

Web Application Development

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By

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**Task 2:**

**Your website has become outdated. You need to develop a new, more responsive website that better represents your company. Instead of developing the style sheets for this website from the ground up, you have decided to employ a CSS framework. It must be an alternative to Bootstrap. Which CSS framework would you recommend, what are the limitations of the selected framework, and what should be considered when developing responsive websites?**

With the old website on hand, we already have a pretty good idea about the design and layout of the website and to make it more responsive so that it will have the capability to be viewed on any platform and ratios with a better design, we will be using a framework.

What is a framework? You might ask; the simple understanding of what a framework is that the framework includes cohesive sets of library code that simplify programming in any given language. And here, in the process of making a better and more responsive website, we will be using CSS (Cascading style sheet) frameworks.

There are multiple CSS Frameworks available in the market. Some top frameworks are Bootstrap, Tailwind CSS, Skeleton, etc. According to my knowledge and skillset, the recommended framework here is Tailwind CSS.

Tailwind is a utility-first CSS framework packed with classes, and it helps us in writing and maintaining the code of your application, it includes pre-defined classes which are required to be added in your HTML element class, it really helps in maintenance because while using tailwind all the CSS-classes are remained on the HTML page and eliminates the hassle of changing the tab again and again with easy responsive web methods in the pocket.

Tailwind is a great framework, but tailwind has some cons with it; tailwind requires the user to have previous knowledge about CSS and it takes a lot of time and understanding to learn it secondly, tailwind does not have significant styling components we have to manually add features like buttons , headers and etc.

Tailwind goes against “separation of concerns,” Separation of concerns generally means the separation of programs into distinct sections (BY [**NANCY YOUNG**](https://www.webdesignerdepot.com/author/Nancy-Young) , https://www.webdesignerdepot.com/2021/09/the-pros-and-cons-of-tailwind-css/)

But when it comes to making responsive design, tailwind really shines out; making a responsive design on tailwind requires a very low effort while comparing it to the case where we are using only HTML &CSS . While considering a responsive design, a developer should always start its development process from a mobile user perspective (‘Mobile First’). Then after successfully designing a mobile version, we can move forward to bigger .

**Task 1:**

**Your company asks you to perform an analysis in order to select a new development environment for website projects. This development environment should support HTML, CSS, and JavaScript and have various features to support the development process. Select any three development environments that meet the above requirements and compare them to each other based on a set of criteria defined by you (these criteria should cover at least ten important functionalities for virtual projects). Then, draw a final conclusion: which of these solutions would you recommend to your company, and why?**

Development Environment is a Software Application that brings various Plugin’s Tools and necessary coding Accessories to the table and helps us to code on various programming languages by handling the files.

These are the following Development Environments Available

1. Sublime Text: This is a lightweight code editor that is available on Windows , Mac Os & Linux known for its speed and ease of use. It has a large number of plugins and packages available, making it a good choice for web development. (WEBPAGE- [Sublime Text - Wikipedia](https://en.wikipedia.org/wiki/Sublime_Text))
2. Visual Studio Code: This is a popular code editor which is also called as VS code is developed by Microsoft . Visual Studio code gives us a vast variety of languages to use together It has a vast array of extensions and features & have really good integrity with GitHub that make it a great choice for web development. (WEBPAGE - [Visual Studio Code - Wikipedia](https://en.wikipedia.org/wiki/Visual_Studio_Code))
3. IntelliJ IDEA: This is another popular code editor which is written in java programming language. It has the same set of features of Visual Studio Code and Sublime Text together, making it a rock-solid choice for web development. (WEBPAGE- [Atom (text editor) - Wikipedia](https://en.wikipedia.org/wiki/Atom_(text_editor)))

Criteria for comparison:

1. Speed and performance
2. Customizability and extensibility
3. Ease of use
4. Code highlighting
5. Available plugins and packages
6. Integrated development environment (IDE) features
7. Built-in debugging tools
8. Community support and resources
9. Cross-platform compatibility
10. Price

I would recommend Visual Studio Code to my company. As VS code is free of cost and have a lot of plugins which promotes the ease of code , visual studio code also have a great compatibility with GITHUB & an integrated development environment that makes it a better choice for web development projects.

**Task - 3**

**You work in a consulting firm and are expected to advise one of your clients on the development of their new, secure website. How do you proceed? What recommendations do you give to your client? Finally, where should the client focus their attention—first, during the development and, later, when operating the completed website?**

When advising a client on the development of a new, secure website, I would proceed as follows:

1. Understand the client's specific needs and requirements for their website, including the type of content and functionality that will be offered, as well as any specific security concerns that they might have.
2. Review the client's current security condition and identify any potential vulnerabilities. This may include conducting a security assessment of their existing systems and infrastructure.
3. Develop a comprehensive security plan that addresses the identified vulnerabilities and meets industry-standard best practices for website security. This plan should include measures such as encryption, secure authentication and access controls, and regular security testing and monitoring.
4. Provide recommendations on technologies, frameworks, and tools that can be used to implement the security plan and ensure the website is built with security in mind from the start.
5. Advise on the importance of regular security testing and monitoring to detect any potential vulnerabilities and ensure the website remains secure over time.

During the development phase, the client should focus their attention on:

1. Ensuring that the website is built with security in mind from the start, by using secure coding practices and technologies that are known to be secure.
2. Conducting regular security testing to identify and address vulnerabilities as they are discovered.
3. Establishing a secure development lifecycle (SDL) to ensure that the website is developed, tested, and deployed in a secure manner.

After the website is completed and in operation, the client should focus on:

1. Regularly monitoring and testing the website to detect and address any potential vulnerabilities.
2. Keeping software and security protocols up-to-date to protect against new threats.
3. Providing employee education and training to ensure that all staff understand the importance of website security and how to identify and respond to potential threats.
4. Regularly reviewing and updating the website's security policies and procedures to ensure they remain effective.
5. Maintaining a disaster recovery and business continuity plan to ensure that the website can be quickly restored in the event of a security incident or other emergency.

**Task 5:**

**Choose a common trend in internet development (e.g., serverless architecture) and describe its impact on web application development, both today and in the future.**

Single-page websites, also known as single-page applications (SPAs), have had a significant impact on web application development in recent years. These types of websites load a single HTML page and dynamically update the content as the user interacts with the site, rather than loading new pages for each action. This results in a faster, more seamless user experience.

Today, many popular web applications, such as social media platforms, e-commerce sites, and email clients, are built using single-page architecture. This allows for faster load times, improved navigation, and better overall user experience. Additionally, many modern JavaScript frameworks, such as React, Angular, and Vue, are geared towards building single-page applications and make it easier for developers to create dynamic and responsive web applications.

In the future, single-page websites will continue to be a popular choice for web application development. As users expect faster, more responsive, and more seamless online experiences, single-page websites will be able to provide those experiences. Additionally, advances in web technologies, such as WebAssembly, will enable even more powerful and complex single-page applications.