NAME: OLAIYA BISOYE OLORUNFEMI

TRACK: SOFTWARE DEVELOPMENT (PYTHON WEB DEVELOPMENT)

TASK: WEEK 3

DATE OF SUBMISSION: 21st November, 2019

GITLAB USERNAME: bisoyefemi

Web Development Task for the week:

1. Research on any of the three (Angular, Vue js, React Js)

2. Setup up any of the frameworks and libraries on your PC

3. Create a new project using any of the libraries and framework

4. Setup up the new project on gitlab alongside a new repository

5. Create two components the Main Components and the Contact Component

6. Create a template for those component

7. Design profile page on the Main Component using any of the framework or library

8. Design Contact page on the Contact Component

9. Using the router of the framework like the contact page to the navigation on the header (the web application should be a single page application)

Solution

1. **What is React**

   React is a JavaScript Library created by Facebook and is used for building fast and interactive user interfaces (UIs) for front-end web development. At the heart of React JavaScript library are components. A component is a piece of the user interface. When building applications with React, we build a bunch of independent isolated and reusable components and then compare them to build complex interfaces. Every react application has at least one component which we refer to as the root component. The root component represents the entire application and contains other child components. Every React application is a tree of different components.

   In terms of implementation, a component is a JavaScript class that has a state and a render method. The state here is the data that is displayed when the component is rendered. The render method is responsible for describing what the UI should look like. The output of the react method is a react element which is a simple plain JavaScript object that maps with the Document Object Model (DOM) element. It is not a real DOM element; it is just a plain JavaScript object that represent the DOM element in memory. React keeps a lightweight representation of the DOM in memory which is referred to as a virtual DOM. Unlike the browser or the real DOM, the virtual DOM is cheap to create.

   When we change the state of a component, we get a new react element. React will then compare this element and his children with the previous one and figures out what is changed and then it will update a part of the real DOM and keep it in sync with the virtual DOM. This means when building applications with React, unlike Vanilla JS or jQuery, we no longer have to worry about the DOM API in browsers. In other words, we no longer have to write codes where you query or manipulate the DOM or attach event handlers to DOM elements, we simply change the state of our components. React will automatically update the DOM to match that state. This is exactly why the library is called React because when a state changes it essentially react to the state changed and updates the DOM.

2. **The Set Up**

   To set up React library on a PC, follow the instructions below:

   i. Install Node JS from nodejs.org we will use one of its built-in tools called node packet manager (npm) to install third party libraries.

   ii. After the install, open your terminal and run the command “npm i -g create-react-app@1.5.2” (i stands for install, g for global and the react version of 1.5.2)

iii. To create a new project, enter the command “npx create-react-app myapp” this is going to install a light weight development server, a webpack for building our files, Babel for compiling our JS code and as well a bunch of other tools.
iv. Install two optional extensions called Simple React Snippets and Prettier Code Formatter.
v. Install Bootstrap using the command “npm i bootstrap@4.3.1”
vi. Install React Material Design using the command “npm install –save react-mdl”
vii. Install React Router DOM using the command “npm install –save react-router-dom”

3 My React project

I created a new project on gitlab as week_three_task. I visited the links below to install the third-party libraries used in completing my profile project (react-router-dom and react-material design)

https://www.npmjs.com/package/react-router-dom
https://tleunen.github.io/react-mdl/components/layout/
https://github.com/tleunen/react-mdl

Afterwards, I followed the instructions on the above github pages to complete the set up. I created two components ContactPage and ProfilePage for my contact and profile page respectively. I created a main.js file to handle my routes, modified app.js, index.js and app.css in creating my application.

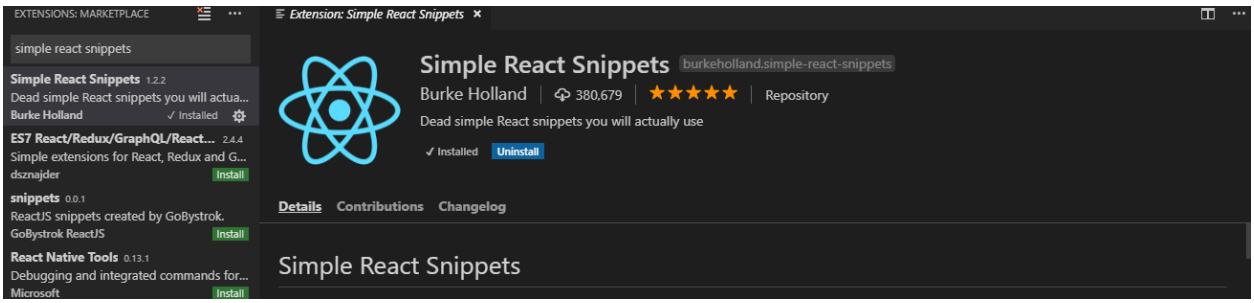

Fig 1.1: Screenshot of Simple React Snippet Extension

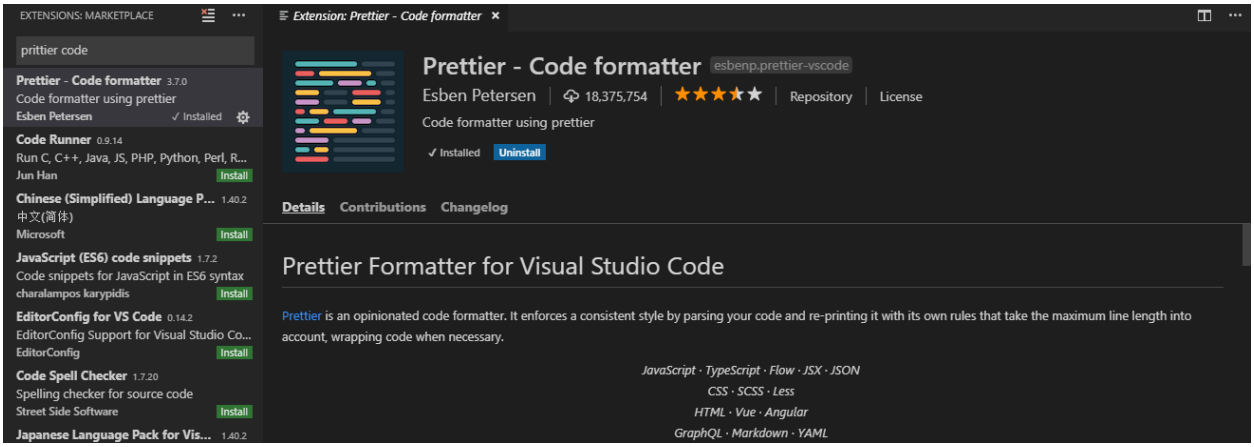

Fig 1.2: Screenshot of Prettier – Code Formatter Extension

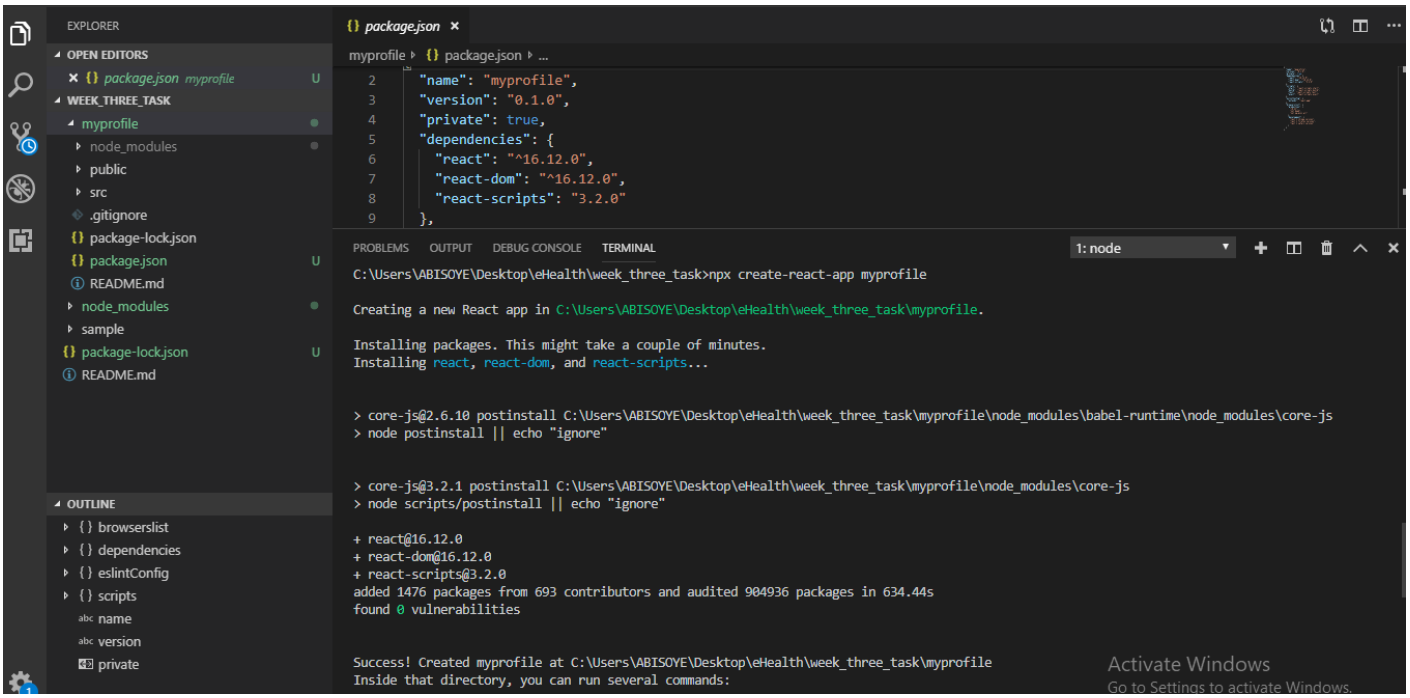

Fig 1.3: Screenshot showing successful “npx create-react-app” for myprofile project

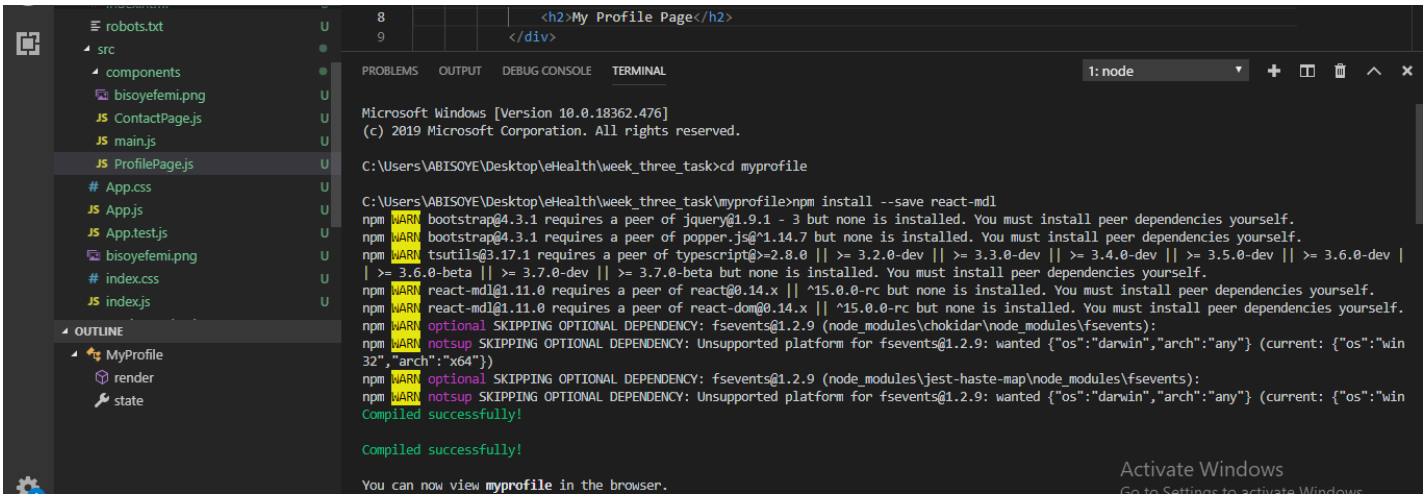

Figure 1.4: Screenshot of successful install of react material design

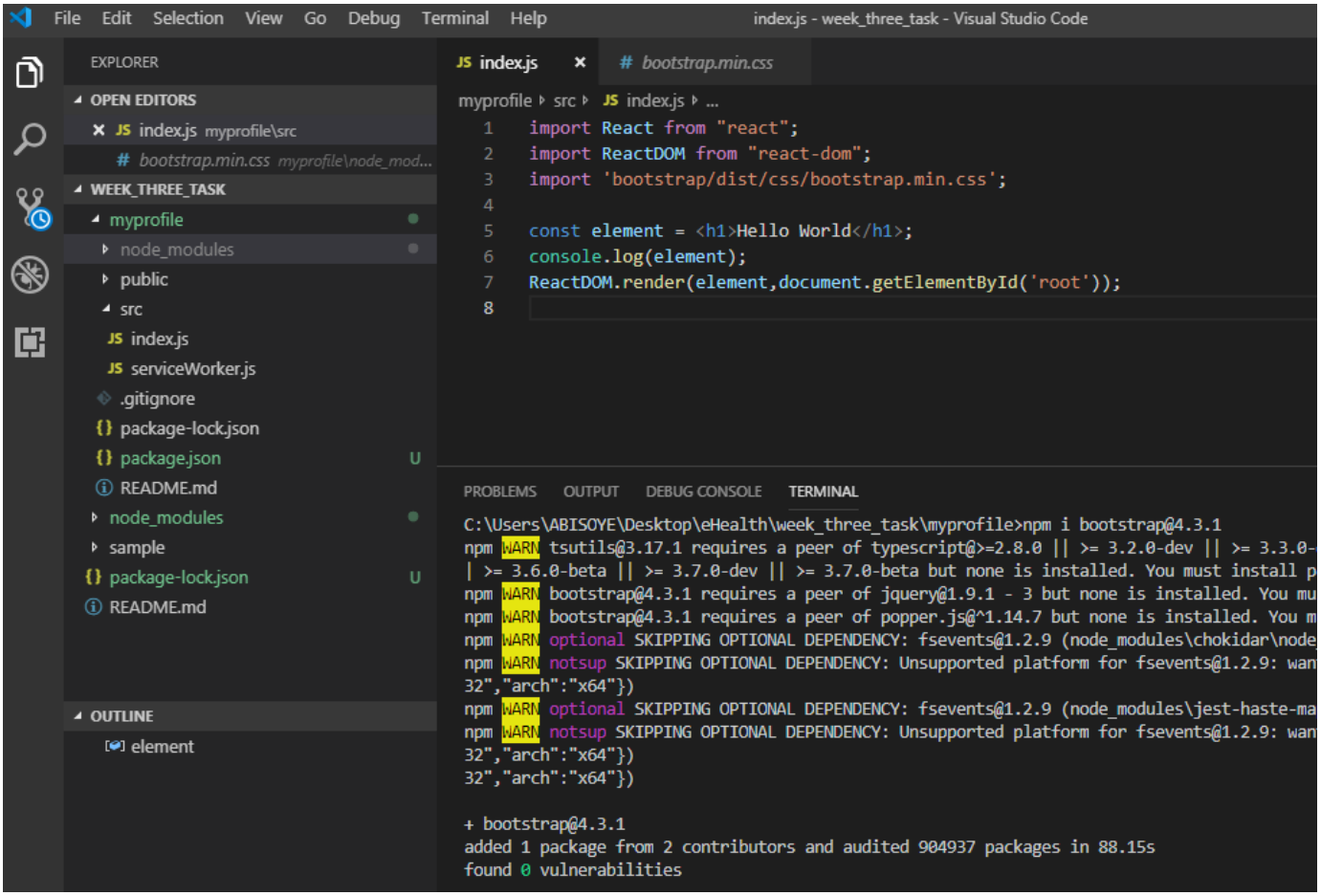

Fig 1.5: Screenshot of successful install of bootstrap

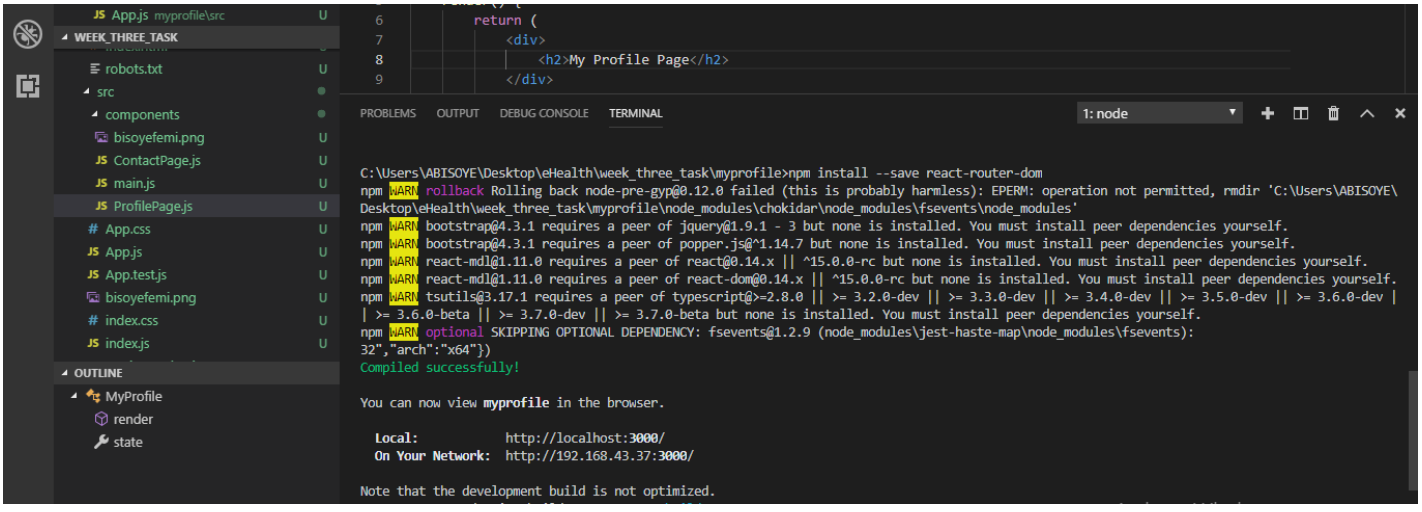

Fig 1.6: Screenshot of successful install of react router

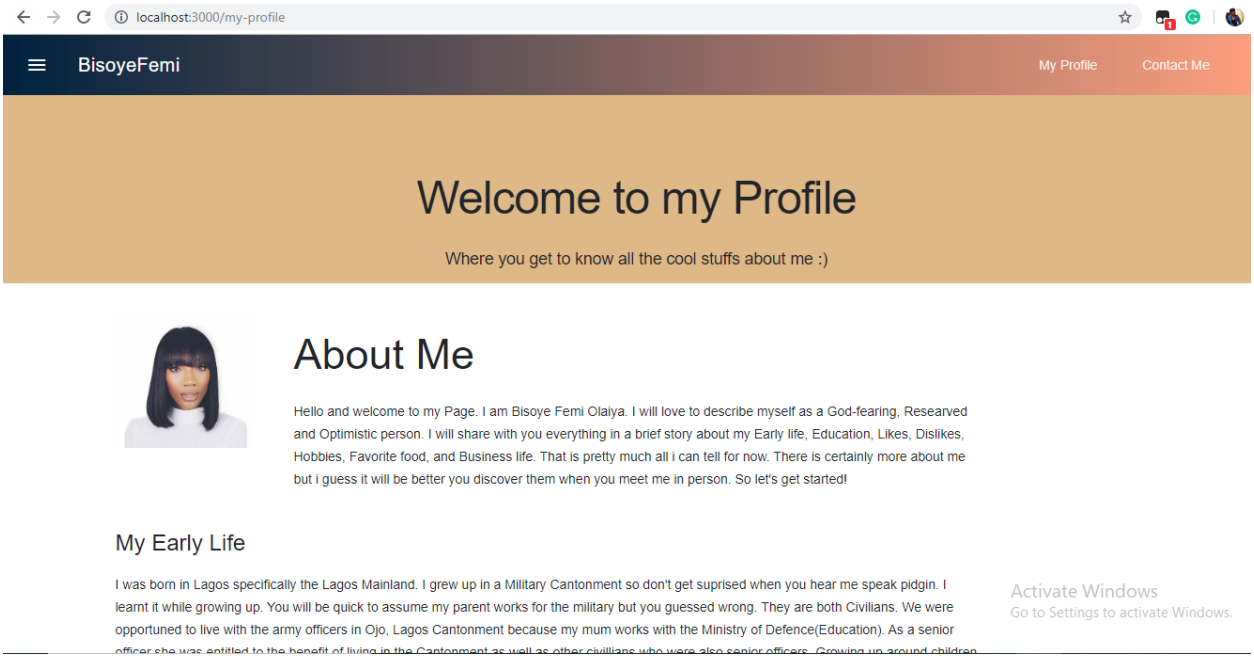

Fig 1.7: Screenshot of my single page application for my-profile page

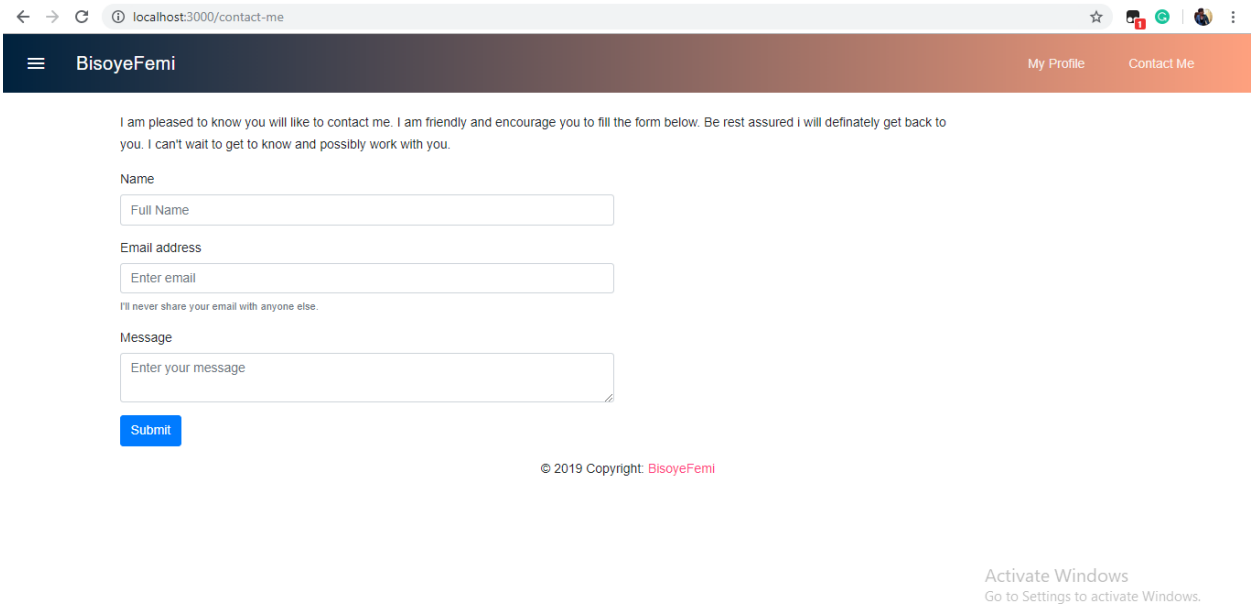

Fig 1.8: Screenshot of single page application for contact me page