

240

Week 8 Review

- The React object contains this method that defines an object that is part of the page UI
- The ReactDOM object contains this method that displays a React object on the page
- In the call to React.createElement, there are three parameters.

 They are ...

```
Creating a React element with "props"
Create an element with React
div id="myapp"></div> <!- place to put the React element(s) -->
<script>
var hello = React.createElement("ha", {id:"main"}, "Hello React World!");
ReactDOM.render(hello, myapp);
</script>
Add more attributes
var link = React.createElement("a",
{className: "link-button", href: "https://extension.harvard.edu",
target: "_blank",
"Learn @ Extension");
```

Array of child elements

- A set of child elements can be represented as an array as well as a comma delimited list
- That means that anything that produces an array (like .map()!) can be used to generate the set of child elements
- Recall the <select> element- implement the child elements as an array:

244

Try It Part 4

- Create a bulleted list of 5 names using an array of elements (all created using React.createElement)
- View and test your page

React and Arrays

- Question: What advantage is there to using an array of elements for the child elements?
- Answer: We can take advantage of the inherent patterns using a loop or loop construct.

246

React and Arrays

- Anything that produces an array (such as .map() or filter()) can be used to generate the array of child elements
- Consider: What if we created the set of options for a select element in a separate array
 options = ["Basic", "Standard", "Premium"];
- Now we can utilize map() to construct the createElement code:

Try It Part 5 Update part 4 as follows: Put the names in a separate array Use .map() to create the array of elements View and test your page

248

Unique Key requirement Warning: Each child in an array or iterator should have a unique "key" prop. The React object has a "key" property that can be used to add a unique property to each item. The index for each item in the array could be used as a unique value for the key This means we need a way to iterate through the array elements and also preserve the index value.

Unique Key requirement • Fortunately, map() passes a second parameter to the function which is the index • Example: a = [2,5,9];list = a.map((number, idx)=> idx + "-" + number+ "
"); Will display: 0-2 1-5

250

Unique Key requirement We can use the index from map as the unique key options = ["Basic", "Standard", "Premium"]; var select = React.createElement("select",{name:"pick"}, options.map((item, i)=>React.createElement("option",{key:i},item)); //end map); // end create Element

Try It- part 6 • Update part 5 to add a unique key for each array element. • View and test your page

Try It - Finale

- Rework the Finance/Weather/Sports problem to use an array of objects that include the item name, the corresponding url.
- Utilize the array with .map() to build the element using React.
- Challenge: Add a boolean that is true when this is an external link (and therefore needs target='_blank')

254

Demo: Color Grid

• We want to create something like this:



- 1. Create an object to represent the key value and the background color
- 2. Create an array of the objects
- 3. Use React.createElement to set up an array of all of the "keys"
- 4. Add styling and render

React Components

- A component is a React element that can be used as a building block
- Use case: a site with multiple nav menus. The nav menu element can be constructed as a parameterized component
- Components can be created with functions or classes
- We can pass parameters to the component through key/value pairs in createElement (props)

256

Function Components

 Create the React element as usual but wrap it in a function that returns the element

```
function MyPageTitle()
{
    return React.createElement("h1",null,"Welcome to My Page");
}
```

 Render the element using ReactDOM.render() using the name of the component

var theTitle = React.createElement(MyPageTitle, null, null);
ReactDOM.render(theTitle, myapp);

Create a component called MyStaffMember that displays a name for an employee named "Bill Bailey". The name should be an h3 Render the component Create a component called MyStaffMember that displays a name and title for an employee named "Bill Bailey" who is a "Sales Manager" Render the component Create a component called MyStaffName and MyStaffTitle. Use those as child elements for MyStaffMember

Try it - Components part 2

- Create a component called MyStaffMember that displays a name for an employee named "Bill Bailey". The name should be an h3.
 The name should be parameterized via props
 - Render the component
- Create a component called MyStaffMember that displays a name and title for an employee named "Bill Bailey" who is a "Sales Manager". The name and title should be parameterized via props
 - Render the component
- 3. Create components called MyStaffName and MyStaffTitle. Use those as child elements for MyStaffMember. You will need to pass the props to all components

262

Try it - Components Part 2 - 4

- Create components called MyStaffName and MyStaffTitle. Use those as child elements for MyStaffMember. You will need to pass the props to all components
- Use destructuring for the props parameter

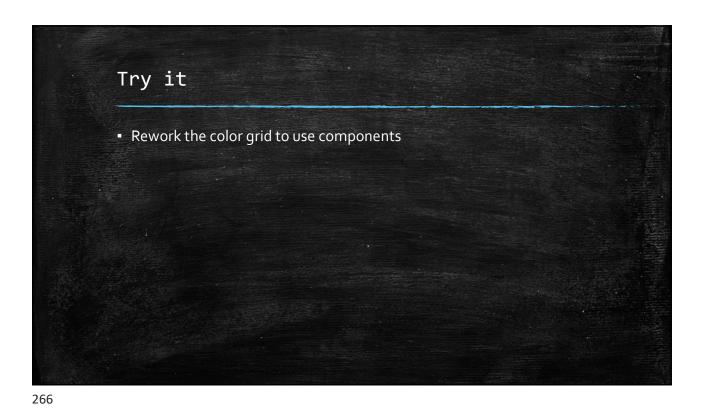
264

Creating Components Using Classes

- Components can also be created using a class (this is an older way of creating a component)
- You will need to derive your class from React. Component

```
class myPageTitle extends React.Component {
    render() {
        return React.createElement("h1",null,"Welcome to My Page");
    }
}
```

myTitle= React.createElement(myPageTitle,null,null);



Try it

Create an object to represent a staff member

- Each staff member should have a name and a title

- Each Stail member should have a flame and a title
- 1. Create a React component to render one staff member the parameter should be an instance of the staff member object.
- 2. Create an array of 3 staff members

Create a React component to render the 3 staff members using the array and the staff member component