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1. What is ReactJs?

The React.js framework is an open-source JavaScript framework and library developed by Facebook.

1. Why ReactJs is used?

It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code than you would with vanilla JavaScript.

1. How does ReactJs work?

React creates a virtual DOM in memory to update the browser’s DOM. The virtual DOM will try to find the most efficient way to update the browser’s DOM.

React DOM takes care of updating the DOM to match the React elements. The reason for this is that JavaScript is very fast and it’s worth keeping a DOM tree in it to speed up its processing.

1. What are the features of ReactJs?

**Features of React:**

* JSX (JavaScript Syntax Extension)
* Virtual DOM
* One-way data binding
* Performance
* Extensions
* Conditional statements
* Components
* Simplicity

1. What is JSX?

**JSX(JavaScript Syntax Extension):**[JSX](https://www.geeksforgeeks.org/reactjs-introduction-jsx/) is a combination of HTML and JavaScript. You can embed JavaScript objects inside the HTML elements. JSX is not supported by the browsers, as a result [Babel compile](https://www.geeksforgeeks.org/reactjs-using-babel/)r transcompile the code into JavaScript code. JSX makes codes easy and understandable. It is easy to learn if you know HTML and JavaScript.

1. How to create components in reactjs?

### Step 1: Export the component

The export default prefix is a [standard JavaScript syntax](https://developer.mozilla.org/docs/web/javascript/reference/statements/export) (not specific to React). It lets you mark the main function in a file so that you can later import it from other files. (More on importing in [Importing and Exporting Components](https://react.dev/learn/importing-and-exporting-components)!)

### Step 2: Define the function

With function Profile() { } you define a JavaScript function with the name Profile.

### Step 3: Add markup

The component returns an <img /> tag with src and alt attributes. <img /> is written like HTML, but it is actually JavaScript under the hood! This syntax is called [JSX](https://react.dev/learn/writing-markup-with-jsx), and it lets you embed markup inside JavaScript.

1. What are the advantages of ReactJs?

**Advantage of ReactJS**

* Easy to Learn and USe. ReactJS is much easier to learn and use. ...
* Creating Dynamic Web Applications Becomes Easier. ...
* Reusable Components. ...
* Performance Enhancement. ...
* The Support of Handy Tools. ...
* Known to be SEO Friendly. ...
* The Benefit of Having JavaScript Library. ...
* Scope for Testing the Codes.

1. Differentiate between real DOM and virtual DOM

| **Real DOM** | **Virtual DOM** |
| --- | --- |
| DOM manipulation is very expensive | DOM manipulation is very easy |
| There is too much memory wastage | No memory wastage |
| It updates Slow | It updates fast |
| It can directly update HTML | It can’t update HTML directly |
| Creates a new DOM if the element updates. | Update the JSX if the element update |
| It allows us to directly target any specific node (HTML element) | It can produce about 200,000 Virtual DOM Nodes / Second. |
| It represents the Ul of your application | It is only a virtual representation of the DOM |

1. What are forms in ReactJs?

In HTML, form elements such as <input>, <textarea>, and <select> typically maintain their own state and update it based on user input. In React, mutable state is typically kept in the state property of components, and only updated with [setState()](https://legacy.reactjs.org/docs/react-component.html" \l "setstate).

We can combine the two by making the React state be the “single source of truth”. Then the React component that renders a form also controls what happens in that form on subsequent user input. An input form element whose value is controlled by React in this way is called a “controlled component”.

1. How is different React from React Native

| **Category** | **ReactJS** | **React Native** |
| --- | --- | --- |
| **Definition** | A JavaScript library, widely used for developing the user interface. | A cross-platform mobile framework used for developing native mobile applications. |
| **Platform** | Since it is majorly used for web browsers, it can be easily executed on all platforms. | Since it is used for native applications, it takes a sufficient amount of developer effort to be customized and executed on all platforms. |
| **User Interface** | ReactJS renders HTML tags in its user interface. React components can include simple HTML tags. | React Native renders JSX in its user interface. React Native supports specific JSX tags which are used. |
| **Styling** | ReactJS uses Cascading Style Sheets (CSS). | React Native uses a Stylesheet object (javascript object). |
| **Rendering** | ReactJS uses VirtualDOM, a tool that allows for easy interaction with DOM elements. | React Native widely uses native APIs. |
| **Navigation** | ReactJS uses the React router to allow users to visit different web pages. | React Native uses its built-in Navigator library to allow users to visit different screens. |
| **External library support** | ReactJS supports third-party packages but lacks native library support. | React Native lacks both native libraries and third-party packages support. |
| **Animation** | Since ReactJS focuses on UI, it requires animations, which can be easily added using CSS. | To incorporate animations in React Native, it uses an animated API. |
| **Security** | It has comparatively higher security. | It has comparatively lower security. |
| **Uses** | It is widely used to develop a dynamic user interface for web applications. | It is used to develop true native mobile applications. |
| **Applications** | Facebook, Netflix, Medium, Udemy | Uber Eats, Tesla |

1. Explain how lists work in React

We can create lists in React in a similar manner as we do in regular JavaScript i.e. by storing the list in an array. In order to traverse a list we will use the [map()](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/map) function.

**Step 1: C**reate a list of elements in React in the form of an array and store it in a variable. We will render this list as an unordered list element in the browser.

**Step 2:**We will then traverse the list using the JavaScript map() function and updates elements to be enclosed between <li> </li> elements.

**Step 3:**Finally we will wrap this new list within <ul> </ul> elements and render it to the DOM.

1. Why is there a need for using keys in lists?

Keys help React identify which items have changed (added/removed/re-ordered). To give a unique identity to every element inside the array, a key is required.

1. What is an arrow function and how is it used in React?

**Arrow functions** are an alternative way to define JavaScript functions. They provide a more compact function expression and reduce the programmer's keystrokes.

Arrow functions don't have their own [bindings](https://developer.mozilla.org/en-US/docs/Glossary/Binding) to [this](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/this), [arguments](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Functions/arguments), or [super](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/super), and should not be used as [methods](https://developer.mozilla.org/en-US/docs/Glossary/Method).

Arrow functions cannot be used as [constructors](https://developer.mozilla.org/en-US/docs/Glossary/Constructor). Calling them with [new](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/new) throws a [TypeError](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/TypeError). They also don't have access to the [new.target](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Operators/new.target) keyword.

1. Create login/logout button using usestate