# What is ReactJS?

**ReactJS** is an open-source front-end JavaScript library for building user interfaces. It was created by **Jordan Walke,** who was a software engineer at **Facebook.** It was initially developed and maintained by Facebook and was later used in its products like **WhatsApp** & **Instagram.** Facebook developed ReactJS in **2011** in its newsfeed section, but it was released to the public in the month of **May 2013.**

* It is widely used as a base in building single-page websites and mobile applications.
* It is very easy to use, and it allows users to create reusable UI components. (**Components** like search field, pagination, slider, tags, icons, progress bar, notifications, message boxes, accordion etc)

**MVC**

Today, most of the websites are built using MVC (model view controller) architecture. In MVC architecture, React is the 'V' which stands for view, whereas the architecture is provided by the Redux or Flux.(refer: https://www.geeksforgeeks.org/redux-and-the-flux-architecture/)

**VIRTUAL DOM**

ReactJS uses virtual DOM based mechanism to fill data in HTML DOM. The virtual DOM works fast as it only changes individual DOM elements instead of reloading complete DOM every time.

In other words, The virtual DOM (VDOM) is a concept where an ideal, or “virtual”, representation of a UI is kept in memory and synced with the “real” DOM by a library such as ReactDOM. This process is called reconciliation.

For example :

<ul>

<li>Coffee</li>

<li>Tea</li>

<li>Milk</li>

</ul>

Here if we update any one list item , then in case of real dom, it will update complete list but in case of virtual dom, it will update only that row.

**COMPONENT**

Components are like functions that return HTML elements. Components are independent and reusable bits of code. They serve the same purpose as JavaScript functions, but work in isolation and return HTML.

Components come in two types:

1. Class components
2. Function components

Refer: <https://www.w3schools.com/react/react_components.asp#:~:text=Components%20are%20independent%20and%20reusable,will%20concentrate%20on%20Function%20components>)

A ReactJS application is made up of multiple components, each component responsible for outputting a small, reusable piece of HTML code. The components are the heart of all React applications. These Components can be nested with other components to allow complex applications to be built of simple building blocks.

For example, we take a form that consists of many elements like input fields, labels, or buttons. We can write each element of the form as React components, and then we combine it into a higher-level component, i.e., the form component itself. The form components would specify the structure of the form along with elements inside of it.

## Why learn ReactJS?

Today, many JavaScript frameworks are available in the market(like angular), but still, React came into the market and gained popularity amongst them.

The previous frameworks follow the traditional data flow structure, which uses the DOM (Document Object Model).

The Document Object Model (DOM) is the data representation of the objects that comprise the structure and content of a document on the web. It dynamically adds or removes the data at the back end and when any modifications were done, then each time a new DOM is created for the same page. This repeated creation of DOM makes unnecessary memory wastage and reduces the performance of the application.

Therefore, a new technology ReactJS (Library of Javacript) invented which remove this drawback. ReactJS allows you to divide your entire application into various components.

ReactJS still used the same traditional data flow, but it is not directly operating on the browser's Document Object Model (DOM) immediately; instead, it operates on a virtual DOM. It means rather than manipulating the document in a browser after changes to our data, it resolves changes on a DOM built and run entirely in memory. After the virtual DOM has been updated, React determines what changes made to the actual browser's DOM.

The React Virtual DOM exists entirely in memory and is a representation of the web browser's DOM. Due to this, when we write a React component, we did not write directly to the DOM; instead, we are writing virtual components that react will turn into the DOM.

* Maintained by facebook so it will long term player in the market.
* High demand due to high speed
* Large community for your support
* Mobile app development with react native

**Applications**

Few popular websites powered by React library are listed below −

* Facebook, popular social media application
* Instagram, popular photo sharing application
* Netflix, popular media streaming application
* Code Academy, popular online training application
* Reddit, popular content sharing application

As you see, most popular application in every field is being developed by React Library.