React (JavaScript library)

From Wikipedia, the free encyclopedia

React (sometimes styled **React.js** or **ReactJS**) is an open-source JavaScript library providing a view for data rendered as HTML.

It is maintained by Facebook, Instagram and a community of individual developers and corporations.[2][3][4] According to JavaScript analytics service Libscore, React is currently being used on the websites of Netflix, Imgur, Bleacher Report, Feedly, Airbnb, SeatGeek, HelloSign, and others.[5]

As of March 2016, React and React Native are Facebook's top two open-source projects by number of stars on GitHub,[6] and React is the 6th most starred project of all time on GitHub.[7]

Contents

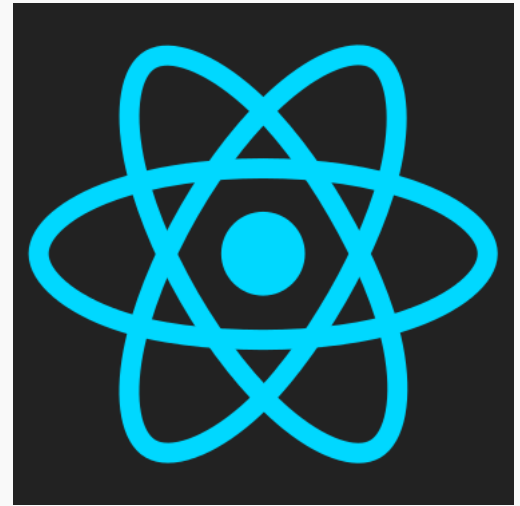| React	
Original author(s)	Jordan Walke
Developer(s)	Facebook, Instagram and community
Initial release	March 2013
Stable release	15.3.0 / July 29, 2016[1]
Repository	github.com/facebook/react (https://github.com/facebook/react)
Development status	Active
Written in	JavaScript
Platform	Cross-platform
Size	128 KiB production 559 KiB development
Type	JavaScript library
License	3-Clause BSD with Facebook addendum (not OSI-approved)
Website	facebook.github.io/react (http://facebook.github.io/react)

History

React was created by Jordan Walke, a software engineer at Facebook. He was influenced by XHP, an HTML component framework for PHP.[8] It was first deployed on Facebook's newsfeed in 2011 and later on Instagram.com in 2012.[9] It was open-sourced at JSConf US in May 2013. React Native, which enables native iOS, Android and UWP development with React, was announced at Facebook's React.js Conf in February 2015 and open-sourced in March 2015.

Notable features

One-way data flow

Properties, a set of immutable values, are passed to a component's renderer as properties in its HTML tag. A component cannot directly modify any properties passed to it, but can be passed callback functions that do modify values. This mechanism's promise is expressed as "properties flow down; actions flow up".

Virtual DOM

Another notable feature is the use of a "virtual DOM." React creates an in-memory data structure cache, computes the resulting differences, and then updates the browser's displayed DOM efficiently.[10] This allows the programmer to write code as if the entire page is rendered on each change while the React libraries only render subcomponents that actually change.

JSX

React components are typically written in JSX, a JavaScript extension syntax allowing quoting of HTML and using HTML tag syntax to render subcomponents.[11] HTML syntax is processed into JavaScript calls of the React library. Developers may also write in pure JavaScript. JSX is similar to another extension syntax created by Facebook for PHP, XHP.

Architecture beyond HTML

The basic architecture of React applies beyond rendering HTML in the browser. For example, Facebook has dynamic charts that render to <canvas> tags,[12] and Netflix and PayPal use isomorphic loading to render identical HTML on both the server and client.[13][14]

React Native

React Native libraries announced by Facebook in 2015[15] provide the React architecture to native iOS, Android and UWP[16] applications.

Future development

Project status can be tracked via the core team discussion forum.[17] However major changes to React go through the Future of React repo (https://github.com/reactjs/react-future), Issues and PR.[18][19] This enables the React community to provide feedback on new potential features, experimental APIs and JavaScript syntax improvements.

Sub projects

The status of the React sub-projects is updated in the project wiki.[20]

Facebook CLA

Facebook requires contributors to React to sign the Facebook CLA.[21][22]

Licensing

The initial public release of React in May 2013 used a standard Apache License 2.0. In October 2014, React 0.12.0 replaced this with a 3-clause BSD license and added a separate PATENTS text file that permits usage of any Facebook patents related to the software.[23]

> *"The license granted hereunder will terminate, automatically and without notice, if you (or any of your subsidiaries, corporate affiliates or agents) initiate directly or indirectly, or take a direct financial interest in, any Patent Assertion: (i) against Facebook or any of its subsidiaries or corporate affiliates, (ii) against any party if such Patent Assertion arises in whole or in part from any software, technology, product or service of Facebook or any of its subsidiaries or corporate affiliates, or (iii) against any party relating to the Software. [...] A "Patent Assertion" is any lawsuit or other action alleging direct, indirect, or contributory infringement or inducement to infringe any patent, including a cross-claim or counterclaim."*[24]

This unconventional clause caused some controversy and debate in the React user community, because it may be interpreted to empower Facebook to revoke the license in many scenarios, for example if Facebook sues the licensee prompting them to take "other action" by publishing the action on a blog or elsewhere. Many expressed concerns that Facebook could unfairly exploit the termination clause or that integrating React into a product might complicate a startup company's future acquisition.[25]

Based on community feedback, Facebook updated the patent grant in April 2015 to be less ambiguous and more permissive.[26]

This second version of the patent grant remains controversial, making use of the library unacceptable for some developers. This is because the document continues to allow Facebook to revoke the right to use the library under Facebook patents in the event that the licensee brings a patent lawsuit against Facebook.[27]

References

1. "Releases - facebook/react". *GitHub*.
2. "React: Making faster, smoother UIs for data-driven Web apps". *InfoWorld*.
3. "Facebook's React JavaScript User Interfaces Library Receives Mixed Reviews". *InfoQ*.
4. "JavaScript's History and How it Led To ReactJS". *The New Stack*.
5. "Libscore". *libscore.com*.
6. "Open Source in 2015: A Year of Growth".
7. "GitHub search results sorted by number of stars".
8. "React (JS Library): How was the idea to develop React conceived and how many people worked on developing it and implementing it at Facebook?". *Quora*.
9. "Pete Hunt at TXJS".
10. "Working With the Browser". *React*.
11. "JSX in Depth". Retrieved 2015-11-17.
12. https://facebook.github.io/react/blog/2013/06/05/why-react.html
13. "PayPal Isomorphic React".
14. "Netflix Isomorphic React".
15. https://code.facebook.com/posts/1014532261909640/reac native-bringing-modern-web-techniques-to-mobile/
16. Windows Apps Team (April 13, 2016). "React Native on the Universal Windows Platform". *blogs.windows.com*. Retrieved 2016-11-06.
17. "Meeting Notes". *React Discuss*. Retrieved 2015-12-13.
18. "reactjs/react-future - The Future of React". *GitHub*. Retrieved 2015-12-13.
19. "facebook/react - Feature request issues". *GitHub*. Retrieved 2015-12-13.
20. "facebook/react Projects wiki". *GitHub*. Retrieved 2015-12-13.
21. "facebook/react - CONTRIBUTING.md". *GitHub*. Retrieved 2015-12-13.
22. "Contributing to Facebook Projects". *Facebook Code*. Retrieved 2015-12-13.
23. "React CHANGELOG.md". *GitHub*.
24. "Additional Grant of Patent Rights Version 2". *GitHub*.
25. Liu, Austin. "A compelling reason not to use ReactJS". *Medium*.
26. "Updating Our Open Source Patent Grant".
27. "Legal Department Did not Allow Use of React".

External links

- List of React resources – AwesomeReact (https://github.com/enaqx/awesome-react)
- Guide for React ecosystem By Pete Hunt - React howto (https://github.com/petehunt/react-howto)