Tutorial Task: Week 9

Research and arrive at a list of answers on the following questions:

1. What and who is a web developer?

   A Web Developer is responsible for programming code that tells websites and web applications how to operate. Web Developers typically specialize in either "front-end" ("client-side") development or "back-end" ("server-side") development. Some versatile and highly-sought-after professionals do both, and they're called "Full-Stack Developers." A Web Developer creates, designs, builds, and maintains websites, software, and web applications. Web Developers build websites by using programming languages like HTML, CSS, and JavaScript to write code and convert a web design – created by the programmer or a design team – into a professional website, product, or mobile application (BrainStation, 2023).

2. What is Frontend, Backend and FullStack Development?

   The aspect of web development that codes and produces frontend elements of a website, or features that are immediately observable and accessible by the end-user or client, is known as frontend development. The major goals of frontend development are responsiveness and performance.

   Web development that occurs at the back end of programs is accurately termed backend development. Backend developers create code that allows a database and an application to communicate with one another.

   A full-stack developer can be best explained as the "jack of all trades." They are skilled in both front end and back-end languages and can work with multiple frameworks. A full-stack programmer must be proficient in at least one of the following: PHP, Python, Ruby, Java, etc (Duggal, 2023).

3. Differentiate between Static vs Dynamic site.

Static site	Dynamic site
1. Static sites are generally simple HTML written pages in which all the data is static in nature, and it does not get changed until someone changes it manually.	1. Dynamic webpages are the pages written in some more complex language such as ASP.NET in which the data is rendered after some interpretation. It can produce distinctive content for different calls.
2. It is obvious that Static sites load faster because the data is static.	2. Dynamic sites take comparatively more time to load as compared to static webpages
3. Static webpages are generally written in simpler languages such as HTML, JavaScript, CSS, etc.	3. Dynamic webpages are written in more complex languages such as CGI, AJAX, ASP, ASP.NET, etc.

(Tutorialspoint, 2022)

4. Describe the role of HTML, CSS and JavaScript in web development.
 A web page's style, typography, format, structure, and other components are precisely described in detail in HTML before being printed (shown to you). To be more precise, "rendered" can be used in place of "printed" when discussing web development. Your page can be organized using HTML into sections, paragraphs, headings, navigation bars, and other features.

We can use CSS, a design language, to give your website a polished appearance. CSS can be used to improve the visual appeal of a website. You may enhance the look and usability of your page by carefully incorporating CSS styles.

JavaScript is a logic-based programming language that may be used to alter website content and make it behave differently based on what the user does. Confirmation boxes, call-to-action buttons, and the addition of additional identities to already-existing data are all routinely done with JavaScript (Ubah, 2021).

5. Explain the different file formats used in Web: XML and JSON.

JSON is a file format that uses human-readable text for storing and transmitting data objects containing attribute-value pairs and arrays. JSON is used to store information in an organized and easy-to-access manner. JSON stands for JavaScript Object Notation. It offers a human-readable collection of data that can be accessed logically.

XML is an extensible markup language that is designed to store data. It is popularly used for transferring data. It is case-sensitive. XML allows you to define markup elements and generate customized markup language. An element is a basic unit in the XML language. The extension of XML file is .xml (Walker, 2022).

6. What is the use of a database in websites?

The primary role of a database is to store and display updated information in a web application. Registration websites, discussion forums and retail commerce websites are examples of web applications that depend upon a robust database component. Database applications are used to search, sort, filter and present information based upon web requests from users. Databases can also contain code to perform mathematical and statistical calculations on the data to support queries submitted from web browsers. Databases grant and limit access to data based upon criteria such as username, password, region or account number. Databases also enforce data integrity by ensuring that data is collected and presented using a consistent format (Wall, 2022).

7. What is a web server? List different types of web servers used today.

Every Website sits on a computer known as a Web server. This server is always connected to the internet. Every Web server that is connected to the Internet is given a unique address made up of a series of four numbers between 0 and 255 separated by periods.

The different types of web servers used today are:

- Apache HTTP Server

This is the most popular web server in the world developed by the Apache Software Foundation.

- Internet Information Services

The Internet Information Server (IIS) is a high-performance Web Server from Microsoft.

- lighttpd

The lighttpd, pronounced lighty is also a free web server that is distributed with the FreeBSD operating system.

- Sun Java System Web Server

This web server from Sun Microsystems is suited for medium and large websites.

Jigsaw Server

Jigsaw (W3C's Server) comes from the World Wide Web Consortium. It is open source and free and can run on various platforms like Linux, Unix, Windows, Mac OS X Free BSD etc (Tutorialspoint, 2022).

8. What is API and what is its use in modern web development?

API is the acronym for application programming interface — a software intermediary that allows two applications to talk to each other. APIs are an accessible way to extract and share data within and across organizations. APIs are all around us. Every time you use a rideshare app, send a mobile payment, or change the thermostat temperature from your phone, you're using an API. The term "API" has been generically used to describe connectivity interfaces to an application. However, over the years, the modern API has taken on some unique characteristics that have truly transformed the technology space. First, modern APIs adhere to specific standards (typically HTTP and REST), which enable APIs to be developer-friendly, self-described, easily accessible, and understood broadly (MuleSoft, 2023).

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