INTRODUCTION TO MOBILE APPLICATIONS DEVELOPMENT

Introduction to React

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OVERVIEW OF REACT

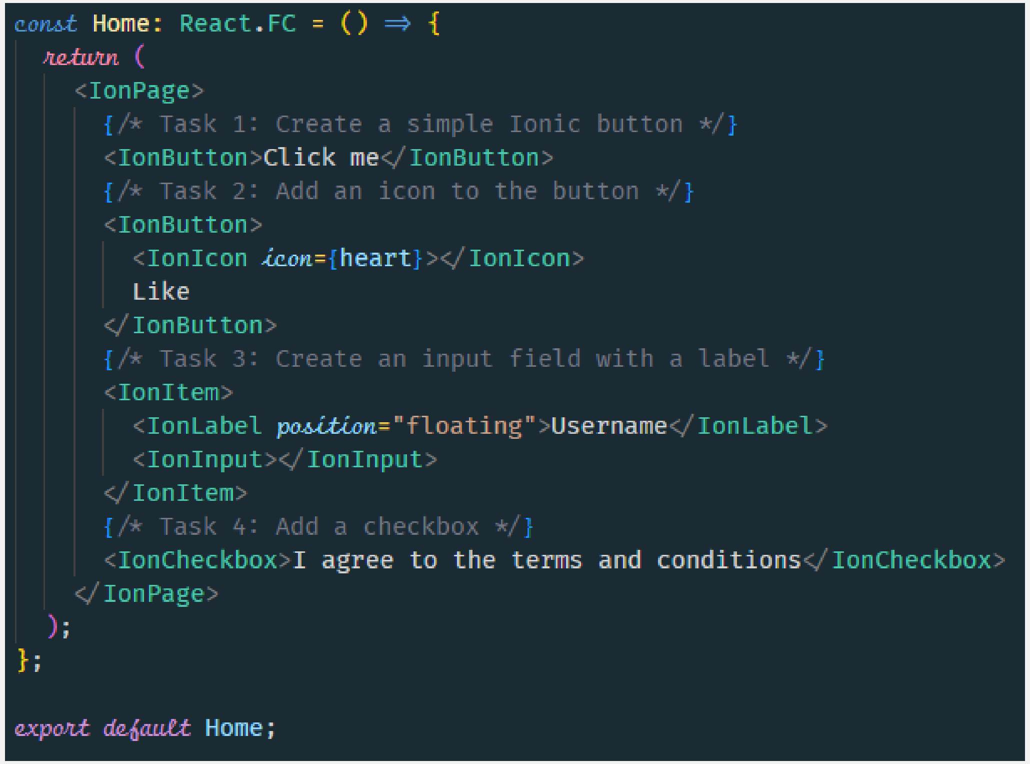
While we will be using Ionic to build the UI part of the application, we will be adding advanced functionality through React.

Full Documentation:

1. https://react.dev/

REACT COMPONENTS

We have been using React all the time to render our Ionic Components because each page is a React component!



```
const Home: React.FC = () => {
  return (
    <IonPage>
      {/* Task 1: Create a simple Ionic button */}
      <IonButton>Click me</IonButton>
      {/* Task 2: Add an icon to the button */}
      <IonButton>
        <IonIcon icon={heart}></IonIcon>
        Like
      </IonButton>
      {/* Task 3: Create an input field with a label */}
      <IonItem>
        <IonLabel position="floating">Username</IonLabel>
        <IonInput></IonInput>
      </IonItem>
      {/* Task 4: Add a checkbox */}
      <IonCheckbox>I agree to the terms and conditions</IonCheckbox>
    </IonPage>
  );
};

export default Home;
```

REACT COMPONENTS

- React is used to render a root component that is made up of other Ionic or HTML components. Ionic pages are essentially React components defined like this:

```
const Home: React.FC = () => {
  return (
    // Ionic Components defined here
  );
};
```

- A React component can also be defined like this:

```
const Home = () => {
  return (
    // Ionic Components defined here
  );
};
```

REACT STATES

- In React we use special variables called **State Variables**. Whenever we want to render something dynamic on the mobile device (such as a dynamic list, or a changing number, or other components that change), we need to store that value inside a **State**.

- We can define a React state like this:

```
const [count, setCount] = useState(0);
```

- You can only update the value of a state variable (Ex. count) by using the **State Setter Function** (Ex. setCount).

TYPESCRIPT

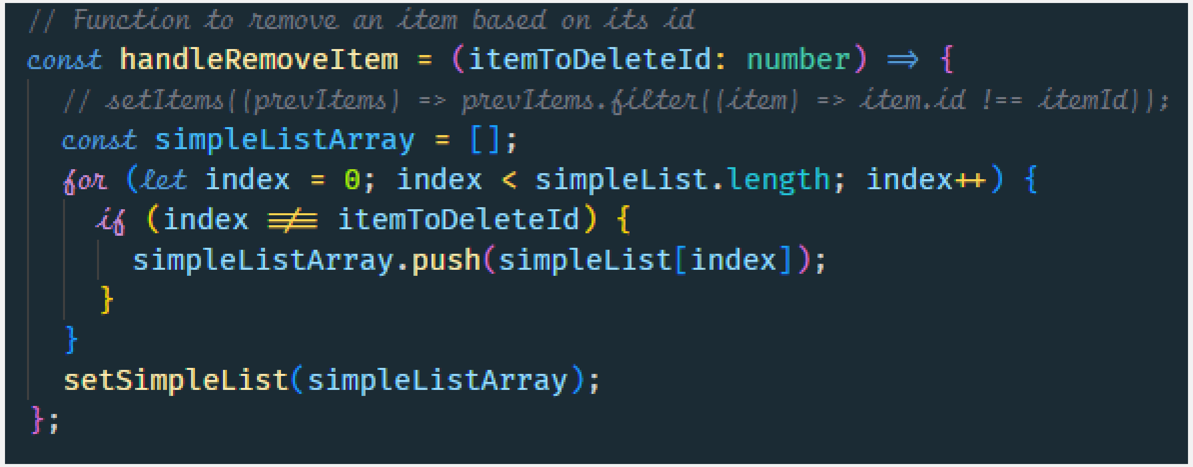
- Since by default, JavaScript does not check the variable types, this can lead to bugs (ex. Storing a string inside a variable you intended to store numbers).

- The **TypeScript** library helps to solve this problem. TypeScript is installed by default with Ionic-React.

TYPESCRIPT

- TypeScript is enforced by default in the following scenarios:
  1. Complex data types (ex. Arrays and objects)
  2. Function arguments

- Example:



```
// Function to remove an item based on its id
const handleRemoveItem = (itemToDeleteId: number) => {
  // setItems((prevItems) => prevItems.filter((item) => item.id !== itemId));
  const simpleListArray = [];
  for (let index = 0; index < simpleList.length; index++) {
    if (index !== itemToDeleteId) {
      simpleListArray.push(simpleList[index]);
    }
  }
  setSimpleList(simpleListArray);
};
```