**Tutorial Task: Week 9**

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

1. What and who is a web developer?

Ans:

The man behind programming websites and apps and specializing in developing online software that works in web browsers is called a web developer. Whether they are working in a company or a freelancer, their job is to create products that the consumers are asking for (Limbüchler, 2020). A person who wants to be a web developer needs to be computer literate and have strong numeracy skills. They also need to have a creative mind and precise attention to detail. When working in a group they also need to be able to explain technical matters to the team with good communication and problem-solving skills. For web developers to develop their skills, self-learning is the key which also helps to stay up to date with the frequent technological advancements. When web developer gets the experience, they can progress to become technical lead and then a technical architect (tutch, 2019).

1. What is Frontend, Backend, and FullStack Development?

Ans:

Frontend development deals with programming languages like HTML, CSS, and JavaScript. It is responsible for the client side of web development it is the part of the website where the users interact with. The languages which are used in front-end development help to create user interfaces and help to improve user experience on the website. (edureka, 2020)

Backend development is the backbone of frontend development because it deals with the server side of the web development and manages the data and logic and interfacing the frontend development. In backend development, the languages used are Java, python, and ruby. They also use frameworks such as Ruby on Rails, Django, or express. The developers ensure the smooth running and functionality of the website. (edureka, 2020)

In full-stack development, a single programmer does both front-end and back-end development. They have designing and developing skills that help in deploying a complete web application from the user interface of the database. (Eggleston, 2018)

1. Differentiate between Static vs Dynamic site.

Ans:

Static websites are pre-built, and the content remains unchanging, which means that the same information is displayed to all users. JavaScript websites are developed using technologies such as HTML, CSS, and JavaScript and do not require a server-side language or database. They are often used for simple websites, such as personal blogs, portfolios, or small business sites. On the other hand, dynamic websites are interactive, and different for different person input or other factors. These websites are created using server-side languages such as PHP, Ruby, or Python and often use a database to store and retrieve data. They are commonly used for more complex websites, such as e-commerce sites, social media platforms, and web applications. (Castiglione, 2019)

Static websites are faster to load, easier to construct, and simple to host but are not as flexible as dynamic websites which can be more powerful and responsive. Static websites are also less costly than dynamic websites, which require advanced technology and ongoing maintenance. (Stevens, 2020)

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

Ans:

HTML, CSS, and JavaScript are three essential languages in web development. HTML is used to structure the content of a website. It provides the framework for a webpage, such as headings, paragraphs, images, and links. CSS is used to control the layout and design of a webpage. It makes website design maintenance and updating easier by enabling developers to decouple the display of a webpage from its structure. A webpage's colors, fonts, spacing, and other design components may all be added using CSS, according to experts. An interactive web page is created using the computer language JavaScript. Using it, programmers may make dynamic effects, such as image sliders, drop-down menus, and form validation. It can also be used to update the content of a webpage without having to refresh the entire page, making it more responsive and interactive. Together, these three languages work together to create dynamic and interactive web page (andrew, 2019). CSS gives the layout and design, HTML the structure, and JavaScript the interaction. All three languages are essential for web development and are used in every website (mangialardi, 2020).

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

Ans:

XML is a markup language that is used for structuring, storing, and transporting data. It is similar to HTML, but it is designed to carry data, not to display it. XML is used to create documents with a custom markup language, and it is often used to transfer data between different systems. XML is self-describing, which means that the structure of the data is defined in the document itself.

Humans and robots can both read, write, interpret, and generate data in the straightforward data interchange format known as JSON.. Data is sent between a server and a client using JSON. web application, or between different parts of a web application. JSON is frequently used to transport data and is built on a subset of JavaScript in web applications as a substitute for XML. (Pöhls, 2020)

Both XML and JSON are used to transfer data between different systems, but JSON is more lightweight and easier to read and write than XML. JSON is also more compatible with modern web development technologies, such as JavaScript, because it is based on a subset of JavaScript. ( W3school, 2021)

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

Ans:

A database is used to store, organize, and retrieve data on a website. It is a crucial component of many websites, especially those that involve dynamic content such as e-commerce sites, social media platforms, and web applications. Databases allow a website to store a large amount of data, like user information, product information, and transaction data in an organized and structured way. This data can be easily retrieved and displayed on the website, allowing users to search, filter and sort the data according to their needs. (Stevens, hostinger, 2019)

Databases also provide features such as data validation, security, and scalability that can be used by web applications to ensure data integrity and consistency. They also play an important role in website security as they can be used to store user authentication and authorization information, which is used to control access to certain parts of a website. (Risley, 2021)

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

Ans:

An internet client requests online pages from a web server, which is either software or hardware. It responds to client requests—typically made by web browsers—by returning the desired web pages. A web server's primary duty is to store, process, and distribute web pages to clients.

Today, a variety of web server kinds are employed; the most well-liked ones are as follows:

* Apache is an open-source web server that may be used with Windows, Linux, and Mac OS. It's utilized widely.
* Nginx: A powerful web server that is free and open-source that can manage several connections at once. It is frequently employed as a load balancer and reverse proxy.
* IIS (Internet Information Services): This Microsoft-developed, closed-source web server, which works with Windows, is frequently used to host.NET web applications.
* Litespeed: A reverse proxy and load balancer that is an open-source, high-performance web server and can manage several concurrent connections.
* Caddy: A portable, open-source web server that is simple to install and use.

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

Ans:

Application Programming Interface, or API, is what it stands for. Building software and apps requires following a set of guidelines, protocols, and tools known as an API. APIs enable communication across various systems while defining the way software components should cooperate.

The use of an API in web development enables online communication between many apps. An API may, for instance, enable a mobile app to access information from a website or a server for a third party app. Since the API connects the many systems, they may exchange information and features. Today's web developers frequently use APIs for a broad range of tasks, including granting access to and usage of data and features from a website or service, such as social networking networks, e-commerce websites, and meteorological services. Allowing several programs to communicate and exchange data. Signing and developing serverless apps and microservices construction of voice assistants and chatbots (Stevens, hostinger, 2019)