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 a specialized programmer who creates and manages websites and web-based apps using languages such as HTML, CSS, and JavaScript. They also ensure that the website functions smoothly by integrating it with other systems, database and by debugging and testing the sites. Their expertise lies in the development of web-based applications and services that area accessible on the world wide web.

Web developers work together with web designers and developers to create visually pleasing and user-friendly websites. The use technologies such as CMS, web frameworks, Git, and web servers to manage, deploy and test the websites.

2. What is Frontend, Backend and Full Stack Development?

Front end development is the task of designing and creating the visual elements if a websites or web application that users interact with. This includes the layout, design, and functionality of the website. Developer who works on front-end use languages such as HTML, CSS, and JavaScript to ensure that the website or web application is integrative and runs smoothy in awed browser. They are responsible for creating the user interface and user experience of the website.

Back-end development, also called server-side development, involves creating the foundational functionality for a website or web application. This includes server-side logic, database management, and API development. Back-end developers use languages like PHP, Ruby, Python, and Java to create the server-side logic that connects the front-end to the database.

paraphrase Full-stack development is a combination of both frontend and backend development, where a developer has knowledge and experience in both areas and can work on both the client-side and server-side of web development.

3. Differentiate between Static vs Dynamic site

Static	Dynamic
Content is fixed and each page is coded in plain HTML and CSS.	Content is dynamic which changes according to user's preferences.
Displays the same design and content to every user who visits the website.	Offers a unique mix of dynamic content, multimedia elements and interactive features.
Updates can be tedious and prone to errors.	Design updates can be much simpler.
More control and flexibility as each page design is unique.	User has complete control over updating the design and changing the content.
Plain HTML is required to create static pages.	PHP, JavaScript, ASP and JSP can be used to create dynamic pages.

4. Describe the role of HTML, CSS, and JavaScript in web development

HTML is a standard language used for creating web pages. It is responsible for the structure, layout, and elements of a webpage, such as headings, paragraphs, images, and links.

CSS is a language used to control the appearance of a webpage, such as layout, colors, and fonts. It separates the visual design of a webpage from its structure and content, allowing developers to make changes to the look of a website without affecting the HTML code.

JavaScript is a programming language that enables web pages to be interactive. It is used to create dynamic effects on web pages, such as animations, form validation, and interactivity. JavaScript allows web developers to add interactive elements, like buttons, form validation, and sliders, to create dynamic and interactive websites.

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

XML and JSON are both file formats that are utilized in web development to store and transfer data between different systems.

XML is a language that is used to set up the structure of data. It employs tags like HTML to identify elements and the connections between them. XML data is readable by both humans and machines, making it a flexible and commonly used format for data transfer.

JSON is a lightweight data-interchange format that is simple for humans to read and write, and easy for machines to process and generate. JSON employs a straightforward syntax of key-value pairs and is often employed to transmit data between a server and a web application or between different sections of a web application. JSON is usually faster and smaller than XML and more convenient to use with current programming languages.

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

A database is used in websites to store and retrieve large amounts of data. This data can include information such as user accounts, product catalogs, and website content. The database allows a website to dynamically generate web pages based on the information stored within it, rather than relying on static HTML pages. Databases are also used for more advanced features such as search functionality, data analytics and reporting, and to support multiple languages. A database management system (DBMS) is commonly used to interact with the database, providing an interface for creating, reading, updating, and deleting data. Popular DBMS include MySQL, PostgreSQL, and MongoDB, etc.

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

A web server is a software or hardware device that accepts and responds to HTTP requests from clients, typically web browsers.

Different types of web servers include:

- Apache: An open-source web server that is widely used on Linux and Unix systems.
- Nginx: An open-source web server that is known for its high performance and low resource usage.
- Microsoft IIS: A web server developed by Microsoft for use on Windows systems.
- Lighttpd: An open-source web server that is designed to handle high-traffic websites.
- Caddy: An open-source web server with automatic HTTPS support.
- Google Cloud Run: a fully managed platform to run containerized applications on a fully managed infrastructure.

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

An API (Application Programming Interface) is a set of rules and protocols that allows different software systems to communicate with each other. In the context of web development, an API allows different applications to access the functionality or data of a web application without requiring them to have direct access to the underlying code or database.

It uses I modern web development are:

- Allowing third-party developers to build applications that interact with your web application.
- Enabling communication between different microservices that make up a larger web application.
- Allowing mobile apps to access the web application's data or functionality.
- Enabling integration with other external services and systems.