



WEB TECHNOLOGIES

React.JS – Introduction

Vinay Joshi

Department of
Computer Science and Engineering

React.JS

Typical issue while building SPA

- In a single page application, the bulk of your time will be spent keeping your data in-sync with your UI
- Manipulating the DOM is really slow
- Working with HTML templates can be a pain



React.JS

Introduction



- Facebook (and Instagram) released a library called React to not only address these shortcomings, but to also change how we think about building single-page apps
- Advantages
 - Automatic UI State Management
 - Lightning-fast DOM Manipulation
 - APIs to Create Component based UIs
 - Visuals Defined Entirely in JavaScript



React.JS

Automatic UI State Management



- With SPA, keeping track of your UI and maintaining state is hard
- React keeps track of series of steps our users may have taken to change the UI
- All of that state management stuff is no longer your concern



React.JS

Lightening Fast DOM Manipulation



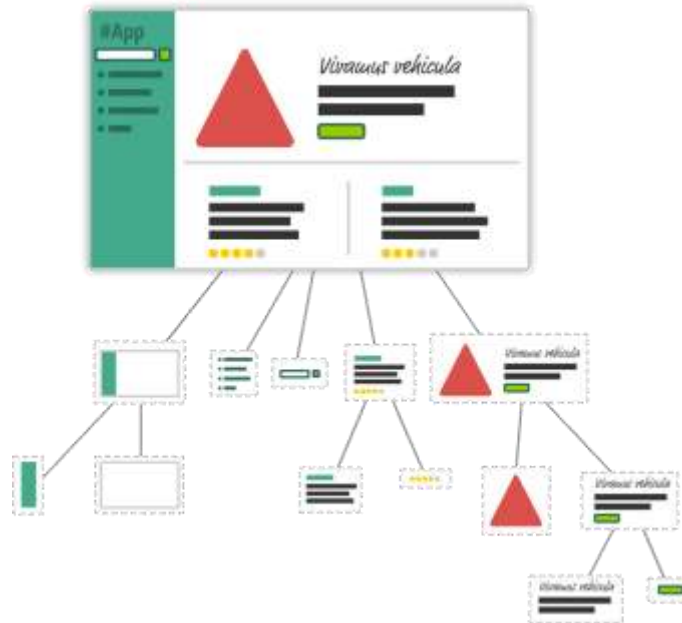
- React maintains a in-memory copy of the actual DOM known as the *virtual DOM*
- Manipulating this virtual DOM is extremely fast
- React takes care of updating the real DOM when the time is right
- Compares the changes between your virtual DOM and the real DOM
- Figuring out which changes actually matter, and making the least amount of DOM changes



React.JS

Lightening Fast DOM Manipulation

- React encourages you to break your visual elements into smaller and smaller ***components***
- have things be modular, compact, and self-contained



- Define your visuals very easily using a syntax that is very familiar
- Visuals and JavaScript often live in the same location

JSX

```
ReactDOM.render(  
  <div>  
    <h1>Batman</h1>  
    <h1>Iron Man</h1>  
    <h1>Nicolas Cage</h1>  
    <h1>Mega Man</h1>  
  </div>,  
  destination );
```



JavaScript

```
ReactDOM.render(  
  React.createElement ( "div", null,  
    React.createElement ( "h1", null, "Batman" ),  
    React.createElement ( "h1", null, "Iron Man" ),  
    React.createElement ( "h1", null, "Nicolas Cage" ),  
    React.createElement ( "h1", null, "Mega Man" ),  
  destination);
```



React.JS

Getting Started



- Include the React JS Libraries

```
<script src="https://unpkg.com/react@16/umd/react.development.js"> </script>
```

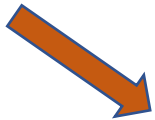
```
<script src="https://unpkg.com/react-dom@16/umd/react-dom.development.js"> </script>
```

- Include Babel (JSX to JavaScript Converter)

```
<script src="https://unpkg.com/babel-standalone@6.15.0/babel.min.js"></script>
```




```
<div id="container"></div>
<script type="text/babel">
var destination = document.querySelector("#container");
ReactDOM.render(
  <h1>React World</h1>,
  destination
);
</script>
```



```
<div id="container"></div>
<script type="text/babel">
  var destination = document.querySelector("#container");
  ReactDOM.render(
    React.createElement( "h1", null, "React World" ),
    destination
  );
</script>
```





THANK YOU

Vinay Joshi

Department of Computer Science and Engineering

vinayj@pes.edu

+91 80 2672 6622