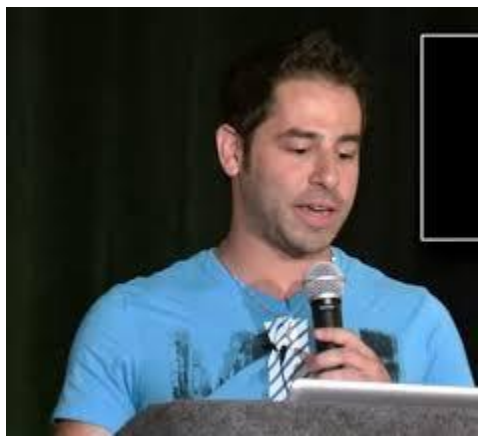
What is react

- A JavaScript library for building user interfaces
- React JS is the most popular JS library in today's times
- Declarative code for developers
- Component-Based UIs
- Learn Once, Write Anywhere
- Most popular for SPA
- Easy and flexible to learn and use

Who uses React Js

History of React

React was created by Jordan Walke, a software engineer at Facebook, who released an early prototype of React called "FaxJS". He was influenced by XHP, an HTML component library for PHP. It was first deployed on Facebook's News Feed in 2011 and later on Instagram in 2012. It was open-sourced at JSConf US in May 2013



Before React

- javaScript core
- ES6 with all modern javaScript
- Frontend building experiences
- API use and maintains
- Webpack & babel env

Install & Setup React JS

- Install latest version of node js with **yarn** and **npm**
- Yarn is recommended for react developer
- **Then start to install react app**

  npx create-react-app app-name

- **Start your react App**

  npm start

  yarn start

React app structure

- Clean react app first
- Core template file

  public/index.html

- Entry javaScript file

  src/index.js

- Application file

  src/app.js
- **Work flow of react env**

JSX

- javaScript XML
- Html code in JS
- Use any js from { js expression }in JSX
- Style JSX elements
- **Rules of JSX**

  use a single root / fragment root

  For multiline use ()

  Any js code expression use { }

  Avoid semicolon in JSX

  For conditional avoid {} for statement

team member react app

- Setup a JSON Server for developers
- Install axios for api response
- Create a data for developers and use it
- Design a team member template by bootstrap and boxicon
- Render all data in react apps

React Components

- React Components are reusable container / template
- **Component type –** there are 2 types of component
  Functional component
  Class Component

- **Functional** component

```
function Student (props){
        return(
                your JSX code goes here
        );
}
```

- **Class** Component

```
class Student extends React.Component {
        constructor(props){
                super(props);
        }
        render(){
                return(
                        your jsx code goes here
                );
        }

}
```

- **Props drilling for data flow**
  For data pass to a component we need props drilling
  <Student props1={ value2} props2={ value2 } />

- **Get props value in functional component**

```
function Student (props){
        return(
                your JSX code goes here
        );
}
```

- **Get props value in class components**

```
class Student extends React.Component {
        constructor(props){
                super(props);
        }
        render(){
                return(
                        your jsx code goes here
                );
        }

}
```

- **CSS styling - inline**

```
<h1 style={ { color : 'red', background-color:black; } }></h1>

const heading = {
        color : 'red',
        backgroundColor : 'black'
}
<h1 style={ heading }></h1>
```

- Import css or sass file for styling

React Events

- Just like HTML DOM events, React can perform actions based on user events
- React has the same events as HTML: click, change, mouseover etc.
- Set a event to a elements with handler

  <button onClick={ handlerFunction }></button>

- Set a event with args to a elements

  <button onClick={ (e) => handlerFunction(value) }></button>

State Management

- A template dynamic data controlled by react a state
- State is a system to pass data one component to another
- We can manage state by useState hook
- We can also manage state by

  useState

  Context API

  Reducers

  Redux

- **Declare a state by useState hook**

  const [counter, setCounter] = useState('default value');

- Create a counter project with state management
- Create a alert management project with state management
- Create a data loading state from **JSON Server API** for data management

useEffect hook

- For render effect control with effect
- Reload any api response or data change after a successful state change
- **Run on every render**

  useEffect(() => {

  });

- **Run on first render**

```
useEffect( () => {

}, []);
```

- **Run on first render** & also run when state value change

```
useEffect( () => {

}, [props]);
```

Form Data State

- Create a form with different fields
- Now create state for all inputs fields
- Now set value fields value and state update

```
const [ name, setName ] = useState('');

<input type="text" value={ name }>
<input type="text" value={ name } onChange={ handleNameChange } >
```

- Update input fields value

```
<input type="text" value={ name } onChange={ (e) => setName( e.target.value ) } >
```

- Create a Form validation project

React Bootstrap

- Use **Bootstrap** in react nicely
- Fully functional **Bootstrap** in React
- Component elements use
- You must know the core bootstrap for professional use

- **Install React Bootstrap with Bootstrap**

  -> npm install react-bootstrap bootstrap

  -> yarn add react-bootstrap bootstrap

- **Import Bootstrap stylesheet in index.js file**

  -> import 'bootstrap/dist/css/bootstrap.min.css';

- Now Load any components to react app and use it
- **Use react bootstrap components**

  Modal

  Alert

  Table

  Form

  Card

  Offcanvas

  Dropdown

  Grid

- Create a complete **developers** CRUDS apps by using React Bootstrap, JSON Server, Modal system
- Create a complete Online Product CRUDS apps by using React Bootstrap, JSON Server, Modal

React Router Dom

- Manage route for **SPA**
- Also powerful for **nested** route managements
- Use in mobile apps for **native apps development**
- Too easy to **maintain** for large apps

- Install React Router Dom

-> npm install react-router-dom@6

-> yarn add react-router-dom@6

- Create a basic React Router

```
<BrowserRouter>
    <Routes>
        <Route path=' ' elements={} />
    </Routes>
</BrowserRouter>
```

- Create a navigation menu with the router

```
<Link to=' ' >
```

- Add a 404 page to the router

```
<BrowserRouter>
    <Routes>
        <Route path=' ' elements={} />
        <Route path='* ' elements={} />
    </Routes>
</BrowserRouter>
```

- Add NavLink in navigation

-> Replace **Link** to **NavLink** Component

-> add a custom CSS for active nav item styles

- **Link Object Interface**

  -> pathname

  -> search

  -> hash

  -> state

```
<Link  to={{
        pathname: '/path',
        search: '?s=haq',
        hash: '#name',
        state: { stateName: value }
}}  />
```

- **React router params**

- **Nested Route**

  -> Nested routes are used for **components** to **components routing managements**

  -> syntax of nested route

```
<BrowserRouter>
    <Routes>
        <Route path=' ' elements={} />
        <Route path='* ' elements={} />
        <Route path='/dashboard ' elements={} >
            <Route path='admin ' elements={} />
            <Route path='password ' elements={} />
        </Route>
    </Routes>
</BrowserRouter>
```

  -> Use **<OutLet/>** for load nested components

- Now create a **single page online store application** with product and single product
- Create a **facebook timeline** project with react router dom
- **Porto theme** clone by react with router dom and bootstrap