## Learning Objectives:

* Describe the web developer job role.
* Distinguish between front-end, back-end, and full-stack developers.
* Explain how data moves through the internet.
* Describe the technologies that underpin the internet.

A front-end developer is someone that works on all parts of a website or web app that users will interact with. This can be anything from the style colours, buttons, menus or user interactions as they click swipe and interact with the site. JS is the most important technology used by front-end developers.

A back-end developer works on the parts of a website or web app that the end users don't see. These activities occur behind the scenes, particularly on the web server in the database or in constructing the architecture. Back-end developers are responsible for creating and maintaining functionality when users request information or when the website needs to communicate to another part of the web architecture.

A full stack developer is someone equally comfortable working with front end and back-end technologies. Full stack developers have skills and knowledge in all areas of the web development project cycle. For example, they have relevant expertise in the planning architecture, design, development, deployment and maintenance of the website or web.

# **Week 1**

## How the internet works

You open your favourite app on your device, and you're instantly connected to the world. This is all made possible because two devices connect and communicate via a wired or wireless connection, forming something called a network. You can connect multiple devices to this network.

*A network is made up of at least two devices that connect and communicate via a wired or wireless connection. One network switch can connect to another switch to link two networks.*

* *True*

## What is a web server and how does it work?

A server is a computer that runs applications and services ranging from websites to instant messaging. It's called a server because it provides a service to another computer and its user also known as the client.

A web server has many functions which includes website storage and administration, data storage, security and managing email. Another primary function is to handle something known as a web request. When you open a browser on your device and type the name of the website, it's the job of the web server to send you back to that website's content. This process is known as the request response cycle.

*A server is a computer that runs applications and services, ranging from websites to instant messaging. You have just learned about a web server which is a specific type of server. Which of the following statements are true? Choose all that apply.*

* *A web server can handle security.*
* *A web server can function as website storage and administration.*
* *Web servers can handle thousands of requests from clients per second.*

## What are websites and webpages?

A web page is a document that displays images, texts, videos, and other content in the web browser.

A website is a collection of webpages that link together.

When a copy of that webpage is sent from the web server to your browser, each line of code is processed in sequential order from first to last. As each line is interpreted, the browser creates the building blocks, which is the visual representation you see on the screen. This creation process is known as page rendering, the response from the web server must be a complete web page in order to fulfil the request, to show the page in the browser.

*Which of the following technologies is used to structure content on a webpage?*

* *HTML*

## What is a web browser and how does it work?

A web browser, or browser for short, is a software application that you use to browse the World Wide Web. It works by sending a request to a web server and then receives a response containing the content that is to be displayed on the screen of your device.

When you make a request using this URL, the browser and server communicate using a protocol known as the Hypertext Transfer Protocol or HTTP. Once the web browser receives the content, it displays it on the screen of your device. This exchange of information is made possible by something known as the request response cycle.

*True or false: A web browser is a software application that you use to browse the world wide web.*

* *True*

## Web hosting

Web hosting is a service where you place your website and files on the hosting companies web server. You're essentially renting the space in return for stable and secure storage.

First, let me share with you some of the different hosting options available. These can include shared hosting, virtual private hosting, dedicated hosting, and Cloud hosting.

The cheapest form of web hosting is known as shared hosting. You pay for a location on a web server containing many web hosting accounts with shared hosting. This means that you also share the service processing power, memory, and bandwidth with other websites that might slow your performance. This option is best for a small website with a small number of visitors.

Sites with more considerable demands use virtual private surface or VPS. A VPS is a virtual server with dedicated CPU, memory, and bandwidth resources. It will be running on a hardware server with other VPS instances but as the resources are fixed per VPS instance, your website is unlikely to be impacted by the performance of other VPS instances. A VPS instance will be more expensive than shared hosting.

The next option up is to use dedicated hosting. This will be a hardware server that is dedicated to you only. All hardware, CPU, memory, and bandwidth resources are yours to use. Generally, this option is more expensive than a VPS hosting.

The last type of web hosting is something you may have heard of. Cloud hosting and the Cloud has grown in popularity over the last decade and is often mentioned in various news and services you use. With Cloud hosting, your website is run in something called a Cloud environment, which spans across multiple physical and virtual servers. If a physical or virtual server fails, your website will run on a different server and stay online. The main advantage of Cloud hosting is that you can use as many resources as you need without hardware limitations.

*True or false: Cloud hosting uses a combination of physical and virtual servers?*

* *True*