Academic Skills (4CI018)
Naomi Thing (Group 4)
Np03cs4a220491

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 specialist in the creation of websites and web applications. To design, build, and keep websites and web applications, the web developers use a variety of programming language. They oversee the technical aspects of his website, such as functionality and performance, as well as making the site user-friendly and visually appealing. A web developer is someone who understands web technologies and programming languages like HTML, CSS, and JavaScript, they have knowledge on back-end languages like PHP, Ruby, and Python, and databases like MySQL, MongoDB, and SQLite. The web developers must be able to work in a variety of environments as a web developer, including freelancers, startups, digital agencies, her web development team within companies, government agencies, and non-profit organizations. (Vuniqi, 2018)

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

= Front-end development, back-end development, and full-stack development are 3 distinct areas of web development that concentrate on different aspects of creating and supporting websites and web applications.

- Frontend development: Frontend development, well known as client-side development, is the process of designing a website's or web application's user interface and experience. Front-end developers create website layout, design, and interactive elements using HTML, CSS, and JavaScript languages. It also builds complex web applications with the help of JavaScript libraries and frameworks like React, Angular, and Vue.

Frontend developers oversee making their website look nice and be easy to use. Front-end developers concentrate on the user interface, user experience, and visual aspects of a website.

- Backend development: It is known as server-side development, it is the process of creating a website's or web application's underlying logic and functionality. Backend developers use languages like PHP, Ruby, and Python and databases such as MySQL, MongoDB, and SQLite to create website logic and functionality. Backend developers handle ensuring that the website functions properly and that data is correctly stored and retrieved. Backend developers are concerned with the functionality, performance, and data management of websites.

- Full Stack development: Full-stack development encompasses both front-end and back-end of the web application. Full-stack developers are well-versed in front-end and back-end technologies and can work on both sides of a website or web application. The developer should handle the design, functionality, and performance of a website or web application. A full-stack developer oversees both the frontend and the backend of a website or web application. (Vuniqi, 2018)

3. Differentiate between Static vs Dynamic site
=

Static site	Dynamic site

A static website is one that is created entirely with HTML, CSS, and JavaScript.	A dynamic website is one that is created by combining HTML, CSS, JavaScript, and server-side code.
It does not use any server-side code or interact with any databases.	It uses server-side code to generate pages on the fly and communicates with databases to store and retrieve data.
A static website's content is fixed and cannot be changed by the user.	A dynamic website's content can be changed and updated by the user.
Static websites are simple to create and support.	These types of websites are more difficult to create and keep than static websites, but they supply significantly more functionality and flexibility.

(WiX Blog, 2021)

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

= The three most fundamental technologies used in web development are HTML, CSS, and JavaScript. They form the foundation of many websites and web applications. HTML is a standard language for creating the structure and layout of web pages, which includes

headings, paragraphs, lists, links, images, and videos. CSS is a programming language that allows for the visual representation of web pages, such as colors, fonts, spacing, and layout. JavaScript provides web pages with interactivity and dynamic behavior, such as animations, forms, and user interaction. These technologies are at the heart of most web development projects and are needed for the creation of modern websites and web applications. (Cox, 2021)

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

= XML and JSON are two different file formats that are commonly used in web development for data storage and transfer.

- XML: XML, which stands for eXtensible Markup Language, is a markup language which stores and transfers structured data. It is data with a tree-like structure and defines the structure of the data with tags. XML is often used to store and transfer human-readable data. It's common in Web Services and APIs. (toptal, 2023)

- JSON: JSON (JavaScript Object Notation) is a lightweight data-exchange format that is easy for humans to read and write while also being easy for machines to decode and generate. It is used to store and transfer machine-readable data and is derived on a subset of the JavaScript Programming Language. (toptal, 2023)

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

= Many websites and web applications rely heavily on databases. The use of a database in websites is that it stores and manages large amounts of data so that the website can easily and efficiently retrieve and process

information. They are essential for website functionality like account registration, e-commerce transactions, and analytics. The database also stores website analytics data like the number of visitors, pages viewed, and time spent on the website. This information can be used to improve the performance and user experience of a website. (TechTarget, 2023)

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

= A web server is a computer program or hardware device that accepts and processes network requests for web pages and other resources. It responds to web browser requests by returning relevant data such as HTML pages, images, and other files.

There are different types of web servers present today, each with its own set of merits and disadvantages. Web servers that are commonly used include:

- Apache
- Nginx
- IIS (Internet Information Services)
- Lighttpd
- Caddy
- Apache Tomcat (TechTarget, 2023)

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

= API standing for "Application Programming Interface," refers to set of rules and protocols which allows different software systems to communicate with one another. APIs enables different systems to communicate with one and other by supplying a standard set of data access and manipulation methods. APIs, for example, can be used by a website to access data in databases or retrieve information from third-party services.

APIs are commonly used in modern web development to allow communication between different systems and services. Developers can access and manipulate data

from other systems and services without having to understand the underlying complexities of those systems. This enables developers to create more powerful and feature-rich applications in less time and with less effort. APIs in modern web development enable various systems and services to interact with one another, allowing developers to create more powerful and feature-rich applications. They are often used to integrate with third-party services, develop mobile apps, create microservices, and create single-page applications. (Frye, 2023)

References:

Cox, L. K., 2021. *hubspot.* [Online]
Available at: https://blog.hubspot.com/marketing/web-design-html-css-javascript#:~:text=HTML%20provides%20the%20basic%20structure,the%20behavior%20of%20different%20elements.
[Accessed Wednesday January 2023].

Frye, M.-K., 2023. *MuleSoft.* [Online]
Available at: https://www.mulesoft.com/resources/api/what-is-an-api#:~:text=Many%20people%20ask%20themselves%2C%20%E2%80%9CWhat,APIs%20are%20all%20around%20us.
[Accessed Wednesday January 2023].

TechTarget, 2023. *TechTarget.* [Online]
Available at:
https://www.techtarget.com/searchdatamanagement/definition/database#:~:text=Databases%20are%20used%20for%20storing,an%20organized%20collection%20of%20information.
[Accessed Wednesday January 2023].

toptal, 2023. *toptal.* [Online]
Available at: https://www.toptal.com/web/json-vs-xml-part-1#:~:text=JSON%20is%20a%20data%20interchange,of%20any%20XML%20sub%2Dlanguage.
[Accessed Wednesday January 2023].

Vuniqi, D., 2018. *elegant themes.* [Online]
Available at: https://www.elegantthemes.com/blog/resources/web-designer-vs-web-developer-whats-the-difference?utm_source=Blog&utm_medium=Manual%20WordPress%20Targets&utm_campaign=Google%20Search&retargeting=off&gclid=CjwKCAiAzp6eBhByEiwA_gGq5AtT-5xCUvZ8gY8k1YZK61zNy5up
[Accessed Wednesday January 2023].

Vuniqi, D., 2018. *elegant themes.* [Online]
Available at: https://www.elegantthemes.com/blog/resources/web-designer-vs-web-developer-whats-the-

Academic Skills (4CI018)
Naomi Thing (Group 4)
Np03cs4a220491

difference?utm_source=Blog&utm_medium=Manual%20WordPress%20Targets&utm_c
ampaign=Google%20Search&retargeting=off&gclid=CjwKCAiAzp6eBhByEiwA_gGq5AtT
-5xCUvZ8qY8k1YZK61zNy5up
[Accessed Wednesday January 2023].

Vuniqi, D., n.d. *elegant themes.* [Online].

WiX Blog, 2021. *WiX Blog.* [Online]
Available at: https://www.wix.com/blog/2021/11/static-vs-dynamic-
website/#:~:text=A%20static%20website%20is%20one,to%20change%20with%20the%
20user.
[Accessed Wednesday January 2023].