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	kev?
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298	What is the difference between Real DOM and Virtual
000	
299	How to add Bootstrap to a react application?
300	Can you list down top websites or applications using
001	react as front end framework?
301	is it recommended to use CSS in JS technique in React?

```
"jsx harmony function Greeting({ message }) { return <h1>{Hello, ${message}`}
```

} "'

2. Class Components: You can also use ES6 class to define a component. The above function component can be written as:

```
jsx harmony class Greeting extends React.Component {
render() { return <h1>{`Hello, ${this.props.message}`}</h1>
} }
```

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6.

#### When to use a Class Component over a Function Component?

If the component needs state or lifecycle methods then use class component otherwise use function component. However, from React 16.8 with the addition of Hooks, you could use state, lifecycle methods and other features that were only available in class component high in year function component. So, it is always recommended to use Frection components, unless you need a React functionality who evaluation component equivalent is not present yet, like Freer Fraction



**React.PureComponent** is exactly the same as **React.Component** except that it handles the **shouldComponentUpdate()** method for you. When props or state changes, *PureComponent* will do a shallow comparison on both props and state. *Component* on the other hand won't compare current props and state to next out of the box. Thus, the component will re-render by default whenever **shouldComponentUpdate** is called.

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```
8.
```

#### What is state in React?

*State* of a component is an object that holds some information that may change over the lifetime of the component. We should always try to make our state as simple as possible and minimize the number of stateful components.

Let's create a user component with message state,

#### What are the different phases of component lifecycle?

The component lifecycle has three distinct lifecycle phases:

- 1. Mounting: The component is ready to mount in the browser DOM. This phase covers initialization from constructor(), getDerivedStateFromProps(), render(), and componentDidMount() lifecycle methods.
- 2. Updating: In this phase, the component gets updated in two ways, sending the new props and updating the state either from setState() or forceUpdate(). This phase covers getDerivedStateFromProps(), shouldComponentUpdate(), render(),getSnapshotBeforeUpdate() and componentDidUpdate() lifecycle methods.
- 3. Unmounting: In this last phase, the component is not needed, and gets unmounted from the browser DOM. This phase includes componentWillUnmount() lifecycle method.

It's worth mentioning that React internal wassa concept of phases when applying changes to the DOM. The wave separated a vallows

1. **Render a** be component will render without any side effects. This applies to Pure components and in this phase, React can pause, abort, or restart the render

2. **Pre-cuping Ly** re the component actually applies the changes to the DCM, there is a moment that allows React to read from the DOM through the getSnapshotBeforeUpdate().

> 3. Commit React works with the DOM and executes the final lifecycles respectively componentDidMount() for mounting, componentDidUpdate() for updating, and componentWillUnmount() for unmounting.

React 16.3+ Phases (or an interactive version)

Before React 16.3

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#### What are the lifecycle methods of React?

Before React 16.3

• **componentWillMount:** Executed before rendering and is used for App level configuration in your root component.

```
Passing props:
```

```
class MyComponent extends React.Component {
            constructor(props) {
              super(props)
              console.log(this.props) // prints { name: 'John', age: 42 }
            }
          }
          Not passing props:
          class MyComponent extends React.Component {
            constructor(props) {
              super()
              console.log(this.props) // prints undefined
                                          tesale. Co. Uk
              // but props parameter is still available
              console.log(props) // prints { name:
            }
            render() {
              // no di
                                                           'ohn', age: 42 }
              conso
pre'
                              s reveals that this.props is different only within
          The above
          the constructor. It would be the same outside the constructor.
```

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#### What is reconciliation?

When a component's props or state change, React decides whether an actual DOM update is necessary by comparing the newly returned element with the previously rendered one. When they are not equal, React will update the DOM. This process is called *reconciliation*.

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42.

# How to set state with a dynamic key name?

If you are using ES6 or the Babel transpiler to transform your JSX code then you can accomplish this with *computed property names*.

#### Why React uses className over class attribute?

class is a keyword in JavaScript, and JSX is an extension of JavaScript. That's the principal reason why React uses className instead of class. Pass a string as the className prop.

```
jsx harmony render() { return <span className={'menu
navigation-menu'}>{'Menu'}</span> }
```

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## What are fragments?

It's a common pattern in React which is used for a component to return multiple elements. *Fragments* let you group a list of children without adding extra nodes to the DOM.



Why fragments are better than container divs?

Below are the list of reasons,

- 1. Fragments are a bit faster and use less memory by not creating an extra DOM node. This only has a real benefit on very large and deep trees.
- 2. Some CSS mechanisms like *Flexbox* and *CSS Grid* have a special parent-child relationships, and adding divs in the middle makes it hard to keep the desired layout.
- 3. The DOM Inspector is less cluttered.

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#### What are portals in React?

*Portal* is a recommended way to render children into a DOM node that exists outside the DOM hierarchy of the parent component.



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## How to apply validation on props in React?

When the application is running in *development mode*, React will automatically check all props that we set on components to make sure they have correct type. If the type is incorrect, React will generate warning messages in the console. It's disabled in *production mode* due to performance impact. The mandatory props are defined with isRequired.

The set of predefined prop types:



We can define **propTypes** for **User** component as below:

"'jsx harmony import React from 'react' import PropTypes from 'proptypes'

class User extends React.Component { static propTypes = { name: Prop-Types.string.isRequired, age: PropTypes.number.isRequired }

```
render() { return ( <>
```

```
{Welcome, ${this.props.name}}
```

```
<h2>{`Age, ${this.props.age}`}</h2>
</>
```

```
)
} }
```

**Note:** In React v15.5 *PropTypes* were moved from `React.PropTypes` to `prop-types`

*The Equivalent Functional Component*

```
```jsx harmony
   import React from 'react'
   import PropTypes from 'prop-types'
   function User({name, age}) {
     return (
        <>
          <h1>{`Welcome, ${name}`}</h1>
          <h2>{`Age, ${age}`}</h2>
        </>
      )
   }
   User.propTypes = {
                                      tesale.co.uk
       name: PropTypes.string.isRequired,
        age: PropTypes.number.isRequired
     }
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52.
                             of React?
   What are the
                     /a
                                   es CReact,
                                 đĘ
    bel
              he list of main ad 🖓
                         vion's performance with Virtual DOM.
        Increa
                     pp
     2. JSX makes odd asy to read and write.
     3. It renders both on client and server side (SSR).
     4. Easy to integrate with frameworks (Angular, Backbone) since it is
        only a view library.
```

5. Easy to write unit and integration tests with tools such as Jest.

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#### What are the limitations of React?

Apart from the advantages, there are few limitations of React too,

- 1. React is just a view library, not a full framework.
- 2. There is a learning curve for beginners who are new to web development.
- 3. Integrating React into a traditional MVC framework requires some additional configuration.
- 4. The code complexity increases with inline templating and JSX.

*server-side rendering* (SSR). The following methods can be used in both the server and browser environments:

- 1. renderToString()
- 2. renderToStaticMarkup()

For example, you generally run a Node-based web server like Express, Hapi, or Koa, and you call **renderToString** to render your root component to a string, which you then send as response.

```
// using Express
   import { renderToString } from 'react-dom/server'
   import MyPage from './MyPage'
   app.get('/', (req, res) => {
     res.write('<!DOCTYPE html><head><title>My Page</title></head><body>')
     res.write('<div id="content">')
             res.write(renderToString(<MyPage/>))
     res.write('</div></body></html>')
     res.end()
   })
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60.
    The danger
   innerHTML Ttle over DOM. Just like innerHTML, it is risky to use
   this attribute considering cross-site scripting (XSS) attacks. You just need
   to pass a __html object as key and HTML text as value.
   In this example MyComponent uses dangerouslySetInnerHTML attribute
   for setting HTML markup:
   "'jsx harmony function createMarkup() { return { ____html: 'First · Sec-
   ond' \}
```

function MyComponent() { return

} "'

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# How to use styles in React?

The style attribute accepts a JavaScript object with camelCased properties rather than a CSS string. This is consistent with the DOM style JavaScript property, is more efficient, and prevents XSS security holes. "'jsx harmony const divStyle = { color: 'blue', backgroundImage: 'url(' +  $\operatorname{imgUrl} + {}^{\prime}){}^{\prime}$ ;

function HelloWorldComponent() { return

Hello World!

} "'

Style keys are camelCased in order to be consistent with accessing the properties on DOM nodes in JavaScript (e.g. node.style.backgroundImage).

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#### How events are different in React?

Handling events in React elements has some syntactic differences:

- 1. React event handlers are named using camelCase, rather than log case.
- ther than a 2. With JSX you pass a function as the event ha string.

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63.

-- event han er: NoteSater: appen if ou ill happen if ou tState() in constructor? When you  $(\mathbf{t}, \mathbf{t}, \mathbf{t})$ , then apart from assigning to the object state React also re-renders the component and all its children. You would get error like this: Can only update a mounted or mounting component. So we need to use this.state to initialize variables inside constructor.

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# What is the impact of indexes as keys?

Keys should be stable, predictable, and unique so that React can keep track of elements.

In the below code snippet each element's key will be based on ordering, rather than tied to the data that is being represented. This limits the optimizations that React can do.

jsx harmony {todos.map((todo, index) => <Todo {...todo} key={index} /> )}

What is the difference between super() and super(props) in React using ES6 classes?

When you want to access this.props in constructor() then you should pass props to super() method.

Using super(props):

```
class MyComponent extends React.Component {
    constructor(props) {
        super(props)
        console.log(this.props) // { name: 'John', ... }
    }
    J
    Using super():
    class MyComponent extends React.Component {
        constructor(props) {
            super()
            console.log(this.props) // undefined
        }
    Outside constructor() both initial play same varie for this.props.
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    92
    How to loop if add SX?
```

You can simply use Array.prototype.map with ES6 arrow function syntax.

For example, the **items** array of objects is mapped into an array of components:

jsx harmony {items.map(item => <SomeComponent
key={item.id} name={item.name} />)}

But you can't iterate using for loop:

This is because JSX tags are transpiled into *function calls*, and you can't use statements inside expressions. This may change thanks to do expressions which are *stage 1 proposal*.

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# Is it possible to use React without rendering HTML?

It is possible with latest version (>=16.2). Below are the possible options:

```
jsx harmony render() {
                             return false }
   jsx harmony render() {
                             return null }
   jsx harmony render() {
                             return [] }
                             return <React.Fragment></React.Fragment>
   jsx harmony render() {
   }
   jsx harmony render() {
                             return <></> }
   Returning undefined won't work.
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```

105.



React.render(, document.getElementById('container')) "'

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# Why you can't update props in React?

The React philosophy is that props should be *immutable* and *top-down*. This means that a parent can send any prop values to a child, but the child can't modify received props.

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3. There is no nice Flow integration yet: Flux currently lets you do very impressive static type checks which Redux doesn't support yet.

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# What is the difference between mapStateToProps() and mapDispatchToProps()?

mapStateToProps() is a utility which helps your component get updated state (which is updated by some other components):

```
const mapStateToProps = (state) => {
  return {
    todos: getVisibleTodos(state.todos, state.visibilityFilter)
  }
  mapDispatchToProps() is a utility which will help your component to fire
  an action event (dispatching action which may cause drange of application
  state):
  const mapDispatchToProps = \vispatch) => 1
  return {
    onTribCllct: (id) => 1
    dispatch(toggleTodolid)
    }
  }
}
```

It is recommended to always use the "object shorthand" form for the mapDispatchToProps.

Redux wraps it in another function that looks like (...args) => dispatch(onTodoClick(...args)), and pass that wrapper function as a prop to your component.

```
const mapDispatchToProps = ({
    onTodoClick
})
```

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157.

# Can I dispatch an action in reducer?

Dispatching an action within a reducer is an **anti-pattern**. Your reducer should be *without side effects*, simply digesting the action payload and

returning a new state object. Adding listeners and dispatching actions within the reducer can lead to chained actions and other side effects.

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#### How to access Redux store outside a component?

You just need to export the store from the module where it created with createStore(). Also, it shouldn't pollute the global window object.

```
store = createStore(myReducer)
```

export default store

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160.

#### Are there any similarities between Redux and RxJS?

These libraries are very different for very different purposes, but there are some vague similarities.

Redux is a tool for managing state throughout the application. It is usually used as an architecture for UIs. Think of it as an alternative to (half of) Angular. RxJS is a reactive programming library. It is usually used as a tool to accomplish asynchronous tasks in JavaScript. Think of it as an alternative to Promises. Redux uses the Reactive paradigm because the Store is reactive. The Store observes actions from a distance, and changes itself. RxJS also uses the Reactive paradigm, but instead of being an architecture, it gives you basic building blocks, Observables, to accomplish this pattern.

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For example, you can add redux-thunk and logger passing them as arguments to applyMiddleware():

```
import { createStore, applyMiddleware } from 'redux'
const createStoreWithMiddleware = applyMiddleware(ReduxThunk, logger)(createStore)
```

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#### How to set initial state in Redux?

You need to pass initial state as second argument to createStore:

```
const rootReducer = combineReducers({
   todos: todos,
   visibilityFilter: visibilityFilter
})
const initialState = {
   todos: [{ id: 123, name: 'example', completed: filsO}]
const store = createStore
   rootReducer,
   initialState
   92 0
   157
   187.
```

How Relay is different from Redux?

Relay is similar to Redux in that they both use a single store. The main difference is that relay only manages state originated from the server, and all access to the state is used via GraphQL queries (for reading data) and mutations (for changing data). Relay caches the data for you and optimizes data fetching for you, by fetching only changed data and nothing more.

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## What is an action in Redux?

Actions are plain JavaScript objects or payloads of information that send data from your application to your store. They are the only source of information for the store. Actions must have a type property that indicates the type of action being performed.

For example, let's take an action which represents adding a new todo item:

PropTypes is a *basic type checker* (runtime checker) which has been patched onto React. It can't check anything other than the types of the props being passed to a given component. If you want more flexible typechecking for your entire project Flow/TypeScript are appropriate choices.

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#### How to use Font Awesome icons in React?

The below steps followed to include Font Awesome in React:

1. Install font-awesome:

\$ npm install --save font-awesome

2. Import font-awesome in your index.js file:

import 'font-awesome/css/font-awesome.min.css'

3. Add Font Awesome classes in className:



React Developer Tools let you inspect the component hierarchy, including component props and state. It exists both as a browser extension (for Chrome and Firefox), and as a standalone app (works with other environments including Safari, IE, and React Native).

The official extensions available for different browsers or environments.

- 1. Chrome extension
- 2. Firefox extension
- 3. Standalone app (Safari, React Native, etc)

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#### Why is DevTools not loading in Chrome for local files?

If you opened a local HTML file in your browser (file://...) then you must first open Chrome Extensions and check Allow access to file URLs.

npx create-react-app my-app --typescript

# or

yarn create react-app my-app --typescript

But for lower versions of react scripts, just supply --scripts-version option as react-scripts-ts while you create a new project. react-scripts-ts is a set of adjustments to take the standard create-react-app project pipeline and bring TypeScript into the mix.

Now the project layout should look like the following:

```
my-app/
     .gitignore
     images.d.ts
     node_modules/
                 isom Notesale.co.uk
ge 99 of 157
     public/
     src/
        . . .
     package.json
     tsconfig.json
     tsconfig.prod.json
     tsconfig.test.iso
     tslint
            is
       neous
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```

206.

#### What are the main features of Reselect library?

Let's see the main features of Reselect library,

- 1. Selectors can compute derived data, allowing Redux to store the minimal possible state.
- 2. Selectors are efficient. A selector is not recomputed unless one of its arguments changes.
- 3. Selectors are composable. They can be used as input to other selectors.

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Give an example of Reselect usage? Let's take calculations and different amounts of a shipment order with the simplified usage of Reselect:

```
}
}
**Note:** In React v16.3,
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216.
```

#### What is render hijacking in react?

The concept of render hijacking is the ability to control what a component will output from another component. It means that you decorate your component by wrapping it into a Higher-Order component. By wrapping, you can inject additional props or make other changes, which can cause changing logic of rendering. It does not actually enable hijacking, but by using HOC you make your component behave differently.



#### **Props Proxy**

In this approach, the render method of the HOC returns a React Element of the type of the WrappedComponent. We also pass through the props that the HOC receives, hence the name **Props Proxy**.

```
function ppHOC(WrappedComponent) {
  return class PP extends React.Component {
    render() {
      return <WrappedComponent {...this.props}/>
    }
  }
}
```

# Inheritance Inversion

In this approach, the returned HOC class (Enhancer) extends the WrappedComponent. It is called Inheritance Inversion because instead of the WrappedComponent extending some Enhancer class, it is passively

#### What is the purpose of registerServiceWorker in React?

React creates a service worker for you without any configuration by default. The service worker is a web API that helps you cache your assets and other files so that when the user is offline or on a slow network, he/she can still see results on the screen, as such, it helps you build a better user experience, that's what you should know about service worker for now. It's all about adding offline capabilities to your site.

```
import React from 'react';
       import ReactDOM from 'react-dom';
       import App from './App';
       import registerServiceWorker from './registerServiceWorker';
       ReactDOM.render(<App />, document.getElementById('root'));
                                  otesale.co.uk
       registerServiceWorker();
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221.
    What is React memory and
    Class com
                                           rendering when their input
                        be restrict
                                       h
                               Ô
                                   vonent or shouldComponentUp-
              he same using \mathbf{P}_{\mathbf{A}}
                             e
                       he same with function components by wrapping
        e. Now you ca
    them in Iec
```

const MyComponent = React.memo(function MyComponent(props) {
 /\* only rerenders if props change \*/
});

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# What is React lazy function?

The React.lazy function lets you render a dynamic import as a regular component. It will automatically load the bundle containing the OtherComponent when the component gets rendered. This must return a Promise which resolves to a module with a default export containing a React component.

```
const OtherComponent = React.lazy(() => import('./OtherComponent'));
function MyComponent() {
```

return (

```
 <div>
      <OtherComponent />
      </div>
);
}
```

Note: React.lazy and Suspense is not yet available for server-side rendering. If you want to do code-splitting in a server rendered app, we still recommend React Loadable.

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223.

### How to prevent unnecessary updates using setState?

You can compare the current value of the state with an existing state value and decide whether to rerender the page or not. If the values are the same then you need to return null to stop re-rendering otherwise return the latest state value.
For example, the user profile information is conduct any rendered as follows,
getUserProfile = user > t
 const latestid frees = user.address;
 this retSt th (state => {
 return auch
 } elle {
 return { title: latestAddress };
 };
 };
};

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# How do you render Array, Strings and Numbers in React 16 Version?

**Arrays**: Unlike older releases, you don't need to make sure **render** method return a single element in React16. You are able to return multiple sibling elements without a wrapping element by returning an array.

For example, let us take the below list of developers,

- 2. Redux-Form calls your entire top-level Redux reducer multiple times ON EVERY SINGLE KEYSTROKE. This way it increases input latency for large apps.
- 3. Redux-Form is 22.5 kB minified gzipped whereas Formik is 12.7 kB

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#### Why are you not required to use inheritance?

In React, it is recommended to use composition over inheritance to reuse code between components. Both Props and composition give you all the flexibility you need to customize a component's look and behavior explicitly and safely. Whereas, If you want to reuse non-UI functionality between components, it is suggested to extract it into a separate JavaScript module. Later components import it and use that function, object, or class, without extending it.

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tesale.co.uk Can I use web components Yes, you can 🔓 t application. Even though eł mponents in a on, it may require especially many de opers won't use this  $\operatorname{bir}$ ware using third imponents that are written using Web partý TT. Compone For examp e, let us use Vaadin date picker web component as below, import React, { Component } from 'react'; import './App.css'; import '@vaadin/vaadin-date-picker'; class App extends Component { render() { return ( <div className="App"> <vaadin-date-picker label="When were you born?"></vaadin-date-picker> </div> ); } } export default App; Back to Top

refs get assigned to, and what types are exported. These changes can break apps and other libraries that depend on the old behavior.

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#### How to create react class components without ES6?

If you don't use ES6 then you may need to use the create-react-class module instead. For default props, you need to define getDefaultProps() as a function on the passed object. Whereas for initial state, you have to provide a separate getInitialState method that returns the initial state.



**Note:** If you use createReactClass then auto binding is available for all methods. i.e, You don't need to use .bind(this) with in constructor for event handlers.

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# Is it possible to use react without JSX?

Yes, JSX is not mandatory for using React. Actually it is convenient when you don't want to set up compilation in your build environment. Each JSX element is just syntactic sugar for calling React.createElement(component, props, ...children).

For example, let us take a greeting example with JSX,

```
class Greeting extends React.Component {
  render() {
```

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# What are the problems of using render props with pure components?

If you create a function inside a render method, it negates the purpose of pure component. Because the shallow prop comparison will always return false for new props, and each render in this case will generate a new value for the render prop. You can solve this issue by defining the render function as instance method.

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# How do you create HOC using render props?

You can implement most higher-order components (HOC) using a regulation component with a render prop. For example, if you would prefer to have a withMouse HOC instead of a component, purposed asily create one using a regular with a render prop.



This way render props gives the flexibility of using either pattern.

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#### What is windowing technique?

Windowing is a technique that only renders a small subset of your rows at any given time, and can dramatically reduce the time it takes to re-render the components as well as the number of DOM nodes created. If your application renders long lists of data then this technique is recommended. Both react-window and react-virtualized are popular windowing libraries

#### Do browsers understand JSX code?

No, browsers can't understand JSX code. You need a transpiler to convert your JSX to regular Javascript that browsers can understand. The most widely used transpiler right now is Babel.

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#### Describe about data flow in react?

React implements one-way reactive data flow using props which reduce boilerplate and is easier to understand than traditional two-way data binding.

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What is react scripts?



### What are the features of create react app?

Below are the list of some of the features provided by create react app.

- 1. React, JSX, ES6, Typescript and Flow syntax support.
- 2. Autoprefixed CSS
- 3. CSS Reset/Normalize
- 4. A live development server
- 5. A fast interactive unit test runner with built-in support for coverage reporting
- 6. A build script to bundle JS, CSS, and images for production, with hashes and sourcemaps
- 7. An offline-first service worker and a web app manifest, meeting all the Progressive Web App criteria.

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# What is the difference between async mode and concurrent mode?

Both refers the same thing. Previously concurrent Mode being referred to as "Async Mode" by React team. The name has been changed to highlight React's ability to perform work on different priority levels. So it avoids the confusion from other approaches to Async Rendering.

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# Can I use javascript urls in react16.9?

Yes, you can use javascript: URLs but it will log a warning in the console. Because URLs starting with javascript: are dangerous by including unsanitized output in a tag like <a href> and create a security hole.

```
const companyProfile = {
    website: "javascript: alert('Your website is hacked')",
    };
    // It will log a warning
    <a href={companyProfile.websitelihere details</a>
    Remember that the future resumewing throw an error for javascript URLs.
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What is me purpose of eslint plugin for hooks?
```

The ESLint plugin enforces rules of Hooks to avoid bugs. It assumes that any function starting with "use" and a capital letter right after it is a Hook. In particular, the rule enforces that,

- 1. Calls to Hooks are either inside a PascalCase function (assumed to be a component) or another useSomething function (assumed to be a custom Hook).
- 2. Hooks are called in the same order on every render.

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# What is the difference between Imperative and Declarative in React?

Imagine a simple UI component, such as a "Like" button. When you tap it, it turns blue if it was previously grey, and grey if it was previously blue.

The imperative way of doing this would be: