The edge of front-end web development with Svelte

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Introduction

The web technology that I have chosen to implement for the front-end of the website in this project was Svelte. Svelte is a compiled JavaScript framework that takes '.svelte' files written in the svelte framework and outputs plain JavaScript. This has the benefit of shifting the complexity of generating pages away from when a user loads a page, typical with frameworks like React and Vue, to the compile-time when the Svelte compiler generates JavaScript. Additionally, the generated JavaScript includes only the framework features included in the website. This allows the JavaScript file to be much smaller than for an equivalent website written in Vue or React. Harris (2016) notes that a Svelte implementation of a To-do application written in Svelte compressed is 3.6kb, whereas a similar application written in React is about 45kb (Harris, 2016).

Svelte components are also much shorter to write than Vue or React. For example, Svelte uses the export keyword to specify that a variable is a prop. I have always found that web frameworks seem to make defining props unnecessarily complex in the definition and modification. Svelte assigns the complex job of understanding what to do with the prop to the interpreter, making the framework more readable and simpler to write.

Implementation

During building the Svelte components for this project, I referred to the Svelte documentation and looked at working examples using the Svelte REPL. The Svelte REPL reads the code in svelte, evaluates it by compiling it and reporting any errors to the user via the console on screen, prints the output JavaScript to a rendered page and loops the execution of the steps. By searching for working examples on the REPL, I could implement website features that I was unsure how to write in Svelte. For example, when implementing the search

feature on the products page, I found a REPL that implemented a search through books and rendered the resulting filtered list (*Filter Elements w/ Menu and Search Input • REPL • Svelte*, n.d.). After understanding the REPL example, I realised I could use conditional logic to render components on the products page instead.

The predecessor to svelte, called reactive, impacted how Vue files are structured. Vue copied how svelte files are separated into HTML templating, CSS styling, and JavaScript functionality (*About the Svelte JavaScript Framework*, 2020). It seems that Svelte will likely impact other future front-end web development due to how fast and small the framework is and how simple it is to learn and write websites that work well quickly. Svelte has been highlighted in two developer surveys as having the highest satisfaction and interest in working with (*State of JS 2020*, n.d.) and being the most loved web framework (*Stack Overflow Developer Survey 2021*, n.d.). Other frameworks in the future may take the approach Svelte has and use a compiler to gain the benefit of more accessible code to write and work with.

Compared with React, Vue and Angular, Svelte has a much smaller community. The total number of weekly downloads of Svelte is just over 311,000 (*Svelte*, n.d.)compared with over 16,018,000 of React, over 3,290,000 weekly downloads of Vue, and 1,967,000 downloads of Angular. Where React is backed and developed by Facebook/Meta and Angular is developed by Google/Alphabet, Svelte only last year was officially backed by Vercel (cite). Svelte has seen a grassroots level of support from developers and contributors. In contrast, Google and Facebook can put many resources into developing and growing their supported frameworks.

Conclusion

Through this project, I have enjoyed working with Svelte and learning aspects of front-end website development that I had previously not enjoyed. The REPL for Svelte is an incredible resource for learning and exploring framework features that are not entirely put together into a working example in the documentation.

As a compiled language, the syntax of Svelte can remain; however, the compiler can be changed to improve efficiency or take advantage of developments in JavaScript. Having learned other compiled languages, it's a bit of a wonder that more frameworks have not employed this strategy for web development. I wonder if this is due to some complexity I may not understand as someone relatively new to development.

Overall, Svelte made me enjoy the front-end again. The simple syntax and lack of complexity were incredibly refreshing to work with compared to Vue, which I used for the comparison part of the course. I am looking forward to carrying on developing my projects with Svelte in the future.

References

About the Svelte JavaScript framework. (2020, November 19). ValueLogic | Blog. https://valuelogic.one/blog/the-rise-of-the-svelte-javascript-framework/

Docs • Svelte. (n.d.). Retrieved June 21, 2022, from https://svelte.dev/docs#component-format-script

Filter Elements w/ Menu and Search Input • REPL • Svelte. (n.d.). Retrieved June 21, 2022, from https://svelte.dev/repl/e67e1a90ef3945ec988bf39f6a10b6b3?version=3.32.3

Harris, R. (2016, November 26). *Frameworks without the framework: Why didn't we think of this sooner?* https://svelte.dev/blog/frameworks-without-the-framework

React. (n.d.). Npm. Retrieved June 21, 2022, from https://www.npmjs.com/package/react

Stack Overflow Developer Survey 2021. (n.d.-a). Stack Overflow. Retrieved June 21, 2022, from https://insights.stackoverflow.com/survey/2021/?utm_source=social-share&utm_medium=social&utm_campaign=dev-survey-2021

Stack Overflow Developer Survey 2021. (n.d.-b). Stack Overflow. Retrieved June 21, 2022, from https://insights.stackoverflow.com/survey/2021/?utm_source=social-share&utm_medium=social&utm_campaign=dev-survey-2021

State of JS 2020: Front-end Frameworks. (n.d.). Retrieved June 21, 2022, from https://2020.stateofjs.com/en-US/technologies/front-end-frameworks/

Svelte. (n.d.). Npm. Retrieved June 21, 2022, from https://www.npmjs.com/package/svelte

Svelte. (2022). In *Wikipedia*. https://en.wikipedia.org/w/index.php?title=Svelte&oldid=1090916113

Vue. (n.d.). Npm. Retrieved June 21, 2022, from https://www.npmjs.com/package/vue