College of Engineering, Construction and Living Sciences
Bachelor of Information Technology
IN608: Intermediate Application Development Concepts
Level 6, Credits 15

Practical 18 React 3: State & Lifecycle Methods

Due Date: 28/09/2020 at 5pm

In this practical, you will complete a series of tasks covering today's lecture. This practical is worth 1% of the final mark for the IN608: Intermediate Application Development Concepts course.

Before you start, in your practicals repository, create a new branch called **18-practical**.

Task

Create a React app called `practical18state`. `cd` to `practical18state` & install the following packages:

- Axios - `npm i axios`
- He - `npm i he`
- Material Design for Bootstrap - `npm i mdbreact`
- React spinners - `npm i react-spinners`
- Reactstrap - `npm i reactstrap`

Optionally, you can install all of them at once, i.e., `npm i axios he mdbreact react-spinners`.

Create a directory called `components`. Move `App.js` into `components`. Create two files called `OpenTDB.js` & `Error.js`. In `OpenTDB.js`, create a function based component called `OpenTDB`. In `OpenTDB`, declare the following `state` variables:

```
const [error, setError] = useState(null)
const [isLoaded, setIsLoaded] = useState(false)
const [data, setData] = useState([])
const [url] = useState('https://opentdb.com/api.php?amount=5&type=boolean')
```

Below the `state` variables, declare the following `useEffect`:

```
useEffect(() => {
  const fetchData = async () => {
    await axios
      .get(url)
      .then((res) => {
        setIsLoaded(true)
        setData(res.data.results)
      })
      .catch((err) => {
        setIsLoaded(true)
        setError(err)
      })
  }
  fetchData()
}, [url])
```

In `Error.js`, return the message `404: Not Found.` in an `h1`.

What is happening?

You are using a promise based HTTP package called `axios` to request data from an API endpoint using the `GET` HTTP method. `then()` method is called & returns a `Promise`. It takes up to two arguments: callback functions for the success and failure cases of the `Promise`. In our case, if success, set the state of `isLoaded` to `true` & `data` to the response contents from the API request. If failure, set the state of `isLoaded` to `true` & `error` to the error caught.

In `render()`, if there is an error display the `error` state's message in an `h1` element. If `isLoaded` is `false`, display a loading spinner using `react-spinners`. If `isLoaded` is `true`, return a `mdbreact` table containing the `data`. To use `mdbreact`, you must declare the following in `index.js`:

```
import 'bootstrap-css-only/css/bootstrap.min.css'
import 'mdbreact/dist/css/mdb.css'
```

This is just a reference to a `CSS` files in the `mdbreact` & `bootstrap-css-only` packages. You will notice some questions contain HTML entities. Encoding works slightly different in React & you need to use `he` to do this. If there is no `data`, display the message `No data available.` in an `h1` element.

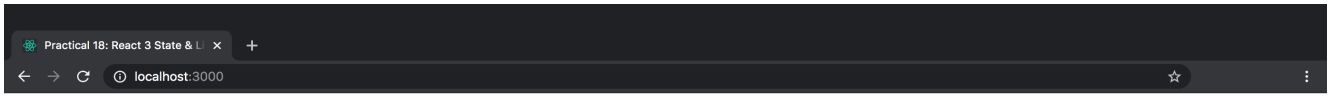
In `App.js`, call the `OpenTDB` & `Error` components in the appropriate routes. Your `App.js` file should look like the following:

```
import React from 'react'
import { Route, Switch } from 'react-router-dom'
import Error from './Error'
import OpenTDB from './OpenTDB'

const App = () => {
  return (
    <div className='container'>
      <Switch>
        <Route path='/' component={OpenTDB} exact />
        <Route component={Error} />
      </Switch>
    </div>
  )
}

export default App
```

Expected Output

Run the command `npm start` then navigate to http://localhost:3000/

Loading data...please wait...



OpenTDB API - True or False

Category	Difficulty	Question	Answer
Entertainment: Video Games	Easy	Pac-Man was invented by the designer Toru Iwatani while he was eating pizza.	True
Mythology	Medium	The Japanese god Izanagi successfully returned his wife Izanami from the Underworld.	False
Geography	Easy	St. Louis is the capital of the US State Missouri.	False
Entertainment: Video Games	Medium	In "Super Mario World", the rhino mini-boss, Reznor, is named after the lead singer of the band "Nine Inch Nails".	True
Science & Nature	Medium	Sound can travel through a vacuum.	False

No data available.

404: Not Found.

Network Error

Deployment link: https://int-app-dev-practical-18.herokuapp.com/

Resources

- OpenTDB API
- Axios
- He
- Material Design for Bootstrap
- React spinners
- Reactstrap