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THE COMPARATIVE ANALYSIS OF REACT AND VUE FRAMEWORKS

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Анотація
Проведено дослідження та порівняння сучасних веб технологій для створення користувацьких інтерфейсів - бібліотеки Reactjs та фреймворку Vue.js. Визначено сфери застосування кожної із них.

Ключові слова: джаваскрипт, реакт, в'ю, бібліотека, фреймворк, веб технології, користувацькі інтерфейси

Abstract
Research and comparison of modern web technologies for creating user interfaces - Reactjs library and Vue.js framework. The scope of each of them is defined.

Keywords: javascript, react, vue, library, framework, web technologies, user interfaces

We cannot imagine our modern world without our favorite websites applications and at the same time we cannot imagine the web apps without the most popular and useful programming language - Javascript. But native JS, without libraries and frameworks, is not almost used for commercial development medium and large projects. So if you want to become a demanded specialist in web development you have to learn JS and some of its libs and frameworks.

Front-end development can be confusing with new JavaScript libraries sprouting like mushrooms after a summer rain. Each time you start a new project, you face a tough choice: stick with your battle-tested stack or experiment with cutting-edge tech?

If you're at least somewhat familiar with front-end development, you've probably heard about React. It is designed by the Facebook company and is actively used in their social network and in some similar web products like Instagram or Whatsapp. The React version works with Netflix too – specifically on their platform called Gibbon which is used for low-performance TV devices while the DOM is used in web browsers. Netflix has even published an official blog post explaining how the ReactJS library helps its startup speed, runtime performance, modularity, and various other advantages. The New York Times has designed a great new project that simulates different looks of stars on the Oscars red carpet. Obviously, this project's interface was built in React and it lets users filter the gallery of different photos from 19 years in a nice way. [1]

However, Vue.js is not so popular in big commercial development. It is used by some companies for some of their website modules. Apple used Vue.js for their tutorial website for the new SwiftUI. Upwork uses Vue.js for parts of their freelancer platform, like the overview of freelancers in specific categories. BMW USA built a car configurator with Vue.js. It lets you build the BMW of your dreams, showing you how it looks in different colors, with different wheels or upholstery. It also walks you through choosing different feature packages according to your needs. Google's Career Platform, including their job board, is built with Vue.js! Adobe is also using Vue.js for multiple projects. First and foremost, their showcase platform for creative work, Behance, is developed with Vue. [2]

As you can see, many enterprises use Vue.js for small, encapsulated parts of their applications and websites. Maybe they use these projects as a test run for a stack decision, or they just use Vue.js so they can develop and deliver results faster – who knows?

In any case, they have discovered the advantages already, and we're convinced we'll be seeing a lot more of their Vue.js experiments in the future! [2]

Why do we notice such a gap in these technologies and why is it important to understand which of them is worth studying if even at this stage the answer would seem to be obvious? I hasten to note - not everything is so simple. [2]

The fact is that React JS is developed by Jordan Walk with support from Facebook. Most likely it had been Jordan's idea and he was the lead developer but the main work was implemented by Facebook's team. Insofar as it was designed for their company products primarily. The initial release was in 2013 but

in 2012 it had been already used in some Facebook pages. React JS does not need a lot of advertising and promotion because it is enough to mention that it is Facebook's product and is used in their lead sites.

With Vue.js, everything is completely different. It was designed and implemented by one person - Evan You. He writes about himself: 'I am an independent software developer and the creator of the open source JavaScript framework Vue.js.' [3] He started creating Vue.js when he had been working at Google company. As we know Google also has its own Javascript framework - Angular but our topic is not about it because Google's technology has a slightly different scope and approach. Let's go back to Vue.js and Evan You. He has designed, developed, written documentation, advertised, and promoted Vue.js by himself. The initial release was in 2014 when framework Angular by Google and library React JS by Facebook already had been on the market and had their users and supporters.

In fact, we consider open source projects which are placed at GitHub - remote repository of users' codes. When developers use some technology they estimate it at GitHub. So we can look at our technologies' stars count and find out what is the most popular and rated by users. Vue.js - 180K [4] stars, React - 165K [5], and Angular only 71K [6]. Actually, Vue.js is the leader though it has been released last.

But why? Let's think, "Vue.js is a progressive framework for building user interfaces. Unlike other monolithic frameworks, Vue is designed from the ground up to be incrementally adoptable." [7] - as it is written on the official website. Unlike Vue.js, React is "a JavaScript library for building user interfaces." [8] Though React is just a library it is still a powerful technology but it needs to use more additional libraries and technologies. It is okay because it has been designed for a big company for difficult product tasks where there is valuable decomposition and single-responsibility principle. A strong team can handle it and share responsibility among many developers.

Vue.js is a full-fledged framework where a lot of functionality is available by default, as the developers say "of the box". Also, it has a great ecosystem with other necessary technologies like vue-router for page navigation, vuex for state management, vue test utils for solid testing, and much more. All of these staff have been developed by one person for maximum usability with the main instrument - Vue.js. And this fact is the main point why Vue.js is so simple and powerful at the same time even for a small team or single developer. That is why Vue.js has the most stars at GitHub. Developers love Vue because it allows the creation of high-quality products and to do it simply.

As Evan You says he has been inspired by React in creating Vue.js. That is why all these technologies use the same patterns and approaches for solving web developing issues. Both have a virtual component-based user interface development document object model, virtual document object model pattern, and much more. But at the same time, React is great for the long term at large projects. It also has a huge community, ready solutions, and excellent support from Facebook.

In conclusion, it all depends on your requirements and goals. If you want to work at an IT company with your team and develop big projects - React is your friend. Most companies use React because they need to guarantee reliability for their products, they have enough resources for supporting long-term projects with a big developer team.

On another hand, Vue.js progresses, and Evan You expands his developers' team for better performance and quality of his framework. Today more and more startups have chosen Vue.js instead of React or another technology. That is because Vue.js allows developing products by a small team with high-speed productivity thanks to useful build-in technologies and a single ecosystem for a whole web application. All this makes the launch of the minimum viable product as fast as possible.

In my opinion, in a couple of years, Vue.js will be better and most developers will choose it just because it is simpler in learning and using. The point is that all technologies change. Today React and Vue is popular, but for about two years just a few developers have known about Vue. It says about the ephemerality and variability of our time.

Probably in the future will appear a new better technology or web development will change. Also, we have no guarantee that our company and team will use only one technology stack. So, all libs and frameworks are created just to simplify work with a native programming language that is used in the core of certain technology.

Great programmers consider that programming language or technology is just an instrument that will be changing from project to project.

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