Web development (software development)

So, you’re interested in becoming a developer? Congratulations, and welcome to your new career! As you’ve started looking into different [developer career paths](https://www.codecademy.com/learn/paths/new?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog), you’ve probably come across [web development](https://www.codecademy.com/catalog/subject/web-development?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog).

But what is web development exactly? Why is it important, and what kinds of [Web Developers](https://www.codecademy.com/resources/blog/what-does-a-web-developer-do/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) are there?

In a few words, web development involves the creation and maintenance of websites. By “website,” we mean a collection of web pages that are publicly accessible on the internet, such as:

* [The Codecademy website](https://www.codecademy.com/learn?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* A closed, private network, such as your company or school intranet website.

Modern web development also includes web applications. Web applications are software packages that run on a web server and are accessed through the internet. This is unlike a traditional application that runs on your computer, tablet, or phone.

In this article, we’ll walk you through everything you need to know about the basics of web development, including:

* [Front-end vs. back-end web development](https://www.codecademy.com/resources/blog/what-is-web-development/" \l "front-end-vs-back-end-web-development)
* [The web development process](https://www.codecademy.com/resources/blog/what-is-web-development/" \l "the-web-development-process)
* [Web development teams and roles](https://www.codecademy.com/resources/blog/what-is-web-development/" \l "web-development-teams-and-roles)
* [Web development resources and tools](https://www.codecademy.com/resources/blog/what-is-web-development/" \l "web-development-resources-and-tools)
* [Why web development is important](https://www.codecademy.com/resources/blog/what-is-web-development/" \l "why-web-development-is-important)
* [Ready to start your new career in web development?](https://www.codecademy.com/resources/blog/what-is-web-development/" \l "ready-to-start-your-new-career-in-web-development?)

## **Front-end vs. back-end web development**

Even if you’re new to web development, you’ve probably heard the terms “front-end development” and “back-end development” before. But what do they mean?

Front-end web development has to do with the interface that you, the user, interact with when you visit a website or use a web application. [Front-End Developers](https://www.codecademy.com/resources/blog/what-does-a-front-end-developer-do/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) create everything you see on a web page, including:

* Colors
* Layout
* Navigation

Back-end web development has to do with the parts of a website that you can’t see, particularly how website information is stored and retrieved.

When you access a webpage in your browser, you’re essentially requesting to see a file stored on a [server](https://www.codecademy.com/resources/docs/general/what-is-a-server?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) somewhere. When you load a webpage for the first time or sign into a website with a username and password, it’s [Back-End Developers](https://www.codecademy.com/resources/blog/what-does-a-back-end-developer-do/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) who make it possible to access website information efficiently and securely.

Now that you understand the basics of web development, let’s look at how a website or web application comes to life from two perspectives: the web development process and the web development team.

## **The web development process**

Suppose that a new client needs a new website and has asked you to develop one. Where do you start, and what do you do next?

Whether you’re creating a website or web application with a team of three or 300, web development tends to follow the same seven steps.

### **Information gathering**

Information gathering includes addressing internal factors (like the website’s purpose) and external factors (like information about the target audience and competing websites).

Questions you’ll need to answer during this stage include:

* Why is the client creating a website?
* Who do they want to visit the site?
* What will people be able to do on the website or in the web application?
* Why will people want to use the client’s website instead of someone else’s?

### **Planning**

Once you understand the purpose of your website and what kind of people you want to visit, it’s time to start planning. During this stage, dev teams put together an outline of the website and its web pages. This is known as a sitemap.

Think of the sitemap as the skeleton of the website. Web Developers use sitemaps to flesh out how webpages will link to each other through menus and how website data should be structured on the webserver.

### **Design**

In the design phase, the dev team begins to create something like an actual website. Layouts, images, logos, colors, fonts, and other aesthetic features are put together and visualized during this phase. The client may provide an existing logo and color scheme or be open to designs your team presents.

Next, you and the client will agree on a layout, information structure, and aesthetic direction to guide the rest of the web development project.

### **Content creation**

Until now, the web development team will have put in placeholder images and text in the website design until the real content is ready to be inserted.

Typically, it’s up to the client to provide the content. And because content creation can be done throughout the rest of the web development process, the content should be ready as soon as the design phase is finished.

At this point, the web development team may work with the client to adjust word counts and character limits for menus and ensure that image and video files look full size.

### **Coding**

Once the website design and content are finalized, it’s time to start coding. At this point, both Front-End Developers and Back-End Developers will work to turn the website design on paper into a working reality that functions within a browser.

The coding process itself depends on the size of the project and the design approach of the development team. For example, a small project for an informational website might involve just a couple of programmers working together. A large-scale web application might involve teams of developers adopting an [Agile](https://www.codecademy.com/resources/blog/what-is-agile/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) approach like [Scrum](https://www.codecademy.com/resources/blog/what-is-scrum/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog).

### **Testing and launch**

Just like with software, websites need to be tested and debugged before they’re ready to go live. That means developing test cases and ensuring that the website code follows the client’s QA/QC procedures.

[Web development testing](https://www.codecademy.com/learn/learn-testing-for-web-development?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) might include checking all hyperlinks, searching for typos, and ensuring that the website works well on different browsers and devices.

Finally, the website is ready to be uploaded to the webserver and accessed publicly on the internet.

### **Maintenance**

After the website is up and running, it still needs to be maintained. Websites need to be updated for dozens of reasons — team member bios are added and removed, product and service descriptions change, and blog posts are published.

On [the back end](https://www.codecademy.com/resources/blog/what-is-back-end/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog), a website or web application that stores customer data will need to ensure that databases are secure and comply with the latest data privacy regulations.

## **Web development teams and roles**

As you might guess, the full web development process requires a lot of effort and different skill sets. That’s why web development teams include various kinds of roles. Below are some of the main roles on a web development team.

### **Web Designer**

Before starting the first line of code, the web development team needs to understand what the website should look like. That’s where [web design](https://www.codecademy.com/catalog/subject/web-design?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) comes in.

Web Designers focus on the look and aesthetic of a website during the web development process. This might include working closely with the website owner or marketing team to develop a look and color scheme.

Web Designers also work with Front-End Developers to assess any practical or design constraints of the website. For example, if a project implements [Bootstrap](https://www.codecademy.com/resources/blog/what-is-bootstrap/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) or another framework, the Web Designer must create a compatible design.

Web Designers typically work with graphic design software such as InDesign, Illustrator, and Photoshop. While many Web Designers know the basics of [HTML, CSS](https://www.codecademy.com/catalog/language/html-css?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog), and [JavaScript](https://www.codecademy.com/catalog/language/javascript?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog), they’re not expected to know these languages as well as a Front-End Developer.

### **Front-End Developer**

Once the Web Designer has put together the project’s design, the Front-End Developer turns drawings and concepts into reality.

The [front end](https://www.codecademy.com/resources/blog/what-is-front-end/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) includes everything a user sees or interacts with, from drop-down menus to background colors and font text. This is also known as the client-side.

The principal coding tools of the Front-End Developer are HTML, CSS, and JavaScript. Still, many Front-End Developers are familiar with several other programming languages, frameworks, and libraries, including:

* [Go](https://www.codecademy.com/catalog/language/go?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [Java](https://www.codecademy.com/catalog/language/java?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [Ruby](https://www.codecademy.com/catalog/language/ruby?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [jQuery](https://www.codecademy.com/learn/learn-jquery?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) and [SQL](https://www.codecademy.com/catalog/language/sql?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [React](https://www.codecademy.com/resources/docs/react?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [Flask](https://www.codecademy.com/learn/learn-flask?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) and [Django](https://www.codecademy.com/learn/paths/build-python-web-apps-with-django?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)

In short, Front-End Developers are responsible for ensuring that websites and web applications look great and work well, whether you’re using them on a phone, laptop, Mac, PC, or any browser.

### **Back-End Developer**

Would you move into a beautiful house if you discovered it lacked electricity, internet, or running water? While Web Designers and Front-End Developers are responsible for the look and feel of a website or web application, Back-End Developers make sure that the website is connected correctly and that you can get the information you need from the site and its servers.

For example, when you clicked on the link to read this article, it’s because of Back-End Developers that your browser could request the article’s content, retrieve the information from our website servers, and quickly load it onto your laptop or device. This is also known as the server-side.

Back-End Developers often work with servers and [databases](https://www.codecademy.com/resources/docs/general/what-is-a-database?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog), which means their technical skill sets include programming languages like:

* [PHP](https://www.codecademy.com/catalog/language/php?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [Java](https://www.codecademy.com/catalog/language/java?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [Node.js](https://www.codecademy.com/resources/docs/general/what-is-node-js?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [SQL](https://www.codecademy.com/catalog/language/sql?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [Ruby](https://www.codecademy.com/catalog/language/ruby?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* [C#](https://www.codecademy.com/catalog/language/c-sharp?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)

### **Full-Stack Developer**

[Full-Stack Developers](https://www.codecademy.com/resources/blog/what-does-a-full-stack-developer-do/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) are, for lack of a better phrase, the full package. They combine the skills of Front-End Developers and Back-End Developers. That means they can take part in developing the client-side or server-side of a web development project.

A Full-Stack Developer may work on both sides of web development on smaller projects, or they may focus on one side or another on a larger project. They may also be assigned to do other tasks that take advantage of their full skill set, such as:

* [Testing](https://www.codecademy.com/resources/blog/what-is-software-testing/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog) and [debugging](https://www.codecademy.com/resources/blog/how-to-debug-your-code/?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* Optimizing compatibility across multiple browsers and devices (a.k.a. cross-platform compatibility)
* Developing [APIs](https://www.codecademy.com/resources/docs/general/what-is-an-api?utm_source=ccblog&utm_medium=ccblog&utm_campaign=ccblog&utm_content=cw_what_is_web_development_blog)
* Considering security and scalability during the web development process