. Only 1% of the developers are language developers, and their main job is to build programming languages.



Operating Systems Developer



Further Info

<https://survey.stackoverflow.co/2022/#developer-profile-developer-roles>

[Developer Roadmaps](#)