Web application development

(Introduction to Basic React)

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S3T

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> “Learning HTML and CSS is a lot more challenging than it used to be. Responsive web design adds more layers of complexity to design and develop websites.”

– Jacob Lett, Bootstrap 4 Quick Start: Responsive Web Design and Development Basics for Beginners

Basic React – Brief introduction

- **The React Component API**: These are the parts of the page that are rendered by the React DOM.
- **React DOM**: This is the API that's used to perform the rendering on a web page.
- **JSX**: This is the syntax of React components used to describe UI structures. JSX is the XML/HTML markup syntax that's embedded in your JavaScript code and used to declare your React components.

Basic React – Exercise 0

- Code and run this example of JSX
- The `render()` function tells React to take your JSX markup and transform it into JavaScript statements that update the UI in the most efficient way possible.

```
import * as React from "react";
import * as ReactDOM from "react-dom";

const root =
  ReactDOM.createRoot(document.getElementById("root"));

root.render(
  <p>
    Hello, <strong>JSX</strong>
  </p>
);
```

Basic React – Exercise 0.1

- Code and run this example of JSX

```
import * as React from 'react';
import * as ReactDOM from 'react-dom';

const root =
  ReactDOM.createRoot(document.getElementById('root'))

root.render(
  <div>
    <button />
    <code />
    <input />
    <label />
    <p />
    <pre />
    <select />
    <table />
    <ul />
  </div>
);
```

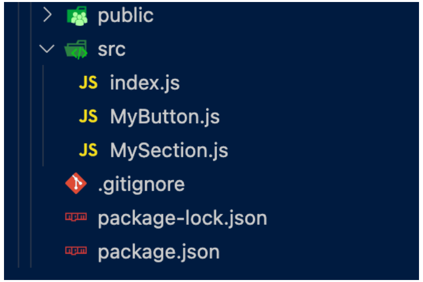
Basic React – Exercise 0.2

- Code and run this example of JSX

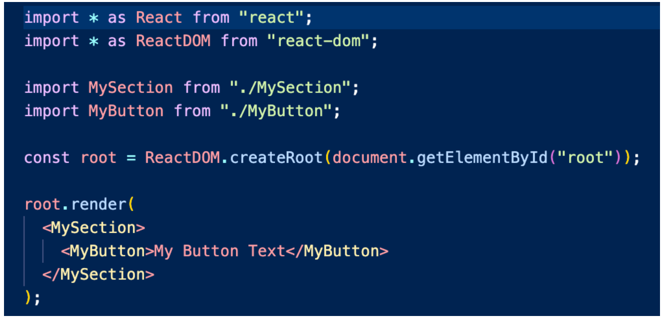
```
import * as React from 'react';
import * as ReactDOM from 'react-dom';

const root =
  ReactDOM.createRoot(document.getElementById('root'));

root.render(
  <section>
    <header>
      <h1>A Header</h1>
    </header>
    <nav>
      <a href="item">Nav Item</a>
    </nav>
    <main>
      <p>The main content...</p>
    </main>
    <footer>
      <small>&copy; 2021</small>
    </footer>
  </section>
);
```

Basic React – Exercise 0.3 – React components

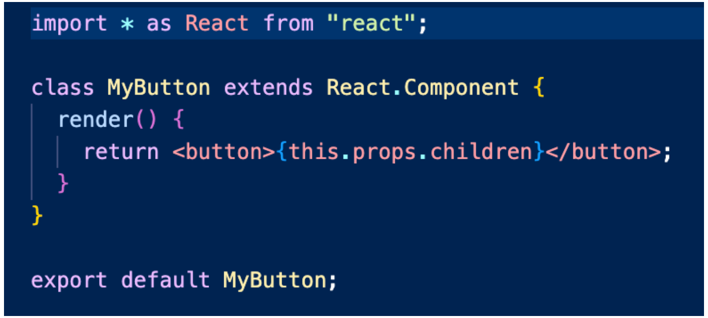
- Create some files as below
- Code and run them.



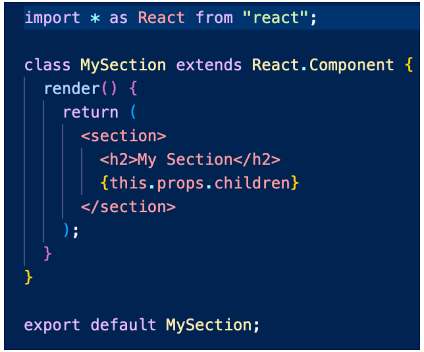
```
> public
v src
    index.js
    MyButton.js
    MySection.js
  .gitignore
  package-lock.json
  package.json
```



```
import * as React from "react";
import * as ReactDOM from "react-dom";

import MySection from "./MySection";
import MyButton from "./MyButton";

const root = ReactDOM.createRoot(document.getElementById("root"));

root.render(
  <MySection>
    <MyButton>My Button Text</MyButton>
  </MySection>
);
```



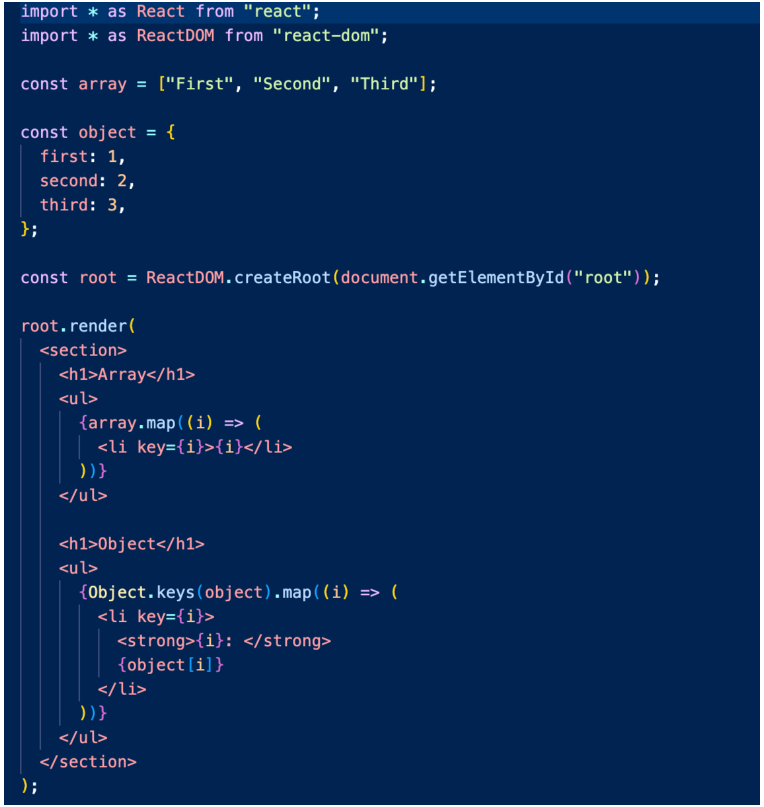
```
import * as React from "react";

class MyButton extends React.Component {
  render() {
    return <button>{this.props.children}</button>;
  }
}

export default MyButton;
```



```
import * as React from "react";

class MySection extends React.Component {
  render() {
    return (
      <section>
        <h2>My Section</h2>
        {this.props.children}
      </section>
    );
  }
}

export default MySection;
```

Basic React – Exercise 0.4 – Mapping collections to element

- Code and run this example of JSX



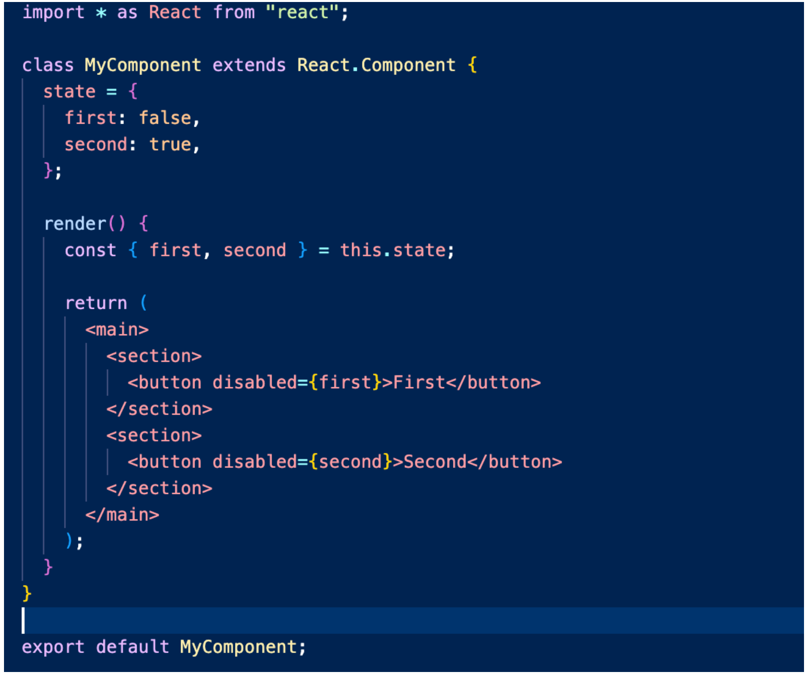
```
import * as React from "react";
import * as ReactDOM from "react-dom";

const array = ["First", "Second", "Third"];

const object = {
  first: 1,
  second: 2,
  third: 3,
};

const root = ReactDOM.createRoot(document.getElementById("root"));

root.render(
  <section>
    <h1>Array</h1>
    <ul>
      {array.map((i) => (
        <li key={i}>{i}</li>
      ))}
    </ul>

    <h1>Object</h1>
    <ul>
      {Object.keys(object).map((i) => (
        <li key={i}>
          <strong>{i}: </strong>
          {object[i]}
        </li>
      ))}
    </ul>
  </section>
);
```

Basic React – More about JSX

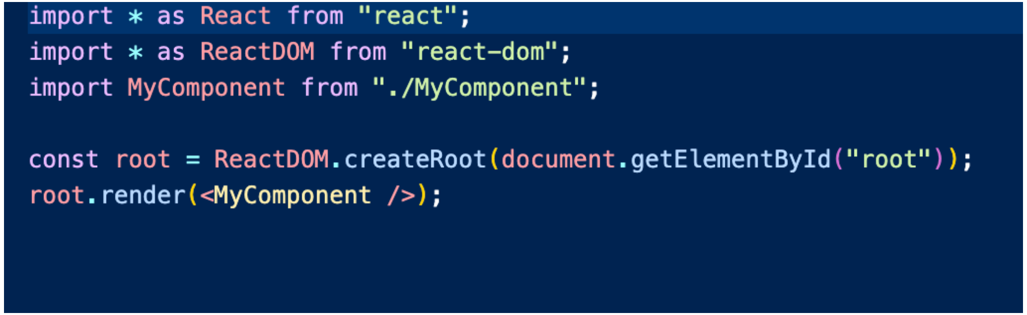
- https://reactjs.org/docs/introducing-jsx.html

Basic React – Exercise 1.0 – Hello component state

- Code and run this example



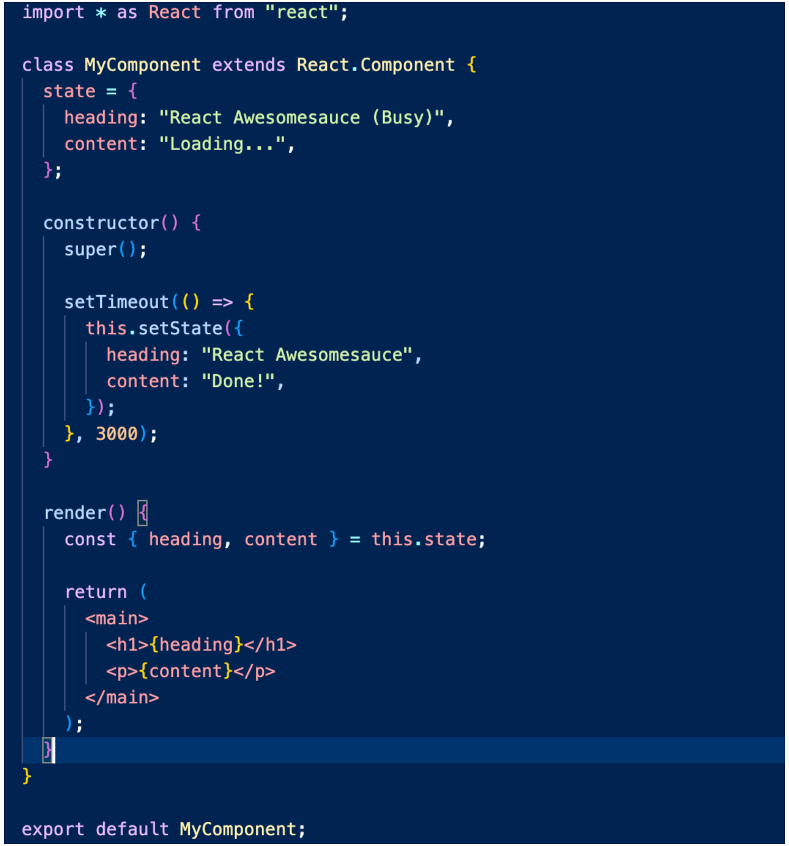
```
import * as React from "react";

class MyComponent extends React.Component {
  state = {
    first: false,
    second: true,
  };

  render() {
    const { first, second } = this.state;

    return (
      <main>
        <section>
          <button disabled={first}>First</button>
        </section>
        <section>
          <button disabled={second}>Second</button>
        </section>
      </main>
    );
  }
}

export default MyComponent;
```



```
import * as React from "react";
import * as ReactDOM from "react-dom";
import MyComponent from "./MyComponent";

const root = ReactDOM.createRoot(document.getElementById("root"));
root.render(<MyComponent />);
```

Basic React – Exercise 1.1 – Nice to meet component state

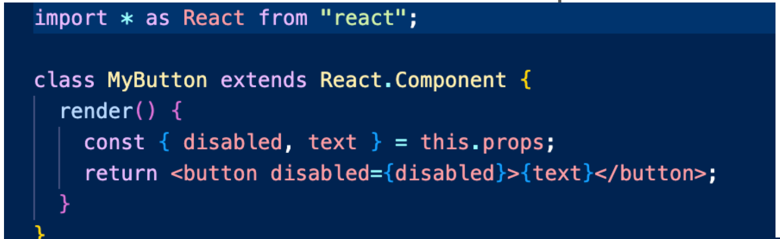
- Code and run this example



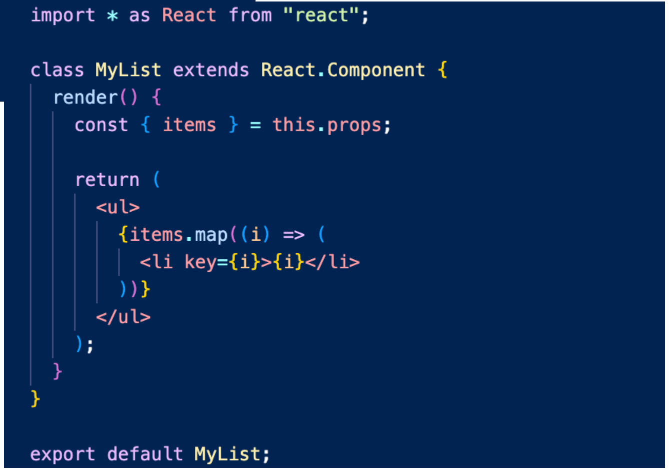
```
import * as React from "react";

class MyComponent extends React.Component {
  state = {
    heading: "React Awesomesauce (Busy)",
    content: "Loading...",
  };

  constructor() {
    super();

    setTimeout(() => {
      this.setState({
        heading: "React Awesomesauce",
        content: "Done!",
      });
    }, 3000);
  }

  render() {
    const { heading, content } = this.state;

    return (
      <main>
        <h1>{heading}</h1>
        <p>{content}</p>
      </main>
    );
  }
}

export default MyComponent;
```

Basic React – Exercise 1.2 – Setting property value

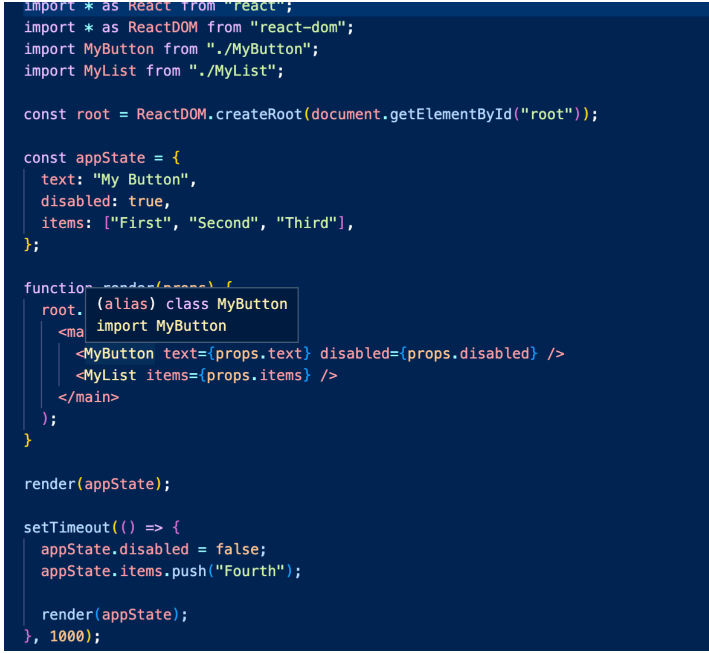
- Code and run this example



```jsx
import * as React from "react";

class MyButton extends React.Component {
  render() {
    const { disabled, text } = this.props;
    return <button disabled={disabled}>{text}</button>;
  }
}

export default MyButton;
```



```jsx
import * as React from "react";

class MyList extends React.Component {
  render() {
    const { items } = this.props;

    return (
      <ul>
        {items.map((i) => (
          <li key={i}>{i}</li>
        ))}
      </ul>
    );
  }
}

export default MyList;
```

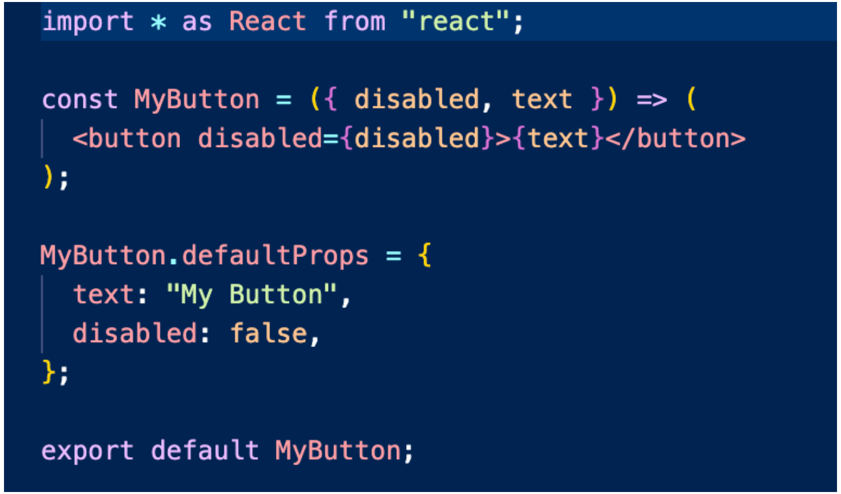


```jsx
import * as React from "react";
import * as ReactDOM from "react-dom";
import MyButton from "./MyButton";
import MyList from "./MyList";

const root = ReactDOM.createRoot(document.getElementById("root"));

const appState = {
  text: "My Button",
  disabled: true,
  items: ["First", "Second", "Third"],
};

function render(props) {
  root.
    <ma
      <MyButton text={props.text} disabled={props.disabled} />
      <MyList items={props.items} />
    </main>
  );
}

render(appState);

setTimeout(() => {
  appState.disabled = false;
  appState.items.push("Fourth");

  render(appState);
}, 1000);
```

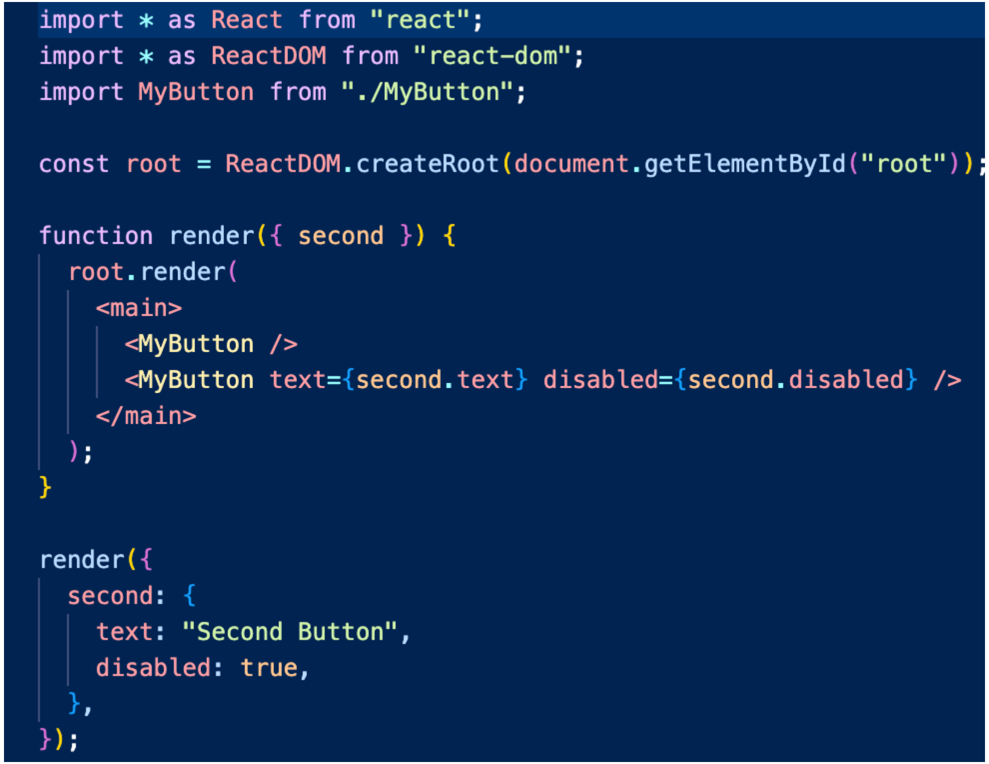
```
(alias) class MyButton
import MyButton
```

Basic React – Exercise 1.3 – Functional components

- Code and run this example



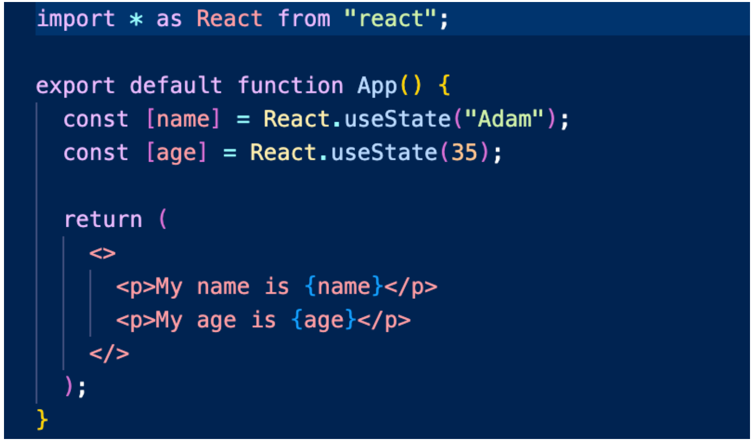
```
import * as React from "react";

const MyButton = ({ disabled, text }) => (
  <button disabled={disabled}>{text}</button>
);

MyButton.defaultProps = {
  text: "My Button",
  disabled: false,
};

export default MyButton;
```



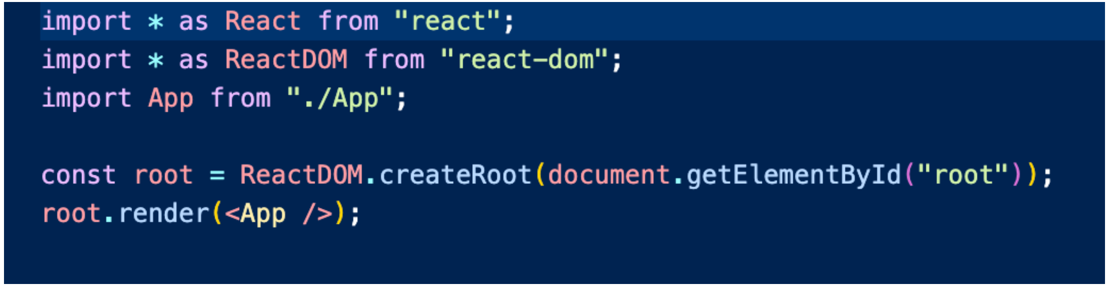
```
import * as React from "react";
import * as ReactDOM from "react-dom";
import MyButton from "./MyButton";

const root = ReactDOM.createRoot(document.getElementById("root"));

function render({ second }) {
  root.render(
    <main>
      <MyButton />
      <MyButton text={second.text} disabled={second.disabled} />
    </main>
  );
}

render({
  second: {
    text: "Second Button",
    disabled: true,
  },
});
```

Basic React – Exercise 2.1 – Hello React Hook

- Code and run this example



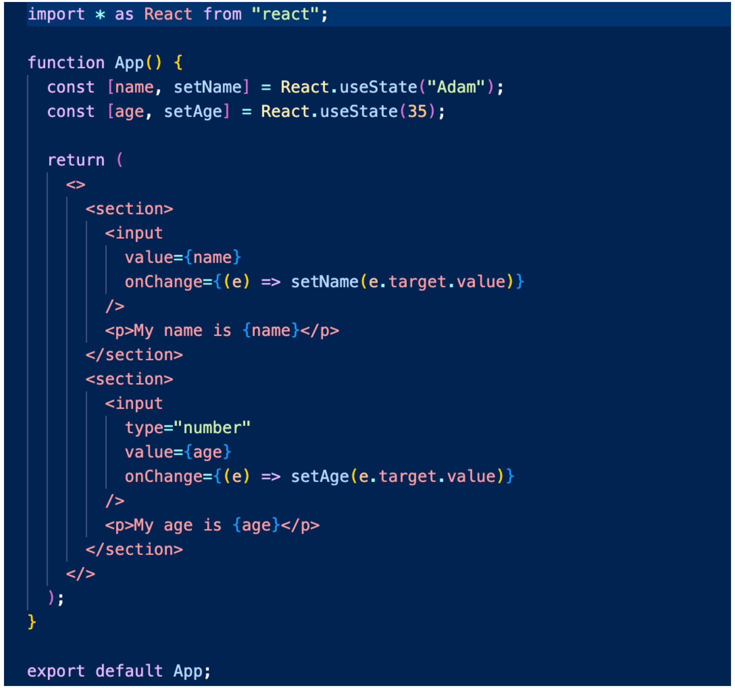
```
import * as React from "react";

export default function App() {
  const [name] = React.useState("Adam");
  const [age] = React.useState(35);

  return (
    <>
      <p>My name is {name}</p>
      <p>My age is {age}</p>
    </>
  );
}
```



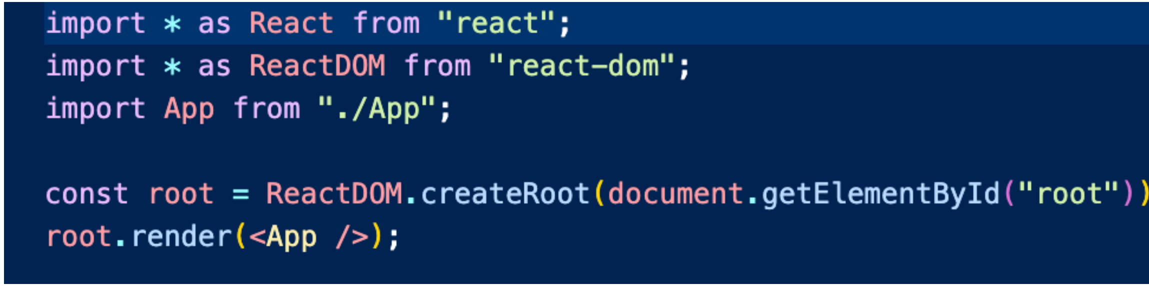
```
import * as React from "react";
import * as ReactDOM from "react-dom";
import App from "./App";

const root = ReactDOM.createRoot(document.getElementById("root"));
root.render(<App />);
```

Basic React – Exercise 2.2 – Nice to meet React Hook

- Code and run this example



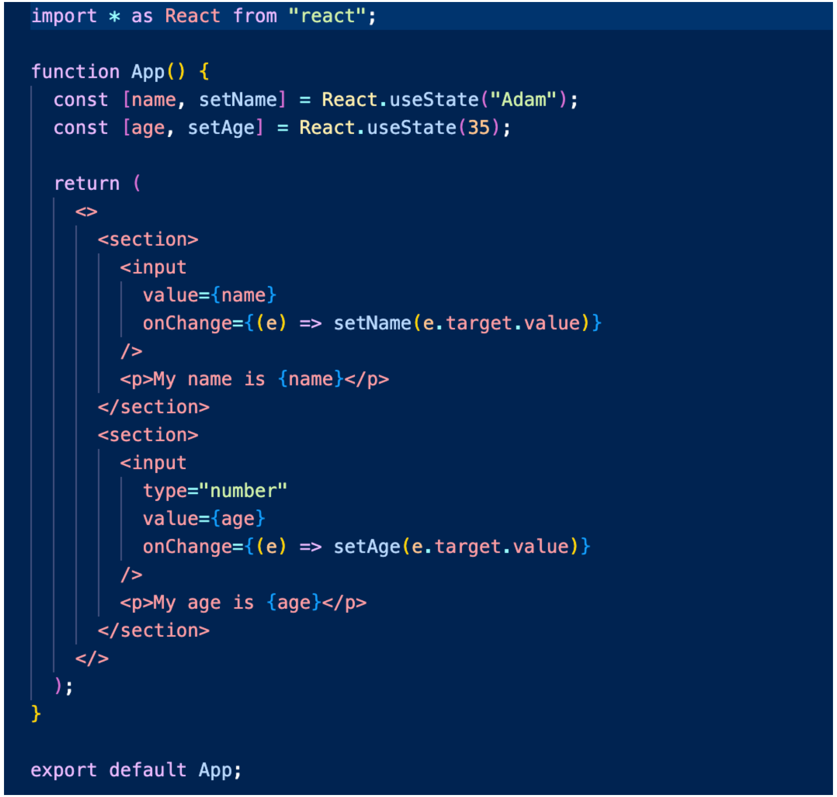
```
import * as React from "react";

function App() {
  const [name, setName] = React.useState("Adam");
  const [age, setAge] = React.useState(35);

  return (
    <>
      <section>
        <input
          value={name}
          onChange={(e) => setName(e.target.value)}
        />
        <p>My name is {name}</p>
      </section>
      <section>
        <input
          type="number"
          value={age}
          onChange={(e) => setAge(e.target.value)}
        />
        <p>My age is {age}</p>
      </section>
    </>
  );
}

export default App;
```



```
import * as React from "react";
import * as ReactDOM from "react-dom";
import App from "./App";

const root = ReactDOM.createRoot(document.getElementById("root"))
root.render(<App />);
```

Basic React – Exercise 2.3 – Gét gô react hook

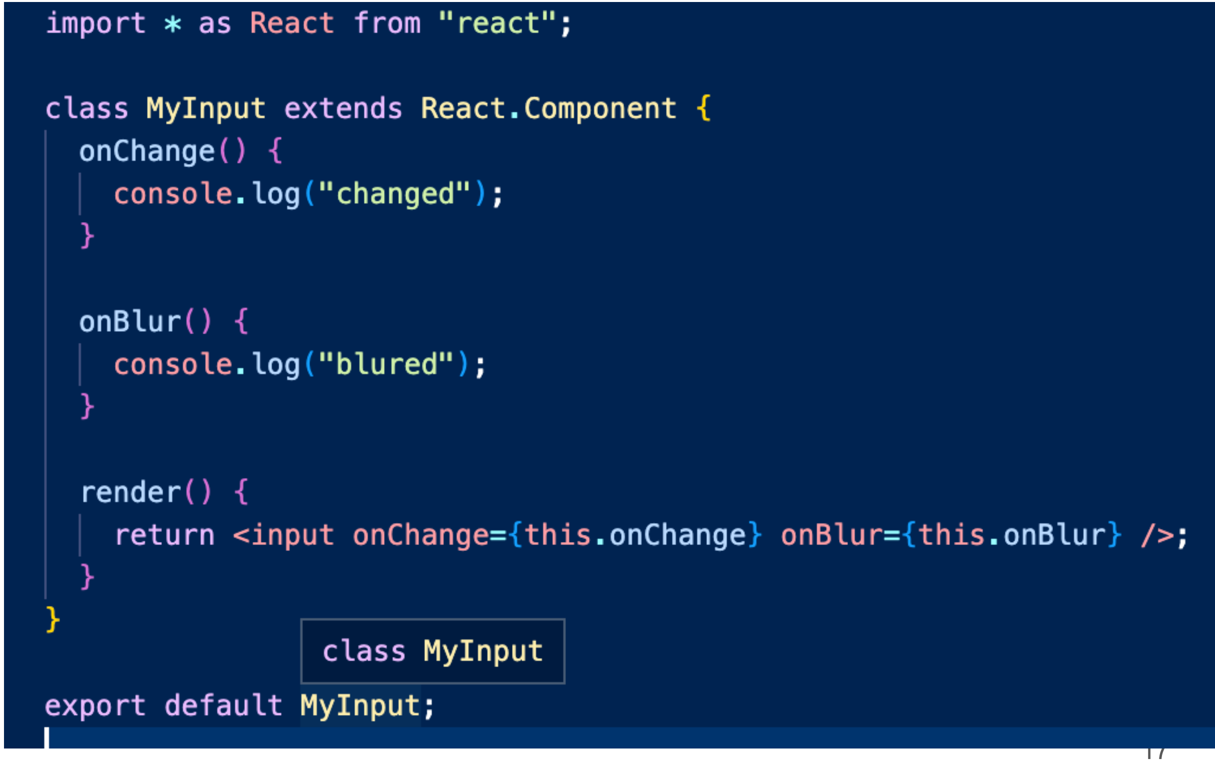
- Code and run this example



```
import * as React from "react";

function App() {
  const [name, setName] = React.useState("Adam");
  const [age, setAge] = React.useState(35);

  return (
    <>
      <section>
        <input
          value={name}
          onChange={(e) => setName(e.target.value)}
        />
        <p>My name is {name}</p>
      </section>
      <section>
        <input
          type="number"
          value={age}
          onChange={(e) => setAge(e.target.value)}
        />
        <p>My age is {age}</p>
      </section>
    </>
  );
}

export default App;
```

Basic React – Exercise 3 – React Event Handling

- Code and run this example



```
import * as React from "react";

class MyInput extends React.Component {
  onChange() {
    console.log("changed");
  }

  onBlur() {
    console.log("blured");
  }

  render() {
    return <input onChange={this.onChange} onBlur={this.onBlur} />;
  }
}
                  class MyInput
export default MyInput;
```

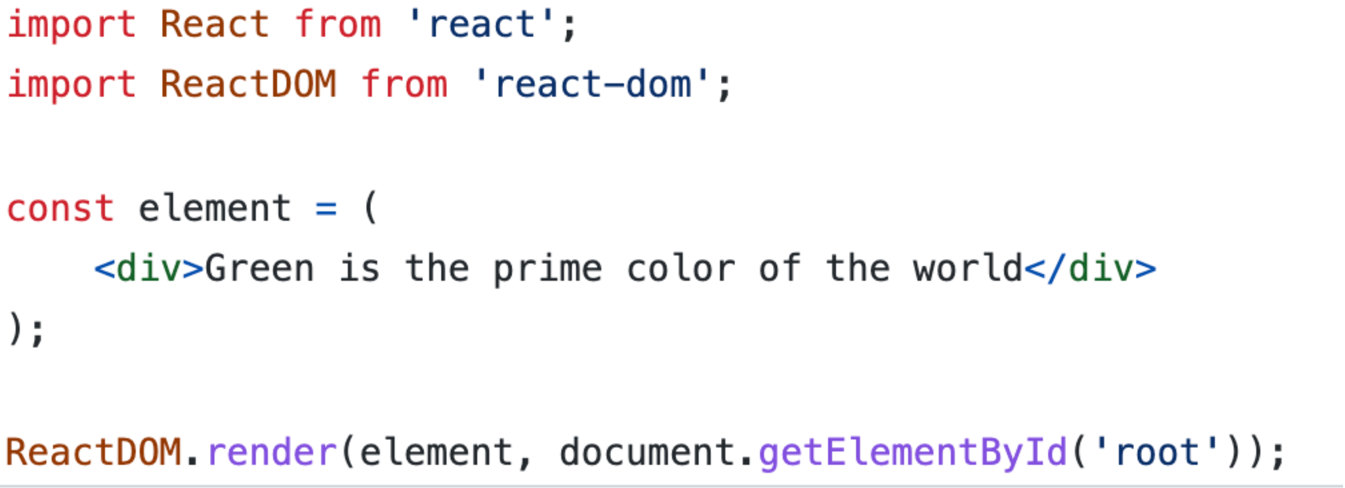
Basic React – Exercise 4.1

- You must add the following style to a div> element in the file index.js by using the style attribute:

div> content must be centred; font size must be 15px;

background colour must be Tea green #d0f0c0

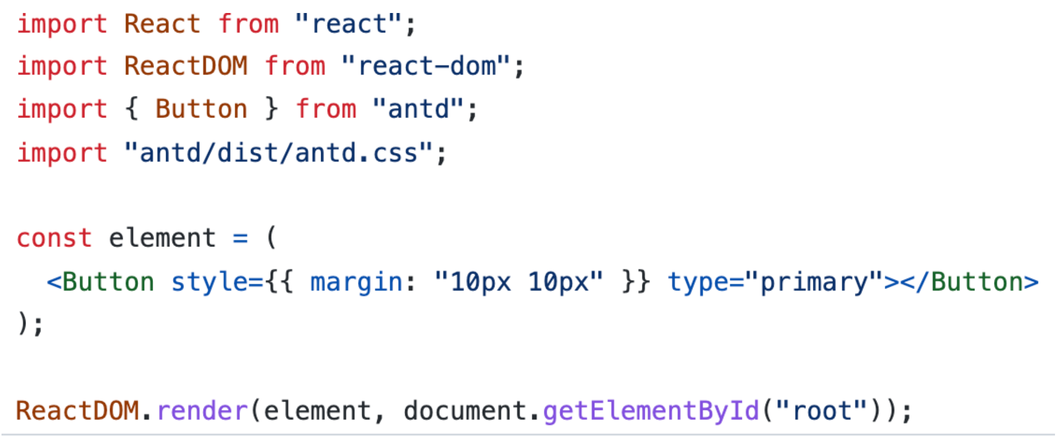
With a 1px green border and solid style



```
import React from 'react';
import ReactDOM from 'react-dom';

const element = (
    <div>Green is the prime color of the world</div>
);

ReactDOM.render(element, document.getElementById('root'));
```

Basic React– Exercise 4.2

- Add a click event handler to the Alert me! button in index.js so that when it is clicked, an alert box displays the phrase "Alert!!!"

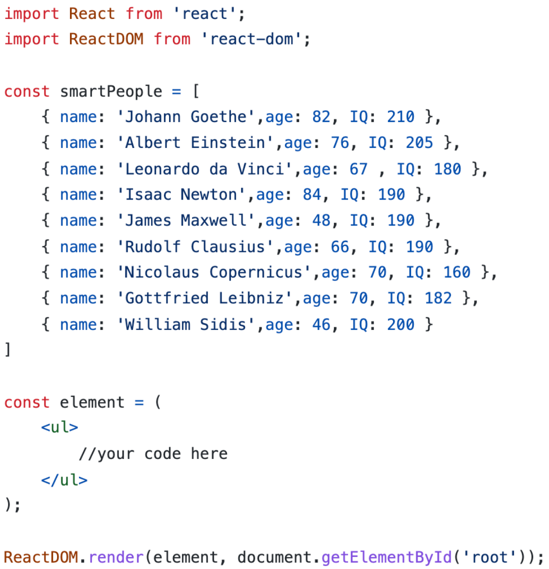


```
import React from "react";
import ReactDOM from "react-dom";
import { Button } from "antd";
import "antd/dist/antd.css";

const element = (
  <Button style={{ margin: "10px 10px" }} type="primary"></Button>
);

ReactDOM.render(element, document.getElementById("root"));
```

Basic React– Exercise 4.3

- You have the following array of smartPeople objects:

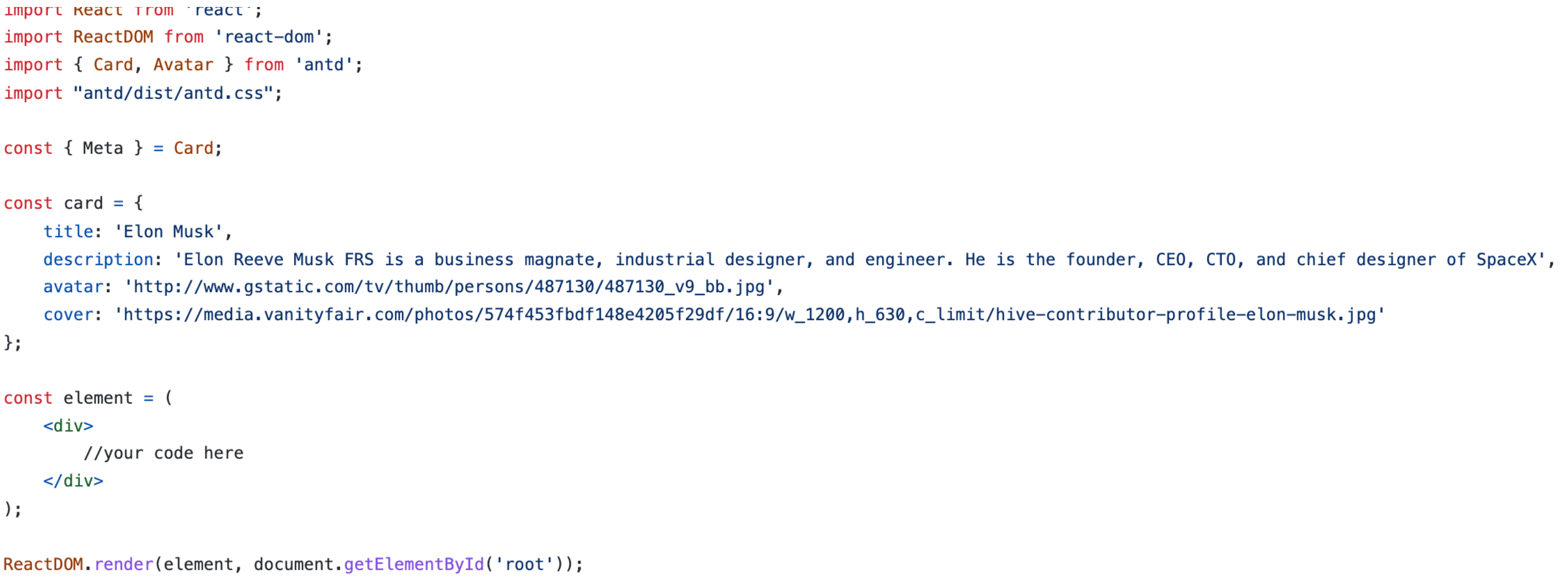
- Using the array technique, generate a list of li> elements with all object properties.



```
import React from 'react';
import ReactDOM from 'react-dom';

const smartPeople = [
    { name: 'Johann Goethe',age: 82, IQ: 210 },
    { name: 'Albert Einstein',age: 76, IQ: 205 },
    { name: 'Leonardo da Vinci',age: 67 , IQ: 180 },
    { name: 'Isaac Newton',age: 84, IQ: 190 },
    { name: 'James Maxwell',age: 48, IQ: 190 },
    { name: 'Rudolf Clausius',age: 66, IQ: 190 },
    { name: 'Nicolaus Copernicus',age: 70, IQ: 160 },
    { name: 'Gottfried Leibniz',age: 70, IQ: 182 },
    { name: 'William Sidis',age: 46, IQ: 200 }
]

const element = (
    <ul>
        //your code here
    </ul>
);

ReactDOM.render(element, document.getElementById('root'));
```

Basic React– Exercise 4.4

- You are in possession of a card-like item which has the following information on Elon Musk:
- When rendering a user card, utilise the card object in the index.js file together with the ant design card component.

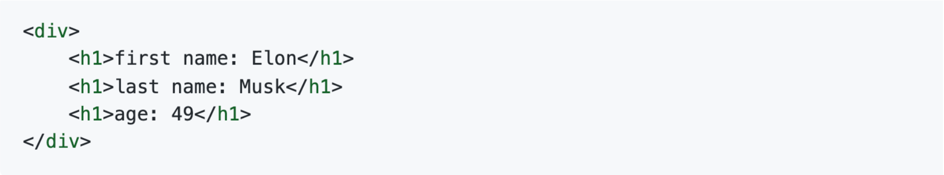


```
import React from 'react';
import ReactDOM from 'react-dom';
import { Card, Avatar } from 'antd';
import "antd/dist/antd.css";

const { Meta } = Card;

const card = {
    title: 'Elon Musk',
    description: 'Elon Reeve Musk FRS is a business magnate, industrial designer, and engineer. He is the founder, CEO, CTO, and chief designer of SpaceX',
    avatar: 'http://www.gstatic.com/tv/thumb/persons/487130/487130_v9_bb.jpg',
    cover: 'https://media.vanityfair.com/photos/574f453fbdf148e4205f29df/16:9/w_1200,h_630,c_limit/hive-contributor-profile-elon-musk.jpg'
};

const element = (
    <div>
        //your code here
    </div>
);

ReactDOM.render(element, document.getElementById('root'));
```

Basic React– Exercise *4.5*

- Let's pretend that we have the following object, which contains information about a user: Launch index.js and insert the necessary code in order to generate the following HTML into the document object model (DOM):

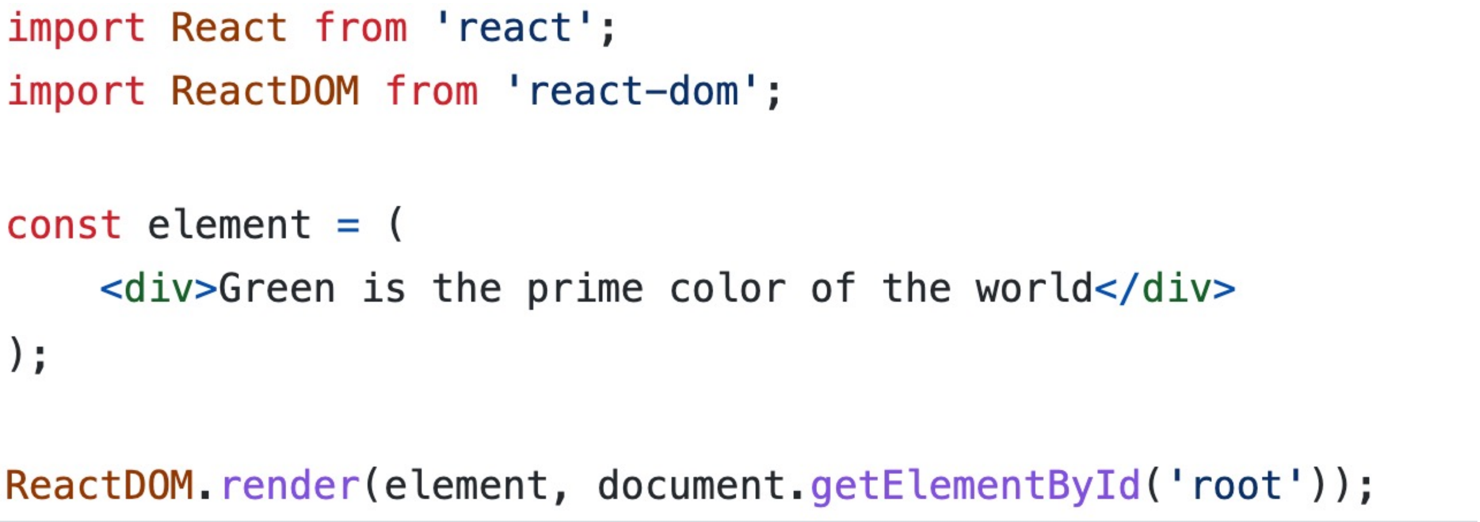
```
import React from 'react';
import ReactDOM from 'react-dom';

const user = {
    firstName: 'Elon',
    lastName: 'Musk',
    age: 49
}

const element = (
    <div>
        //your code here
    </div>
);

ReactDOM.render(element, document.getElementById('root'));
```



```
<div>
    <h1>first name: Elon</h1>
    <h1>last name: Musk</h1>
    <h1>age: 49</h1>
</div>
```

Basic React– Exercise 4.6

- You have a div element in the file index.js, and you need to apply the following style to it by making use of the property called style: The minimum font size that must be used is 15 pixels, and the absolute minimum background colour that must be used is tea green with the code #d0f0c0. have a solid style with a green border that is 1 pixel wide.

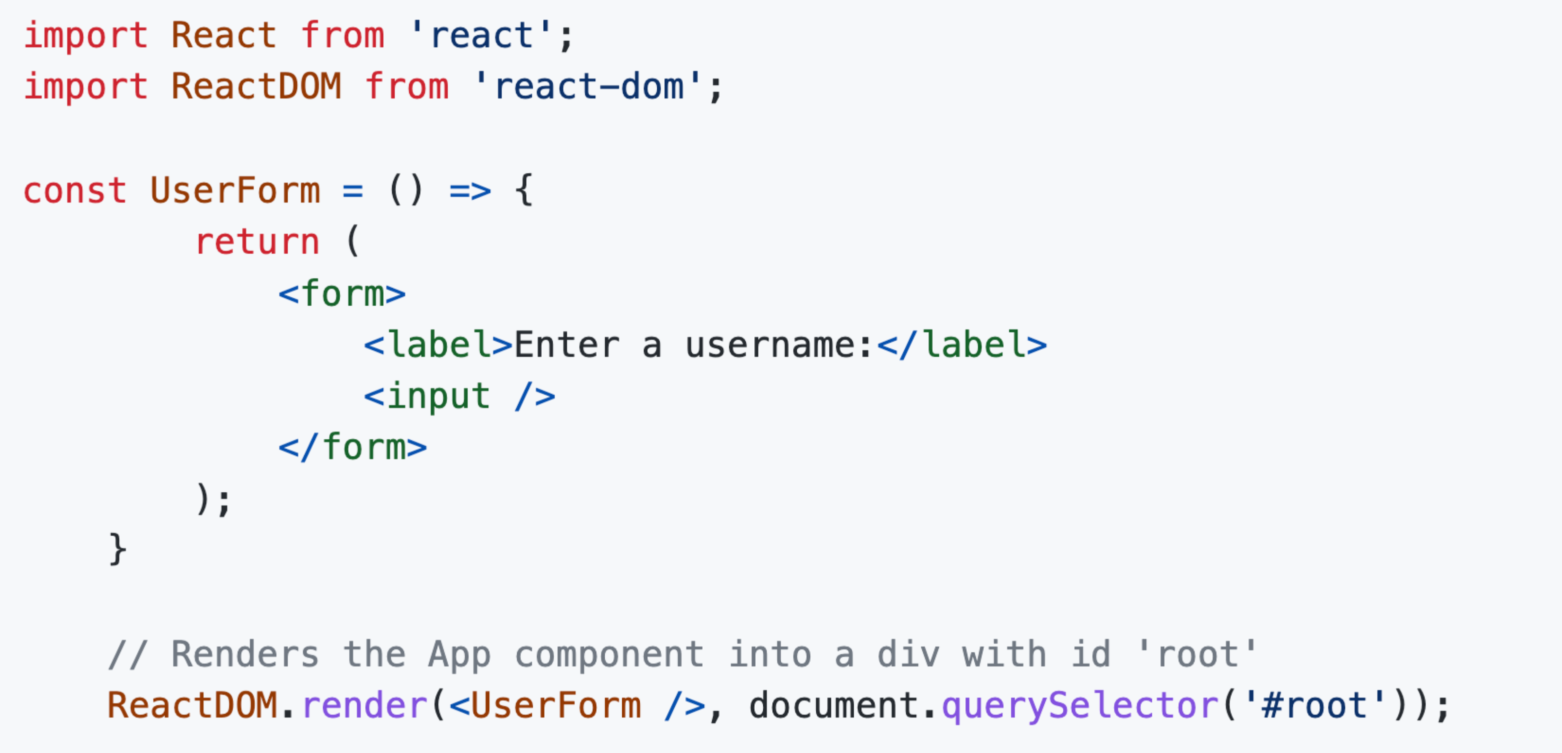


```
import React from 'react';
import ReactDOM from 'react-dom';

const element = (
    <div>Green is the prime color of the world</div>
);

ReactDOM.render(element, document.getElementById('root'));
```

Basic React– Exercise 4.7

- Take a look at the code below; it generates a component that's going to be named UserForm. At this time, the UserForm is a component that is just functional. The end in mind:
- Make the UserForm into a component that is based on classes by refactoring it. It should return exactly the same JSX as before. Always keep in mind that class-based components need to:
- Be a class that extends React that is written in Javascript.
- Component
- Establish a render method that provides some JSX as its return value.

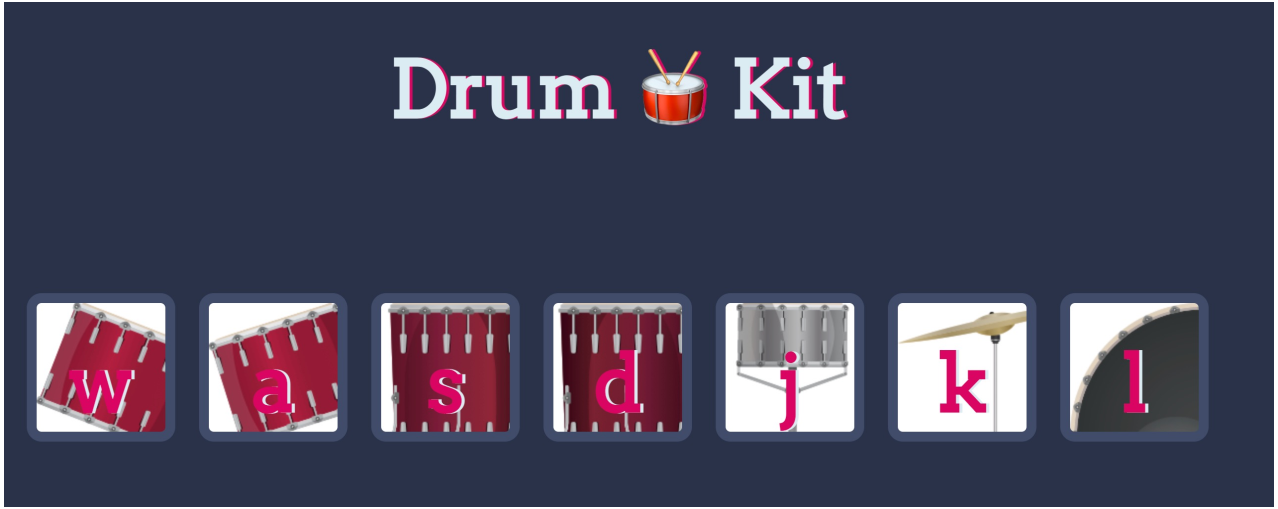
Basic React – Exercise 4.7 (Next)



```
import React from 'react';
import ReactDOM from 'react-dom';

const UserForm = () => {
        return (
            <form>
                <label>Enter a username:</label>
                <input />
            </form>
        );
    }

    // Renders the App component into a div with id 'root'
    ReactDOM.render(<UserForm />, document.querySelector('#root'));
```

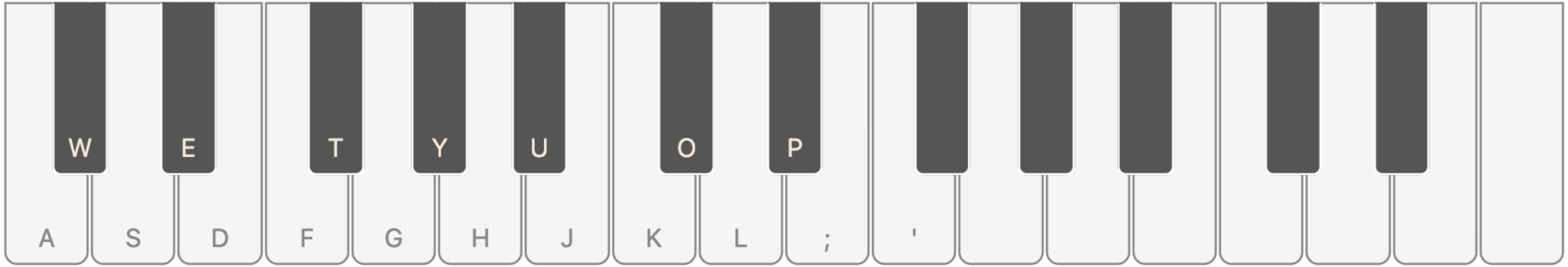
React – Homework

- Do you remember about this exercise? Please refactor it into Reactjs code. Please create item components and list item components.



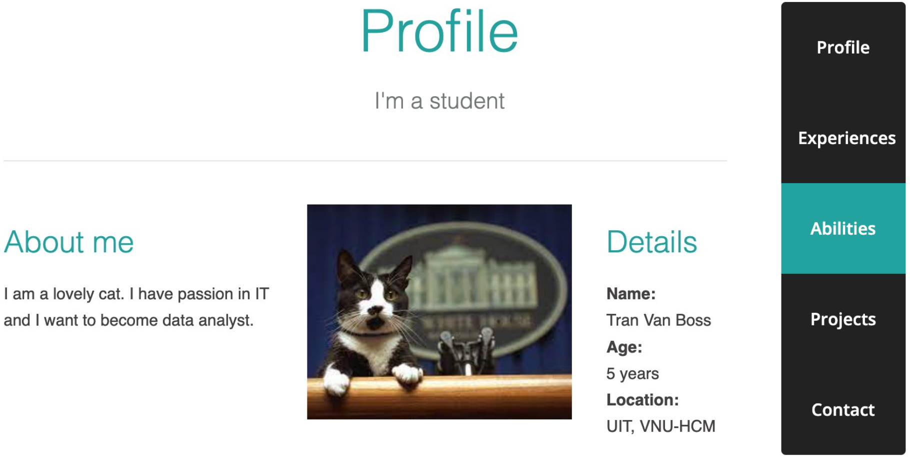
React – Homework 2

- Based on previous exercises, create a piano with 88 keys. Each key is the component, known that having 2 types of key: black key and white key, 7 octaves, each octave includes 12 keys: 7 white and 5 black.



React – Homework 3

- Do you remember about your CV? Please refactor your CV to reactjs code.



Profile

I'm a student

About me

I am a lovely cat. I have passion in IT and I want to become data analyst.

Details

Name:
Tran Van Boss
Age:
5 years
Location:
UIT, VNU-HCM

React – Homework 4

- Access to this link and do exercise 4:
- https://drive.google.com/file/d/17Li7KlAt_aWIg-hkLPQUImwfuZS5vx6Z/view?usp=sharing

Q & A

Thank you for cooperating
Gét gô

“Coming together is a beginning;
Keeping together is progress;
Working together is success.”
- HENRY FORD