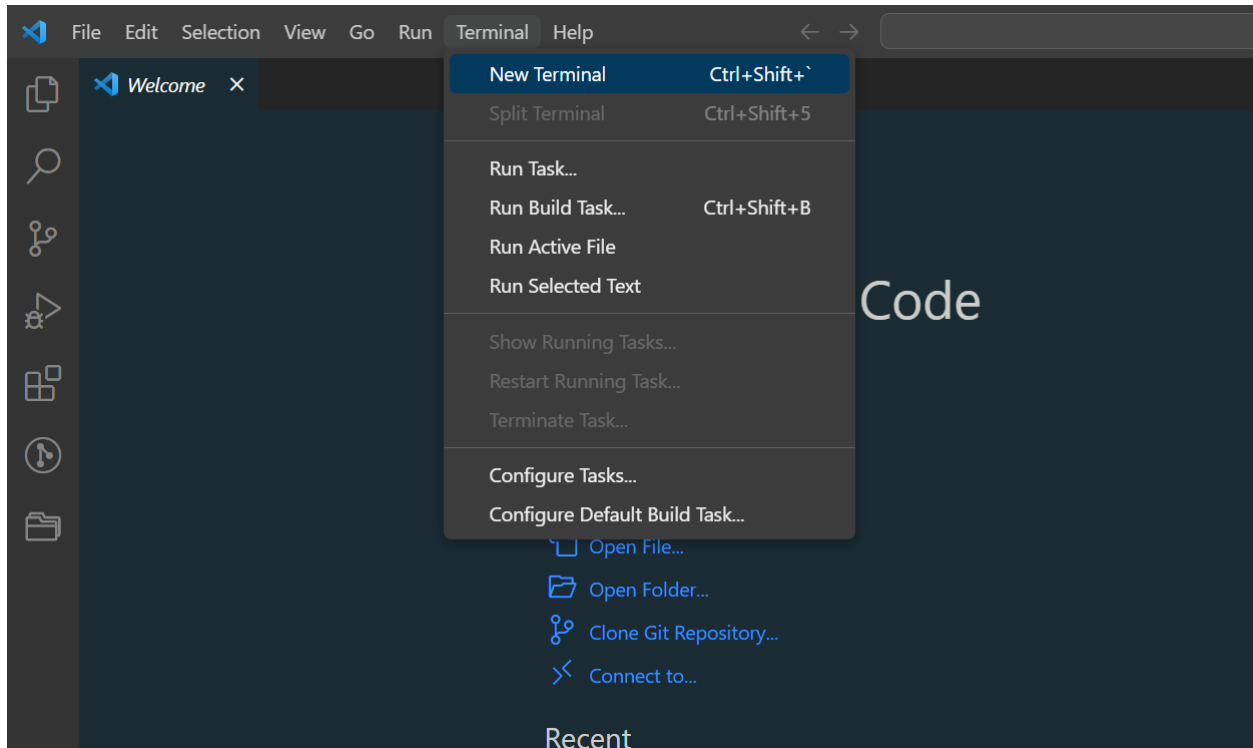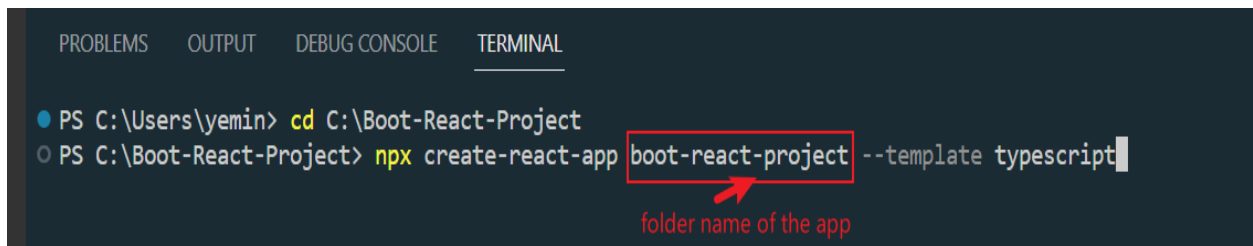# 1. Setup Frontend Project
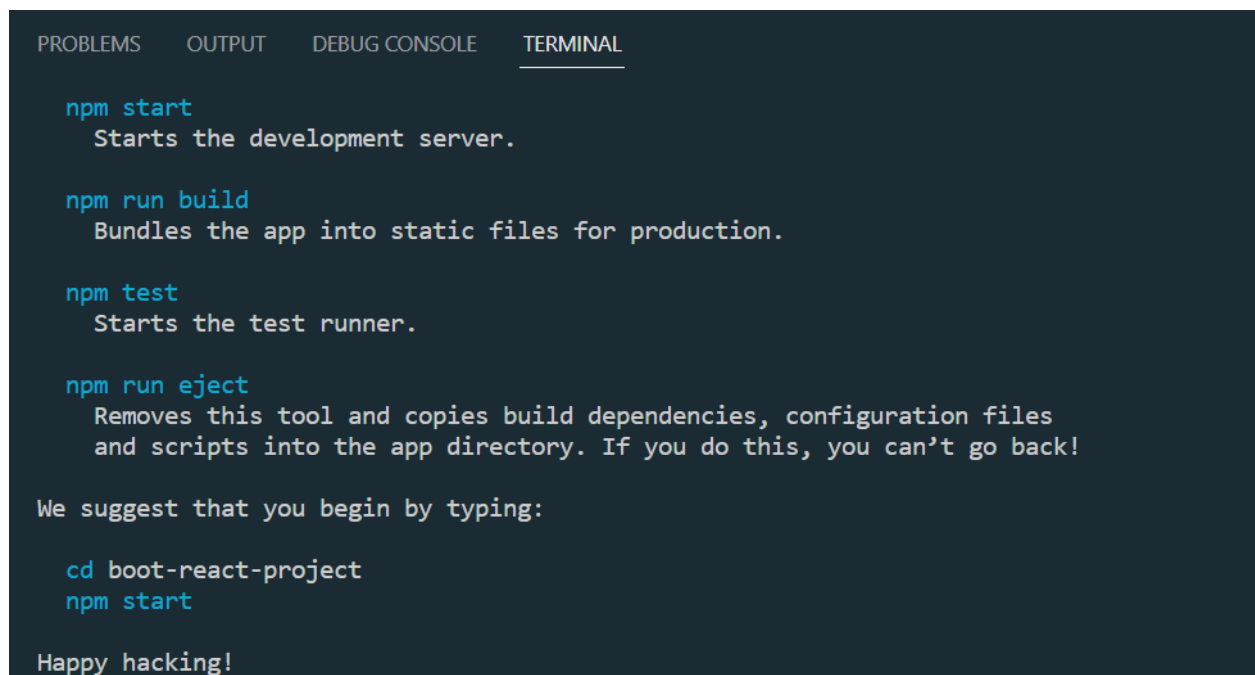
Step 1, open VS code, click on "Terminal", choose "New Terminal",

Step 2, In the Terminal, cd to your project folder, and type: "npx create-react-app boot-react-project --template typescript"

After you can see this page:

```
PROBLEMS     OUTPUT     DEBUG CONSOLE     TERMINAL

  npm start
    Starts the development server.

  npm run build
    Bundles the app into static files for production.

  npm test
    Starts the test runner.

  npm run eject
    Removes this tool and copies build dependencies, configuration files
    and scripts into the app directory. If you do this, you can't go back!

We suggest that you begin by typing:

  cd boot-react-project
  npm start

Happy hacking!
```
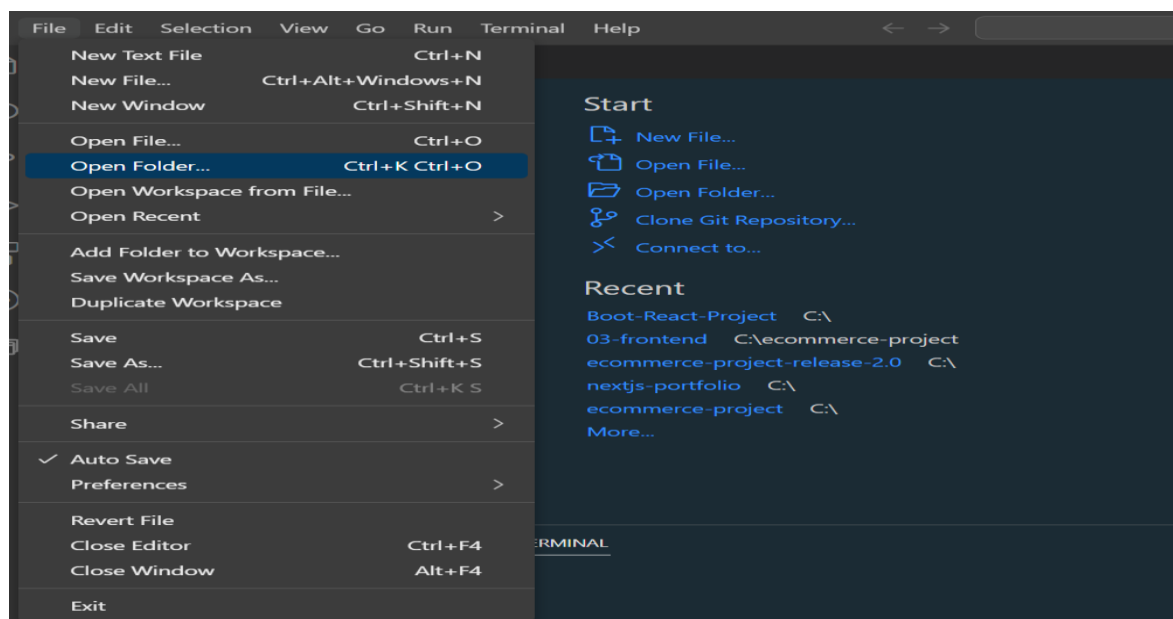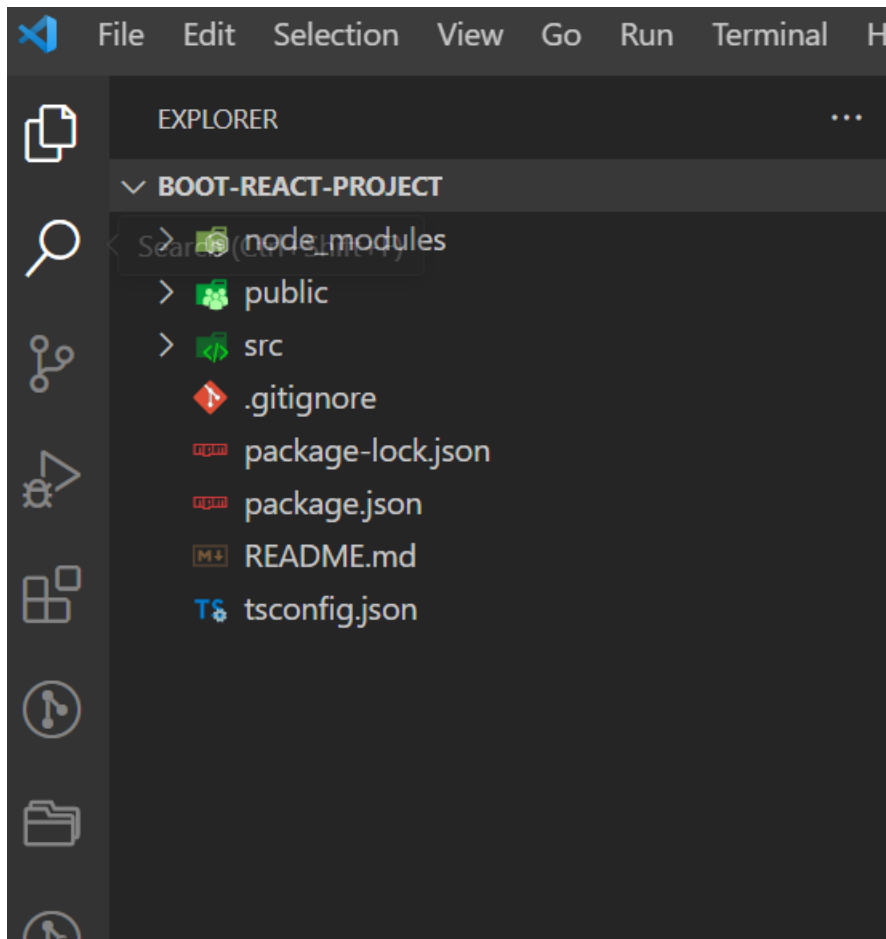
Go to our setup folder, we will find a new created folder "spring-react-project" as we specified in the command.

Step 3, go to VS code, click on "File", choose "open folder", Choose our new created "spring-react-project" folder.

```
File   Edit   Selection   View   Go   Run   Terminal   Help          ←  →

    New Text File              Ctrl+N
    New File...          Ctrl+Alt+Windows+N
    New Window              Ctrl+Shift+N              Start

    Open File...               Ctrl+O                  [+  New File...
    Open Folder...       Ctrl+K Ctrl+O                 []  Open File...
    Open Workspace from File...                        [=  Open Folder...
    Open Recent                        >              &o  Clone Git Repository...
                                                       ><  Connect to...
    Add Folder to Workspace...
    Save Workspace As...
    Duplicate Workspace                               Recent

    Save                       Ctrl+S                 Boot-React-Project   C:\
    Save As...           Ctrl+Shift+S                 03-frontend   C:\ecommerce-project
    Save All                 Ctrl+K S                 ecommerce-project-release-2.0   C:\
                                                      nextjs-portfolio   C:\
    Share                              >              ecommerce-project   C:\
                                                      More...
  ✓ Auto Save
    Preferences                        >

    Revert File
    Close Editor               Ctrl+F4     ERMINAL
    Close Window               Alt+F4

    Exit
```
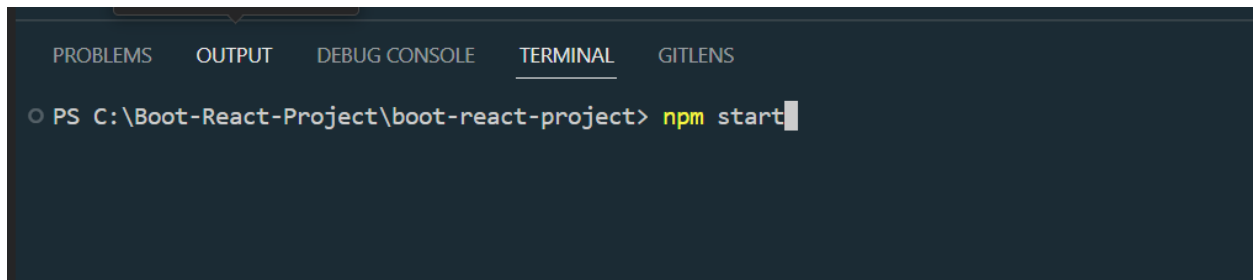
Step 4, the VS code will open our spring-react-project folder. Then we click on the "Terminal", "new Terminal".
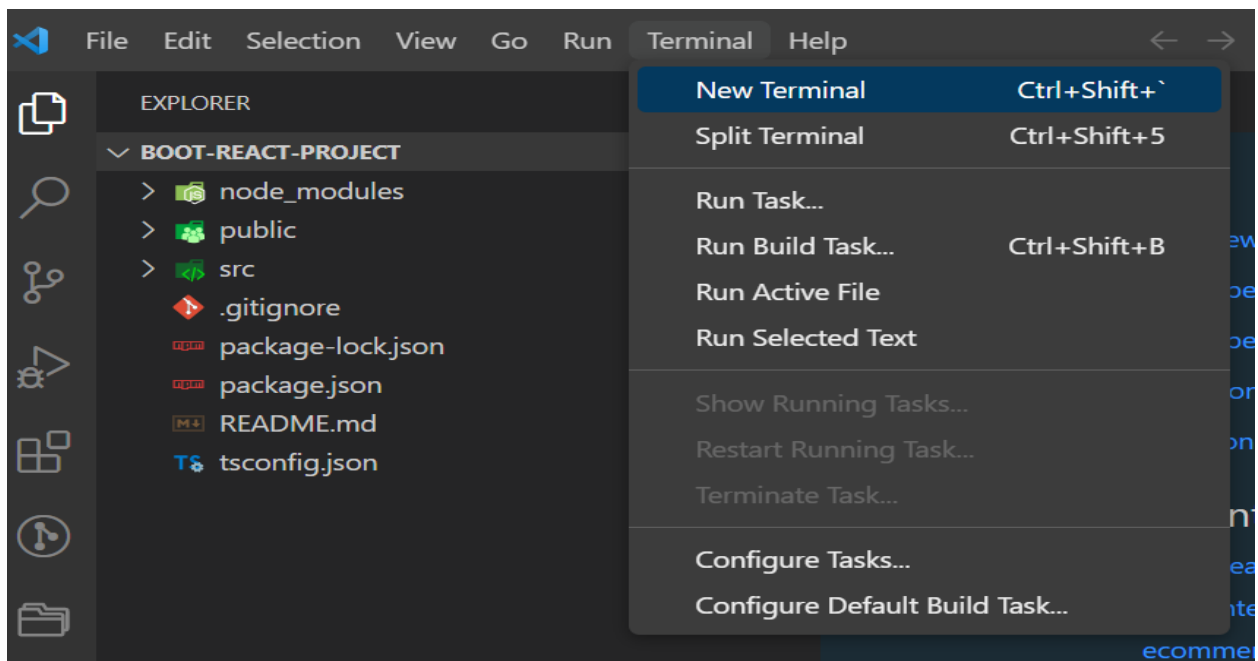
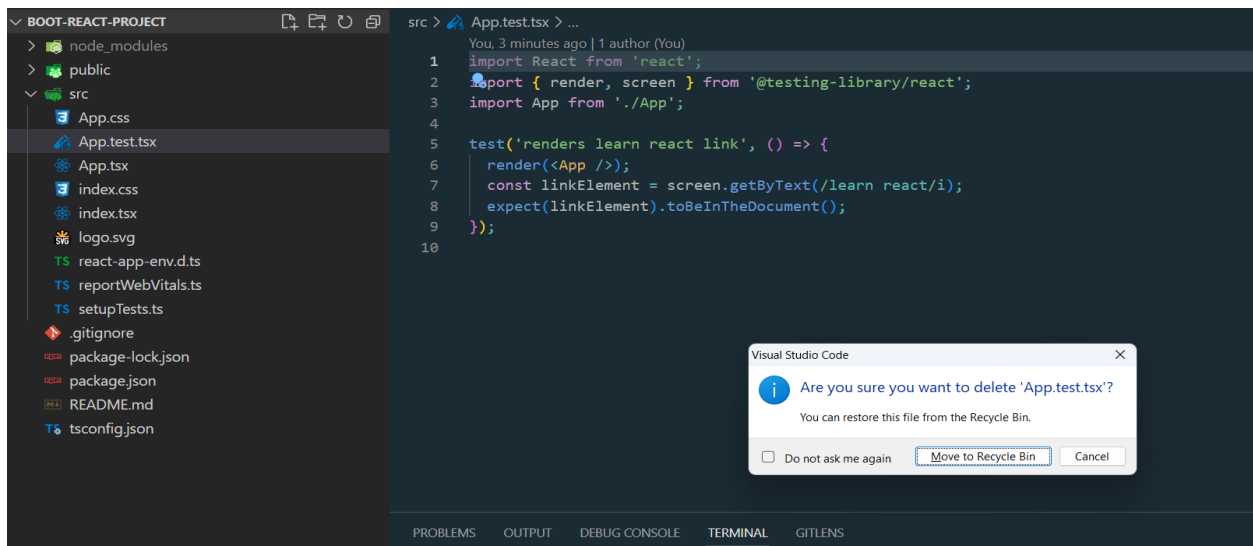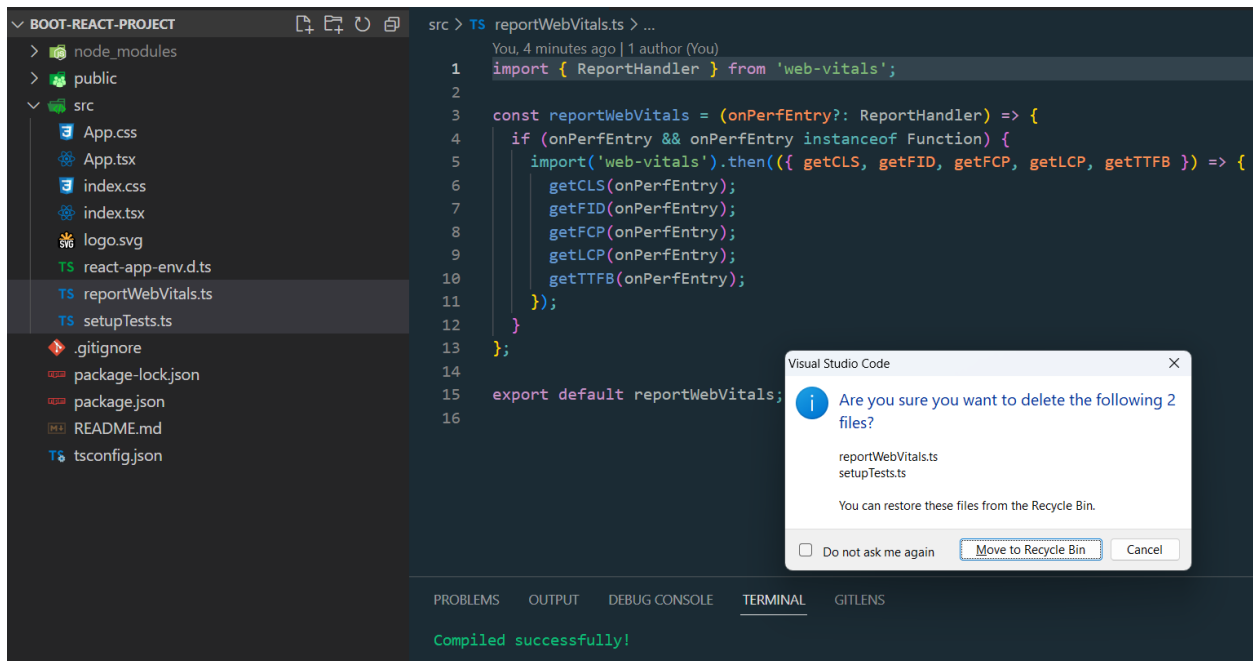In terminal console, type "npm start" to run our app.
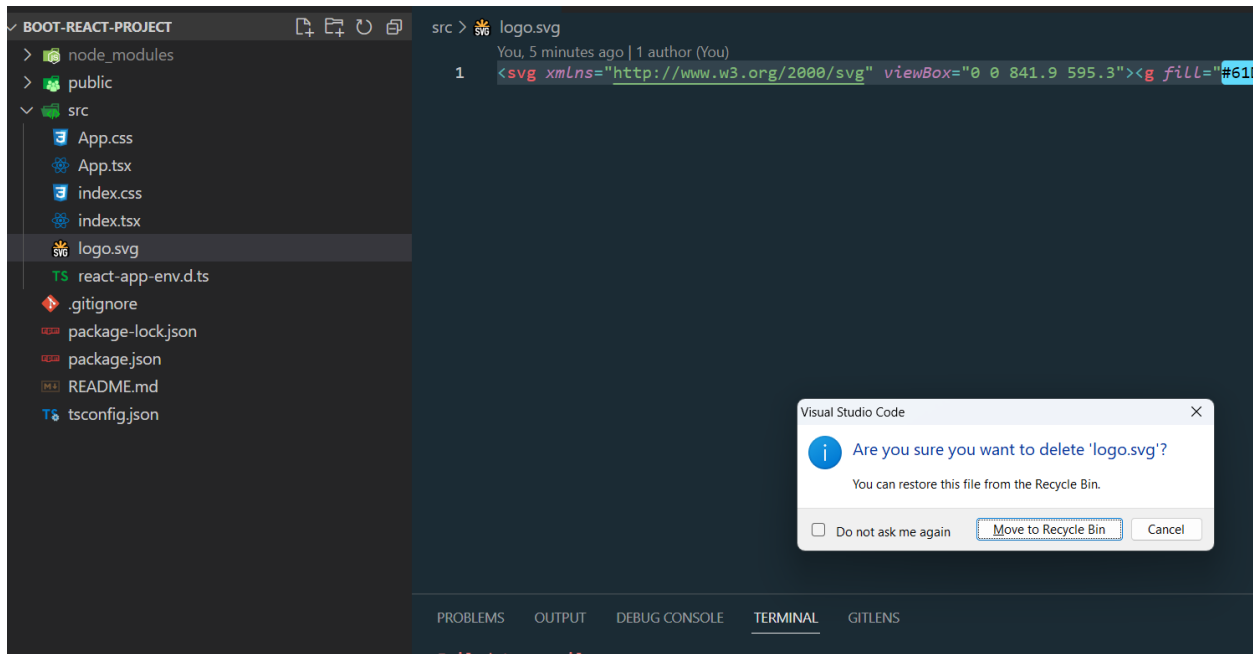

We will get this page.

Step 5, Delete the default files that we don't need: App.test.tsx.
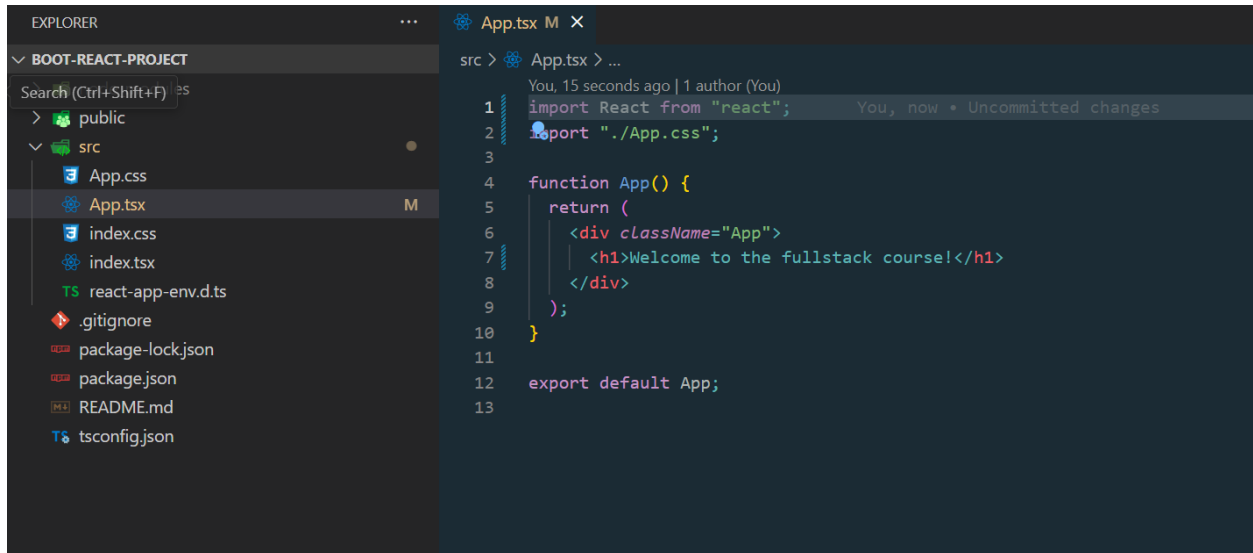
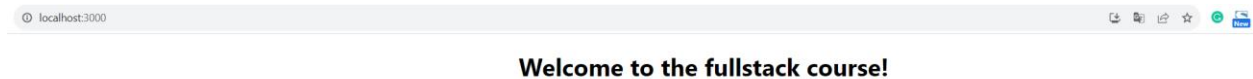Delete reportWebVitals.ts and setupTest.ts too.

Then delete logo.svg.

Now, let's test our app. Open App.tsx file, in App() return part, insert a div which contains a h1 tag, which says "Welcome to fullstack course !"

Refresh http://localhost:3000, we will see our the content of h1 tag showing:

2.   IMPORT CSS AND IMAGES
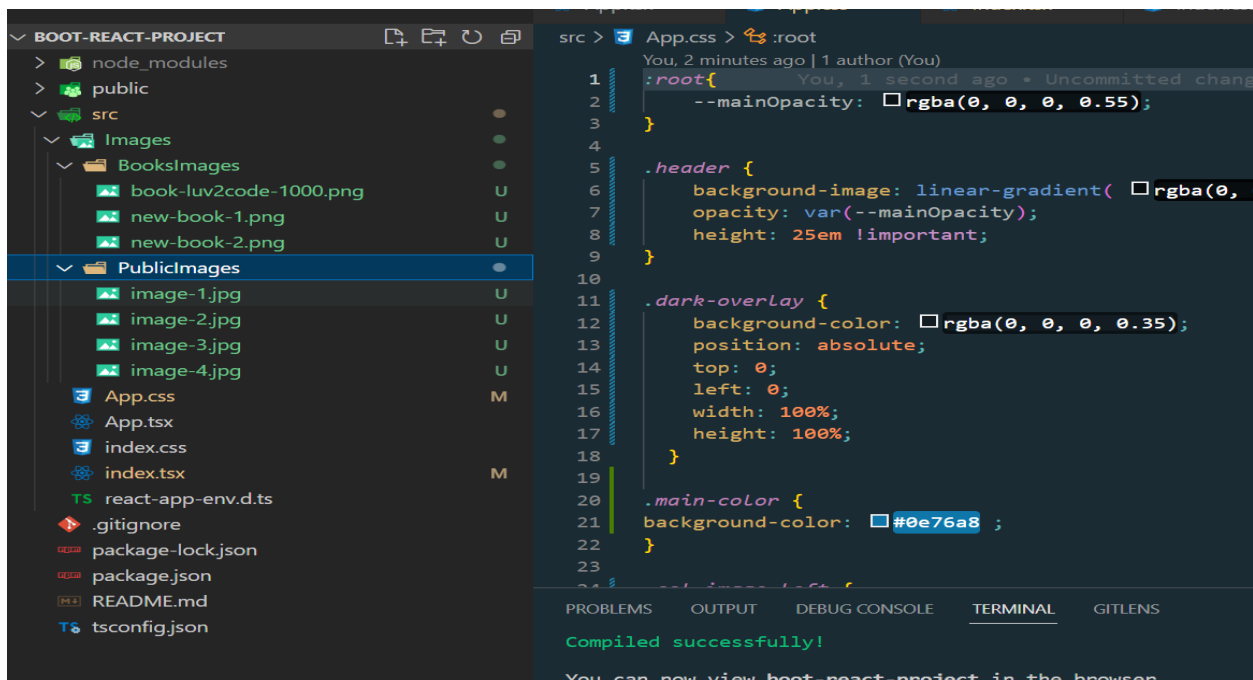
Copy the App.css file in the Starter-files folder

 Paste it into VS code, replace the original file.
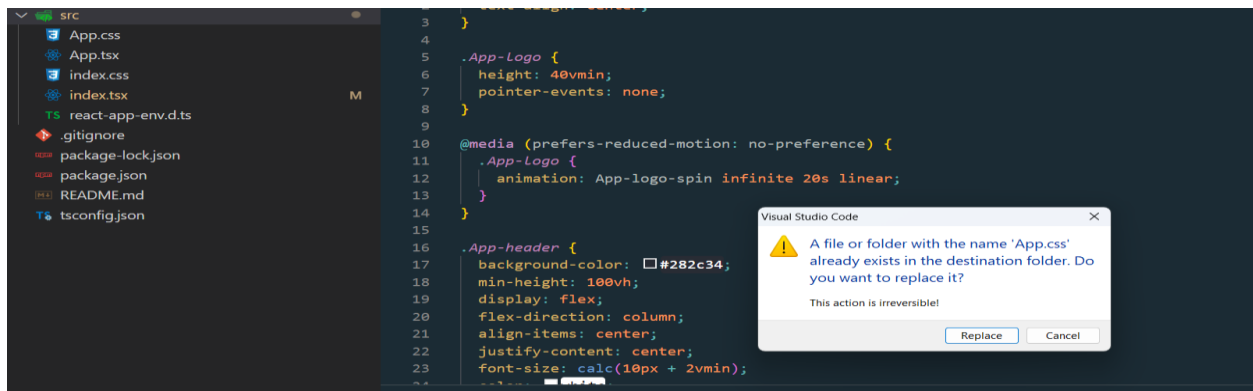
The same process to copy folder "Images" in our starter-files into our app under "src" directory.

3.   BOOTSTRAP

Bring Bootstrap's CSS and JS into our application

Go to https://getbootstrap.com/docs/5.3/getting-started/introduction/

```html
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>Bootstrap demo</title>
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.1/dist/css/bootstrap.min.css" re
  </head>
  <body>
    <h1>Hello, world!</h1>
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.1/dist/js/bootstrap.bundle.min.
  </body>
</html>
```

Copy these two pieces of code into index.html

```html
    <!-- BootStrap CSS -->
    <link
      href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.1/dist/css/bootstrap.min.css"
      rel="stylesheet"
      integrity="sha384-4bw+/aepP/YC94hEpVNVgiZdgIC5+VKNBQNGCHeKRQN+PtmoHDEXuppvnDJzQIu9"
      crossorigin="anonymous"
    />
    <title>React App</title>
  </head>
  <body>
    <noscript>You need to enable JavaScript to run this app.</noscript>
    <div id="root"></div>
    <!--
      This HTML file is a template.
      If you open it directly in the browser, you will see an empty page.

      You can add webfonts, meta tags, or analytics to this file.
      The build step will place the bundled scripts into the <body> tag.

      To begin the development, run `npm start` or `yarn start`.
      To create a production bundle, use `npm run build` or `yarn build`.
    -->
    <!-- Bootstrap Bundle with Popper -->        You, 1 second ago • Uncommitted changes
    <script
      src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.1/dist/js/bootstrap.bundle.min.js"
      integrity="sha384-HwwvtgBNo3bZJJLYd8oVXjrBZt8cqVSpeBNS5n7C8IVInixGAoxmnlMuBnhbgrkm"
      crossorigin="anonymous"
    ></script>
  </body>
</html>
```

4.   NAVIGATION BAR COMPONENT

First, let me delete everything in the return part of App.tsx

Step1, go to App.tsx, in App(), return part , create a bootstrap navbar code.

Then use command "npm start" run the application.

Navigation bar mobile version：
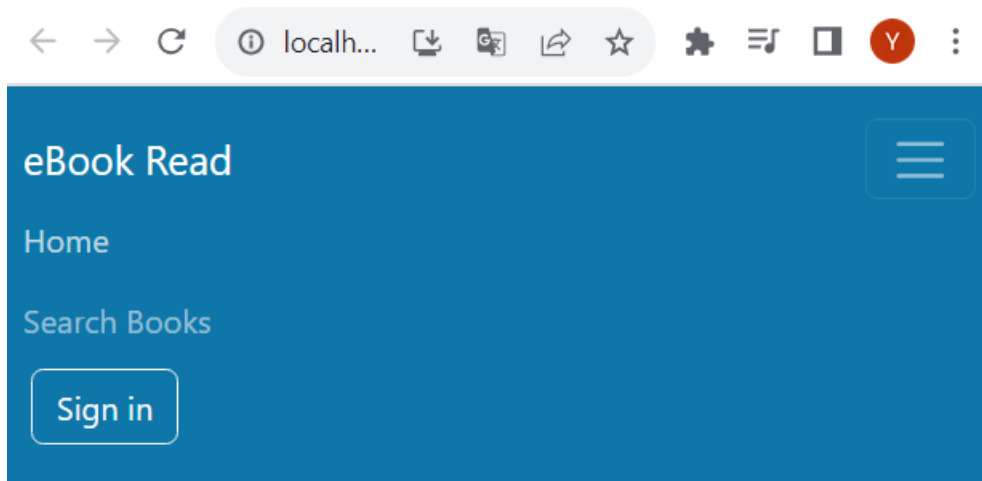
5.   EXPLORE TOP BOOKS COMPONENT

Under the src folder, create a new folder "layouts",
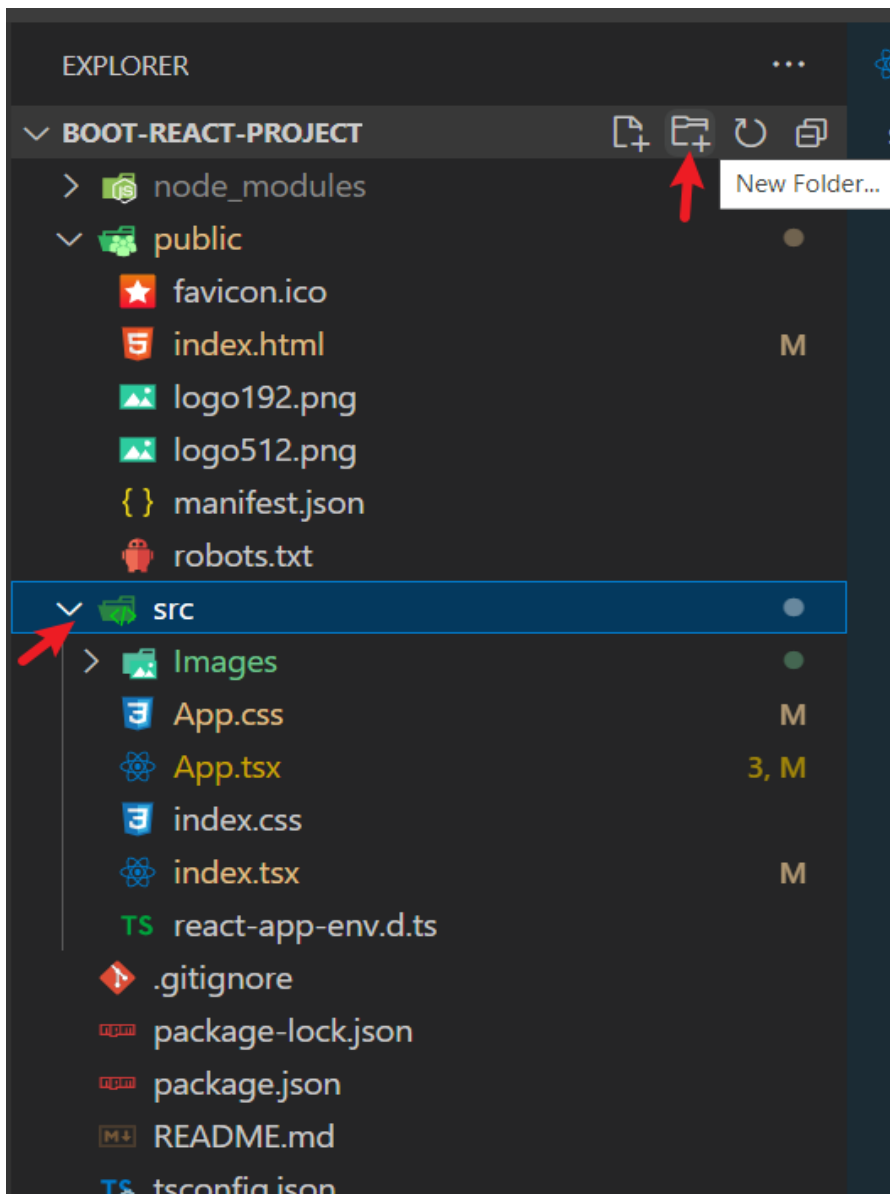
And under the layouts directory create a new folder "NavbarAndFooter"
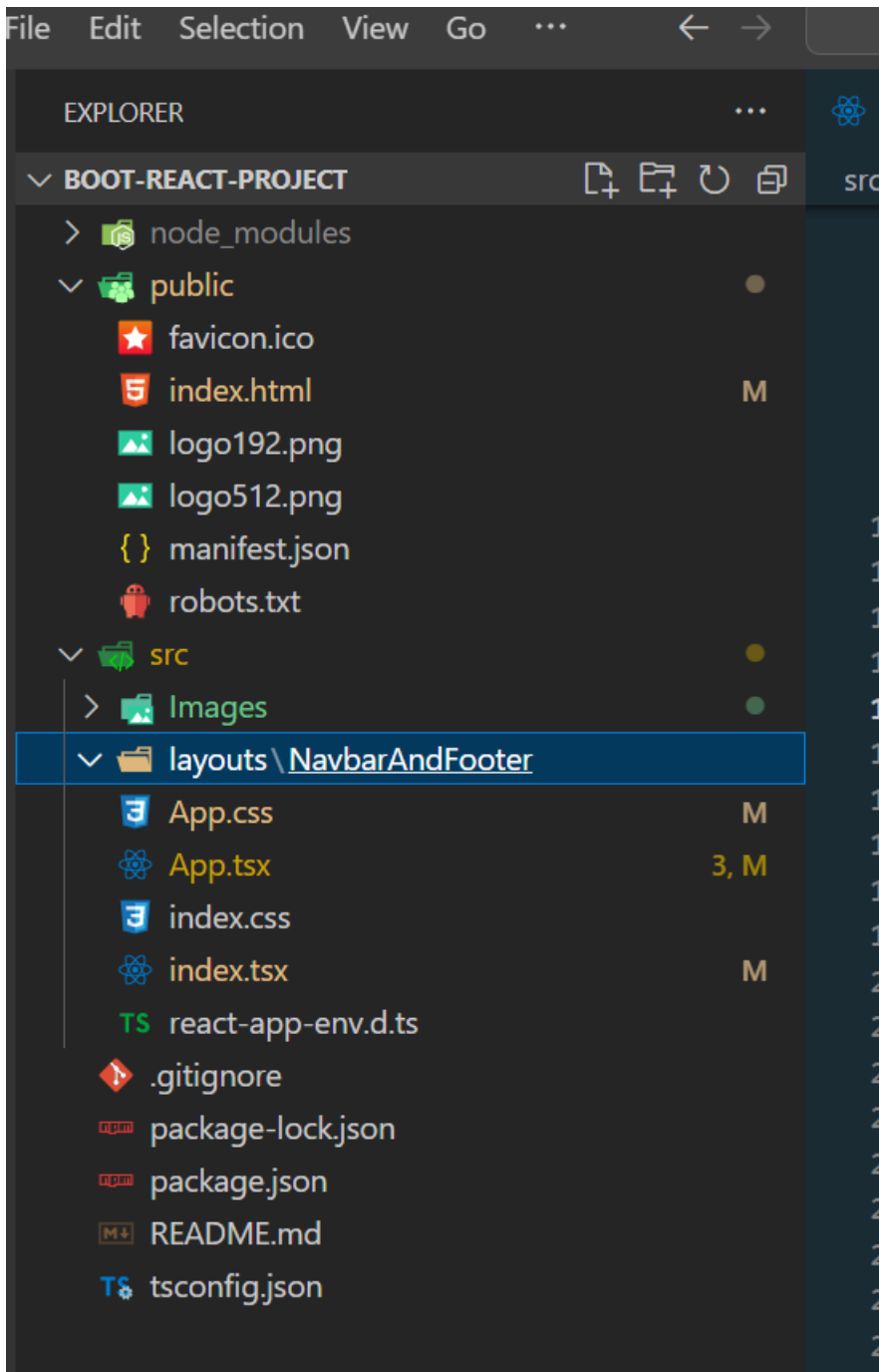
Then create a new file "Navbar.tsx"
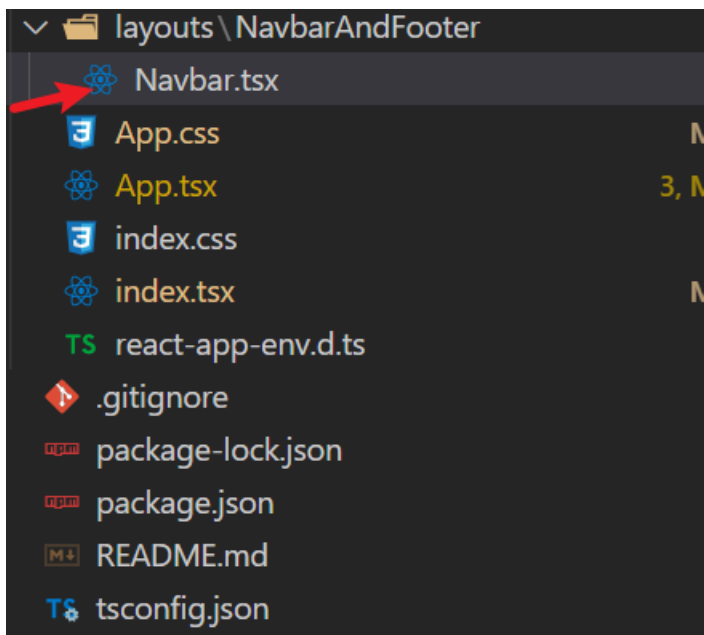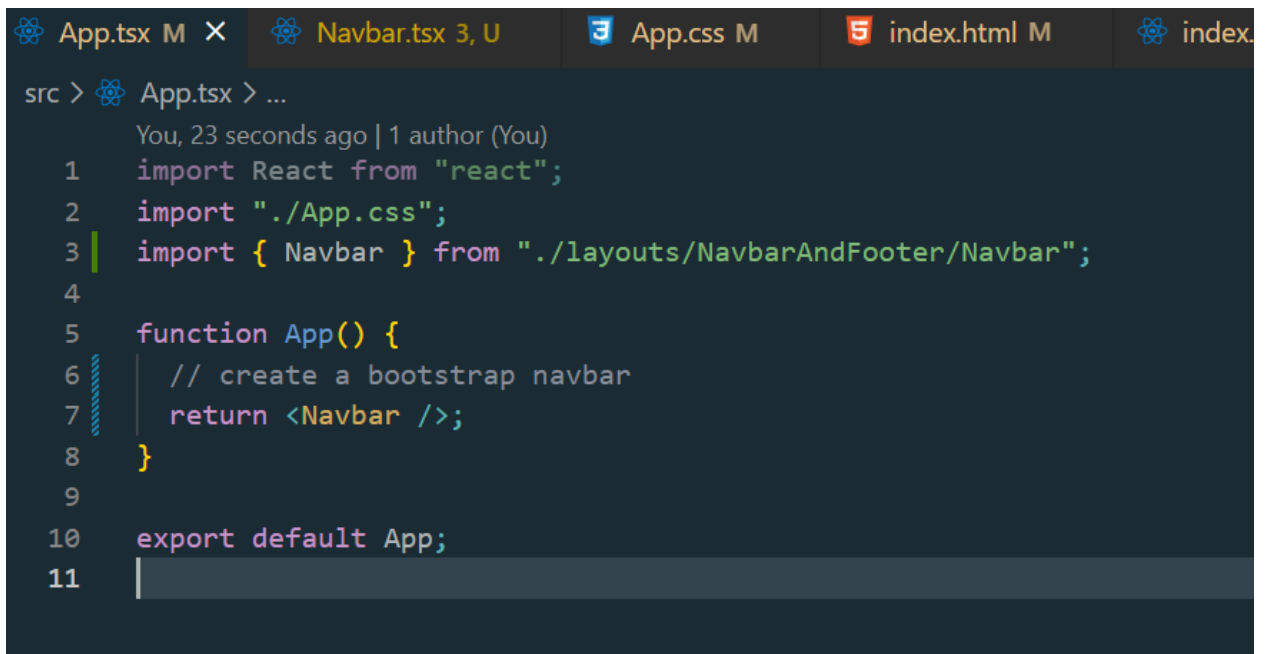
In Navbar.tsx, create a export const function structure as below:

```
src > layouts > NavbarAndFooter > Navbar.tsx > ...
  1  export const Navbar = () => {
  2    return (
  3
  4    );
  5  }
  6
```

copy the nav bar code we have created in App.tsx, and paste it into this return part

```tsx
export const Navbar = () => {
  return (
    //create a bootstrap nav bar
    <nav className="navbar navbar-expand-lg navbar-dark main-color py-3">
      <div className="container-fluid">
        <span className="navbar-brand">JAC Read</span>
        {/*Toggler/collapsibe Button */}
        <button
          className="navbar-toggler"
          type="button"
          data-bs-toggle="collapse"
          data-bs-target="#navbarNavDropdown"
          aria-controls="navbarNavDropdown"
          aria-expanded="false"
          aria-label="Toggle Navigation"
        >
          <span className="navbar-toggler-icon"></span>
        </button>
        {/* Navbar links */}
        <div className="collapse navbar-collapse" id="navbarNavDropdown">
          <ul className="navbar-nav">
            <li className="nav-item">
              <a className="nav-link" href="#">
                Home
              </a>
            </li>
            <li className="nav-item">
              <a className="nav-link" href="#">
                Search Books
              </a>
            </li>
          </ul>
          <ul className="navbar-nav ms-auto">
            <li className="nav-item m-1">
              <a type="button" className="btn btn-outline-light" href="#">
                Sign in
```
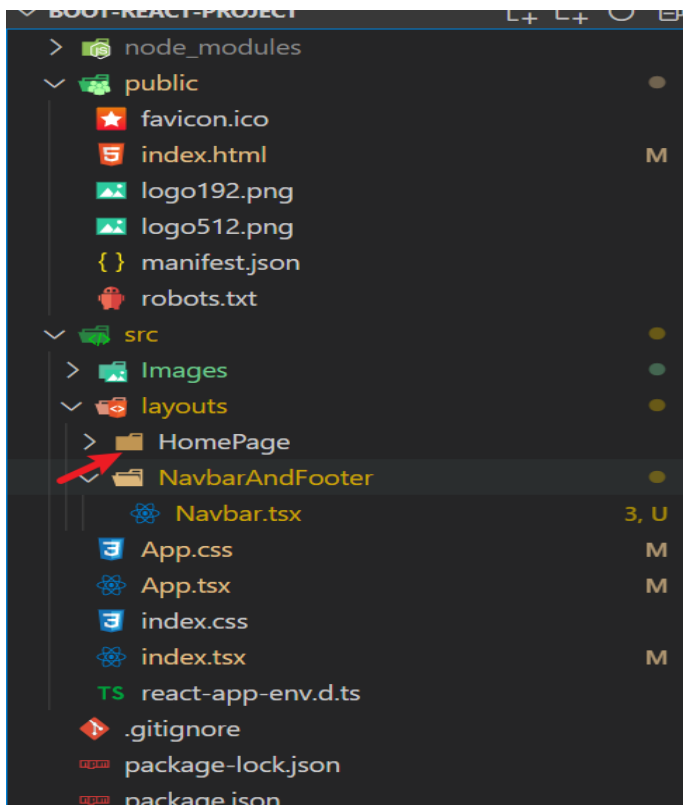
In App.tsx, we add Navbar component.

Create a "HomePage" folder under layouts folder.
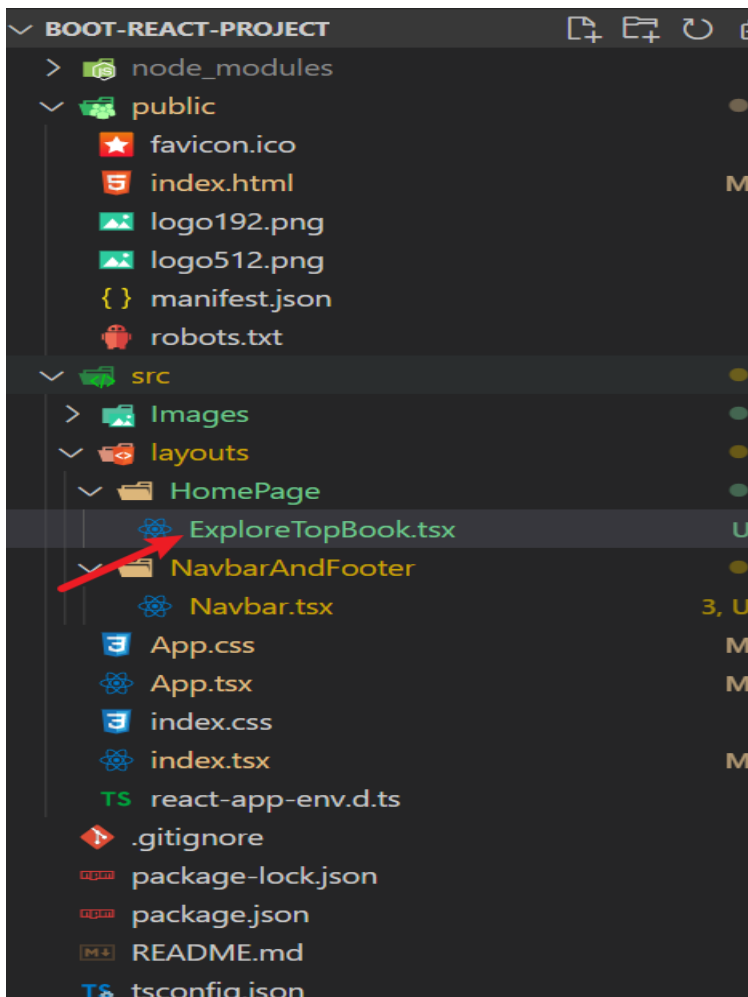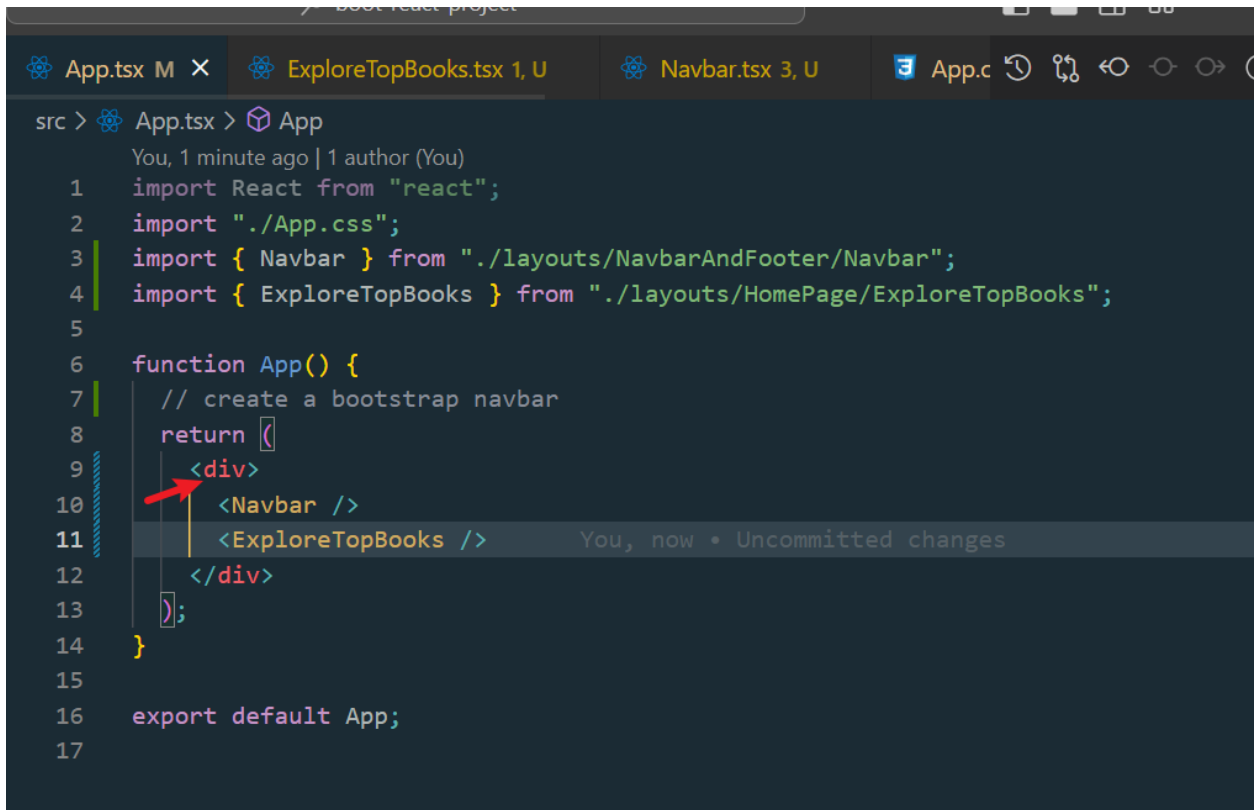
create ExploreTopBooks component code.

```tsx
export const ExploreTopBooks = () => {
  return (
    <div className="p-5 mb-4 bg-dark header">
      <div className="container-fluid py-5 text-white d-flex jutify-content-center align-items-center">
        <div>
          <h1 className="display-5 fw-bold">Find your next adventure</h1>
          <p className="col-md-8 fs-4">Where would you like to go next?</p>
          <a
            type="button"
            className="btn main-color btn-lg text-white"
            href="#"
          >
            Explore top books
          </a>
        </div>
      </div>
    </div>
  );
};
```

go to App.tsx, and add ExploreTopBooks component in it. Make sure we add a div as the parent element to both the Navbar and ExpolreTopBooks component.

Run the application. We can see the result like this.
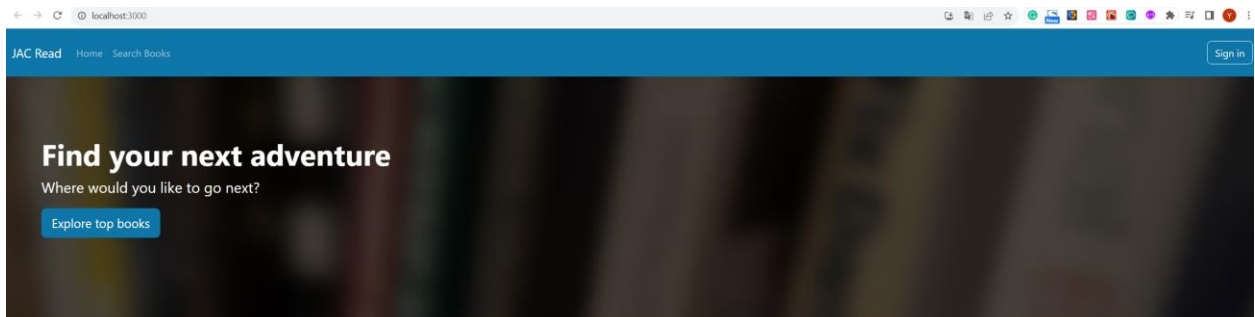
6. CAROUSEL COMPONENT

Create a new file "Carousel.tsx" under the HomePage folder.

In Carousel.tsx, add three carousel items code.

```tsx
layouts > HomePage > ⚛ Carousel.tsx > [∅] Carousel
export const Carousel = () => {
  return (
    <div className="container mt-5" style={{ height: 550 }}>
      <div className="homepage-carousel-title">
        <h3>Find your next "I stayed up too late reading" book</h3>
      </div>
      <div
        id="carouselExampleControls"
        className="carousel carousel-dark slide mt-5
        d-none d-lg-block"
        data-bs-interval="false"
      >
        <div className="carousel-inner">
          <div className="carousel-item active">
            <div className="row d-flex justify-content-center align-item-center">
              <div className="col-xs-6 col-sm-6 col-md-4 col-lg-3 mb-3">
                <div className="text-center">
                  <img
                    src={require("./../../Images/BooksImages/book-luv2code-1000.png")}
                    alt="book"
                    width="151"
                    height="233"
                  />
                  <h6 className="mt-2">Book</h6>
                  <p>Luv2Code</p>
                  <a className="btn main-color text-white" href="#">
                    Reserve
                  </a>
                </div>
              </div>
            </div>
          </div>

          <div className="carousel-item active">
            <div className="row d-flex justify-content-center align-item-center">
              <div className="col-xs-6 col-sm-6 col-md-4 col-lg-3 mb-3">
                <div className="text-center">
```

Add Carousel component in the App.tsx.

Then we run the application, we can get this page

7.   RETURN BOOK COMPONENT

Create a new file "ReturnBook.tsx" in the HomePage folder
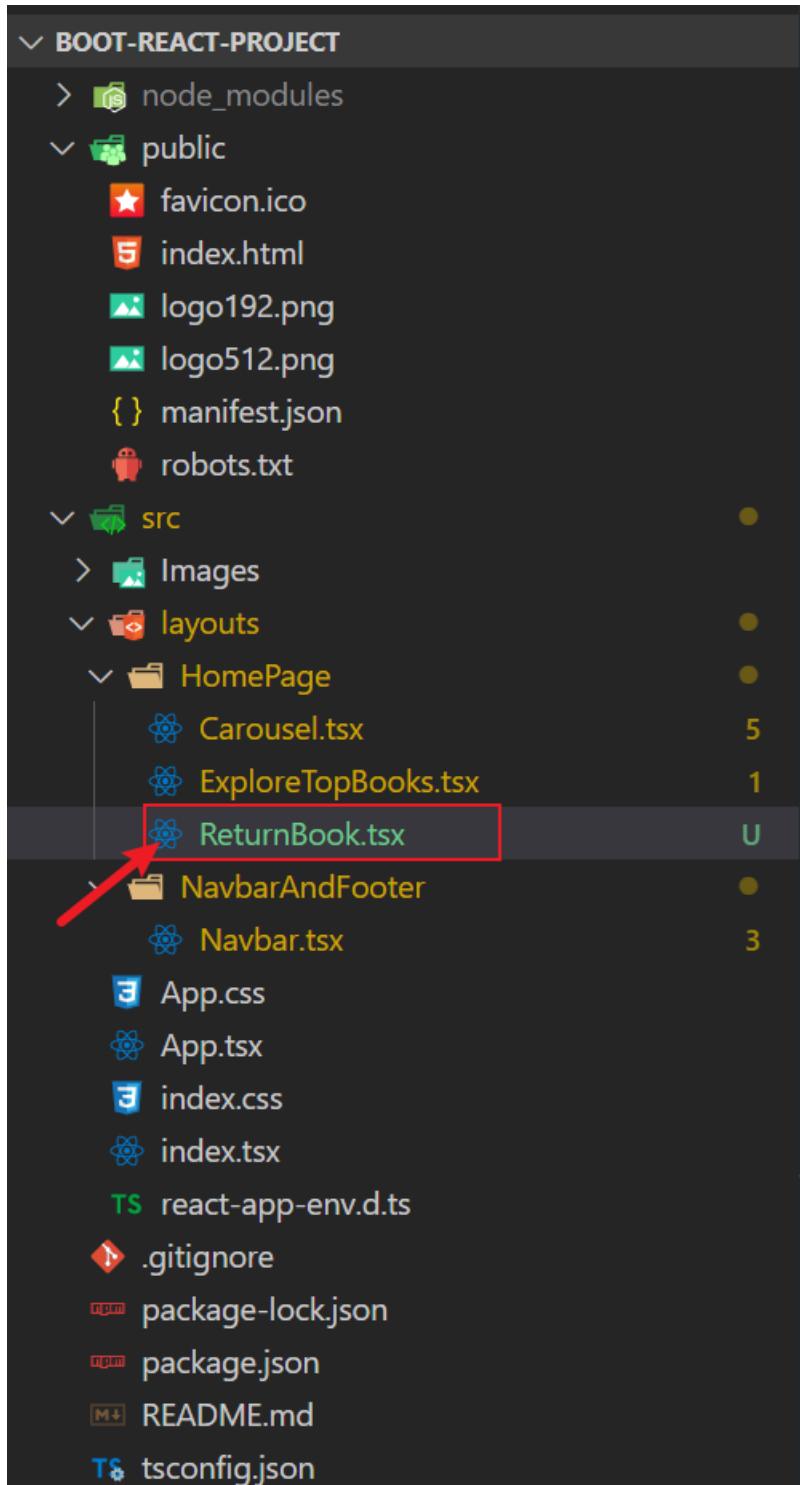
Cut the carousel item code from the Carousel.tsx and paste it in the ReturnBook.tsx

```
1    import React from "react";
2
3    export const ReturnBook = () => {
4      return (
5        <div className="col-xs-6 col-sm-6 col-md-4 col-lg-3 mb-3">
6          <div className="text-center">
7            <img
8              src={require("./../../Images/BooksImages/book-luv2code-1000.png")}
9              alt="book"
10             width="151"
11             height="233"
12           />
13           <h6 className="mt-2">Book</h6>
14           <p>Luv2Code</p>
15           <a className="btn main-color text-white" href="#">
16             Reserve
17           </a>
18         </div>
19       </div>
20     );
21   };
```

Go back to Carousel.tsx, replace the carousel item code with ReturnBook Component.

```
7            <h3>Find your next "I stayed up too late reading" book</h3>
8          </div>
9          <div
10           id="carouselExampleControls"
11           className="carousel carousel-dark slide mt-5
12         d-none d-lg-block"
13           data-bs-interval="false"
14         >
15           <div className="carousel-inner">
16             <div className="carousel-item active">
17               <div className="row d-flex justify-content-center align-item-center">
18                 <ReturnBook />        You, 4 minutes ago • Uncommitted changes
19               </div>
20             </div>
21
```

Replace all the carousel items codes with three ReturnBook Components.

```
src > layouts > HomePage > ⚛ Carousel.tsx > [∅] Carousel
 13              data-bs-interval="false
 14          >
 15              <div className="carousel-inner">
 16                  <div className="carousel-item active">
 17                      <div className="row d-flex justify-content-center align-item-center">
 18                          <ReturnBook />
 19                      </div>
 20                  </div>
 21
 22                  <div className="carousel-item active">
 23                      <div className="row d-flex justify-content-center align-item-center">
 24                          <ReturnBook />
 25                      </div>
 26                  </div>
 27
 28                  <div className="carousel-item active">
 29                      <div className="row d-flex justify-content-center align-item-center">
 30                          <ReturnBook />
 31                      </div>
 32                  </div>
 33              </div>
 34              <button
 35                  className="carousel-control-prev"
 36                  type="button"
```
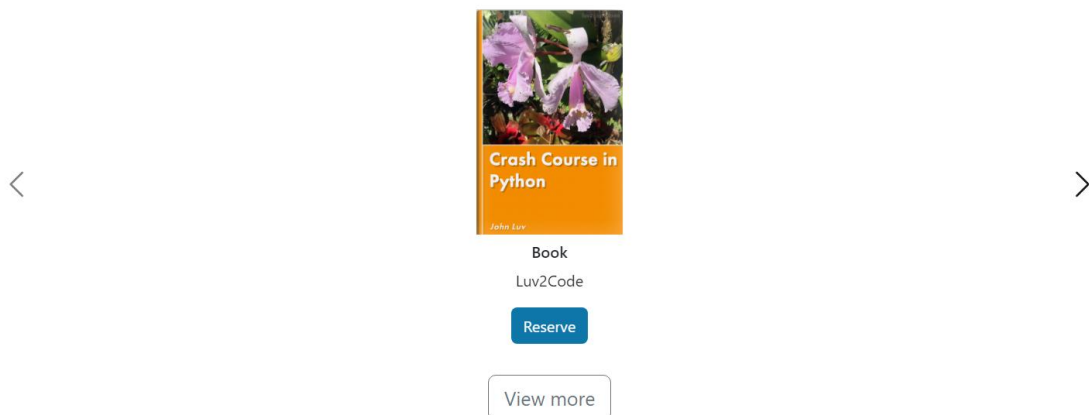
Rerun the application, we can get the same page:

Find your next "I stayed up too late reading" book

Book

Luv2Code

Reserve

View more

copy ReturnBook component two times in each carousel item part in desktop section, so now we have three carousel items , in each carousel item part, we have three ReturnBook components.

```tsx
14          >
15              <div className="carousel-inner">
16                  <div className="carousel-item active">
17                      <div className="row d-flex justify-content-center align-item-center">
18                          <ReturnBook />
19                          <ReturnBook />
20                          <ReturnBook />
21                      </div>
22                  </div>
23
24                  <div className="carousel-item active">
25                      <div className="row d-flex justify-content-center align-item-center">
26                          <ReturnBook />
27                          <ReturnBook />
28                          <ReturnBook />
29                      </div>
30                  </div>
31
32                  <div className="carousel-item active">
33                      <div className="row d-flex justify-content-center align-item-center">
34                          <ReturnBook />
35                          <ReturnBook />
36                          <ReturnBook />       You, 1 second ago • Uncommitted changes
37                      </div>
```
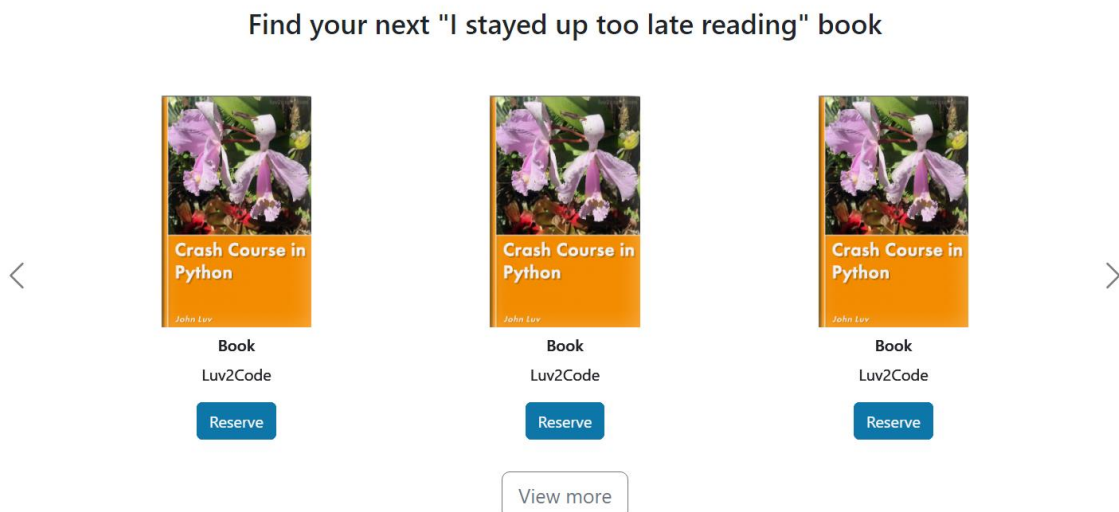
Refresh the page:

8.   HEROS COMPONENT

Create a new file "Heros.tsx" in the HomePage directory.
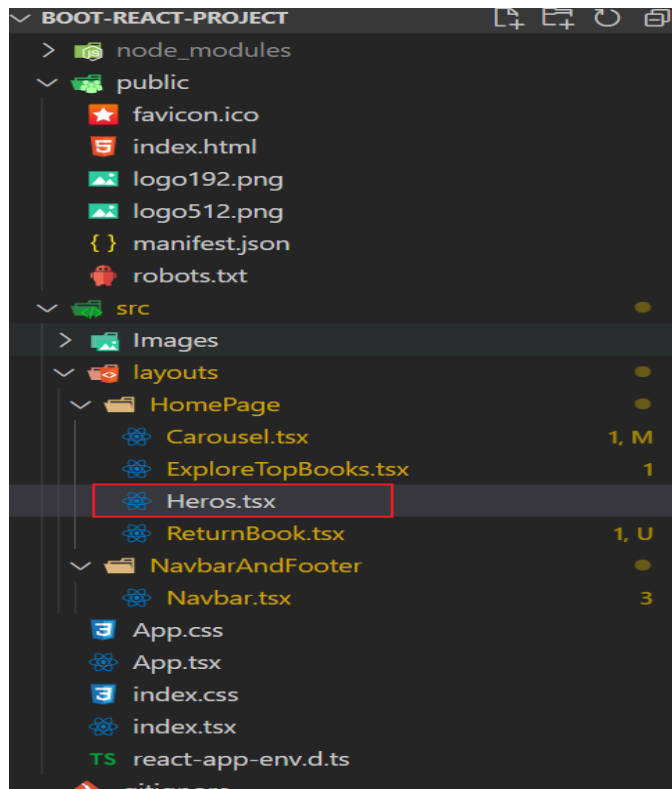
Write the Heros component code.

```tsx
export const Heros = () => {
    return (
        <div>
            <div className="d-none d-lg-block">
                <div className="row g-0 mt-5">
                    <div className="col-sm-6 col-md-6">
                        <div className="col-image-left"></div>
                    </div>

                    <div className="col-4 col-md-4 container d-flex justify-content-center align-items-center">
                        <div className="ml-2">
                            <h1>What have you been reading?</h1>
                            <p className="lead">
                                The library team would love to know what you have been reading.
                                Whether it is to learn a new skill or grow within one, we will
                                be able to provide the top content for you!
                            </p>
                            <a className="btn main-color btn-lg text-white" href="#">
                                Sign up
                            </a>
                        </div>
                    </div>
                </div>
            </div>
```

```
        </div>
        <div className="row g-0">
          <div className="col-4 col-md-4 container d-flex justify-content-center align-items-center">
            <div className="ml-2">
              <h1>Our collection is always changing!</h1>
              <p className="lead">
                Try to check in daily as our collection is always changing! We
                work nonstop to provide the most accurate book selection
                possible for our eBook Read students! We are diligent about our
                book selection and our book selection and our books are always
                going to be our top priority.
              </p>
            </div>
          </div>
          <div className="col-sm-6 col-md-6">
            <div className="col-image-right"></div>
          </div>
        </div>
      </div>
    </div>
```

Then add the Heros component in the App.tsx file.

```
> ⚛ App.tsx > ⬡ App
    You, 4 minutes ago | 1 author (You)
1   import React from "react";
2   import "./App.css";
3   import { Navbar } from "./layouts/NavbarAndFooter/Navbar";
4   import { ExploreTopBooks } from "./layouts/HomePage/ExploreTopBooks";
5   import { Carousel } from "./layouts/HomePage/Carousel";
6   import { Heros } from "./layouts/HomePage/Heros";
7
8   function App() {
9     // create a bootstrap navbar
10    return (
11      <div>
12        <Navbar />
13        <ExploreTopBooks />
14        <Carousel />
15        <Heros />          You, 4 minutes ago • Uncommitted changes
16      </div>
17    );
18  }
19
20  export default App;
```
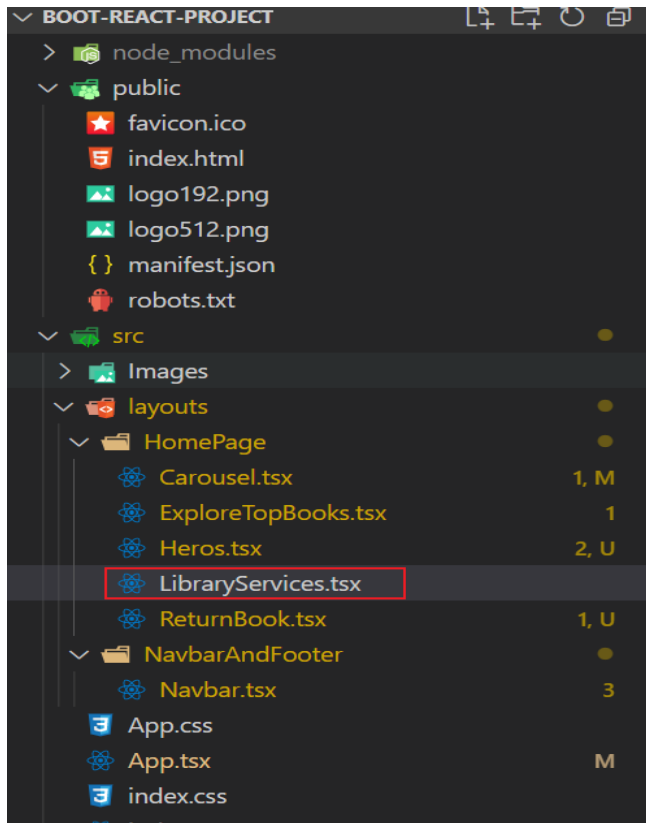
Run the application.
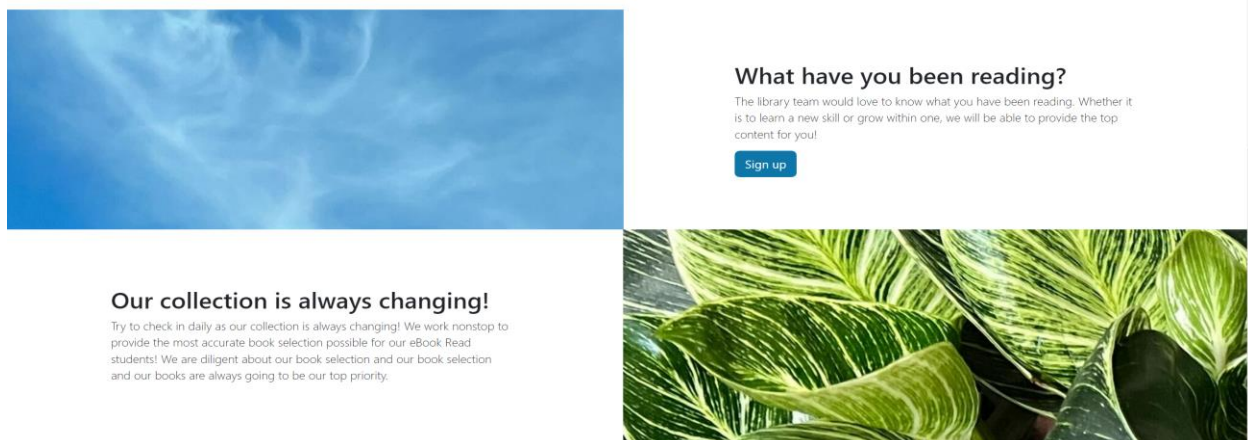
9.   LIBRARY SERVICE COMPONENT

Create a new file "LibraryServices.tsx" in the HomePage directory.

Write the LibraryServices component code.

```tsx
export const LibraryServices = () => {
  return (
    <div className="container my-5">
      <div className="row p-4 align-items-center border shadow-lg">
        <div className="col-lg-7 p-3">
          <h1 className="display-4 fw-bold">
            Can't find what you are looking for?
          </h1>
          <p className="lead">
            If you can't find what you are looking for, send our library admin's
            a personal message!
          </p>
          <div className="d-grid gap-2 justify-content-md-start mb-4 mb-lg-3">
            <a className="btn main-color btn-lg text-white" href="#">
              Sign up
            </a>
          </div>
        </div>
        <div className="col-lg-4 offset-lg-1 shadow-lg lost-image"></div>
      </div>
    </div>
  );
};
```

Add LibraryServices component in the App.tsx file.

```tsx
src > ⚛ App.tsx > ⬡ App
      You, 1 second ago | 1 author (You)
   1  import React from "react";
   2  import "./App.css";
   3  import { Navbar } from "./layouts/NavbarAndFooter/Navbar";
   4  import { ExploreTopBooks } from "./layouts/HomePage/ExploreTopBooks";
   5  import { Carousel } from "./layouts/HomePage/Carousel";
   6  import { Heros } from "./layouts/HomePage/Heros";
   7  import { LibraryServices } from "./layouts/HomePage/LibraryServices";
   8
   9  function App() {
  10    // create a bootstrap navbar
  11    return (
  12      <div>
  13        <Navbar />
  14        <ExploreTopBooks />
  15        <Carousel />
  16        <Heros />
  17        <LibraryServices />        You, 3 minutes ago • Uncommitted changes
  18      </div>
  19    );
  20  }
  21
  22  export default App;
  23
```

Then run the application. We can get this page.
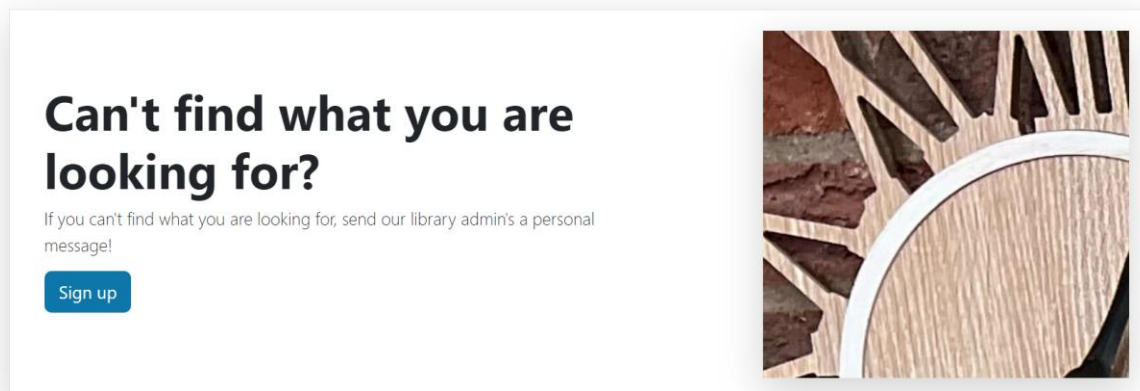
10. FOOTER COMPONENT

Create a Footer.tsx in the NavbarAndFooter directory.
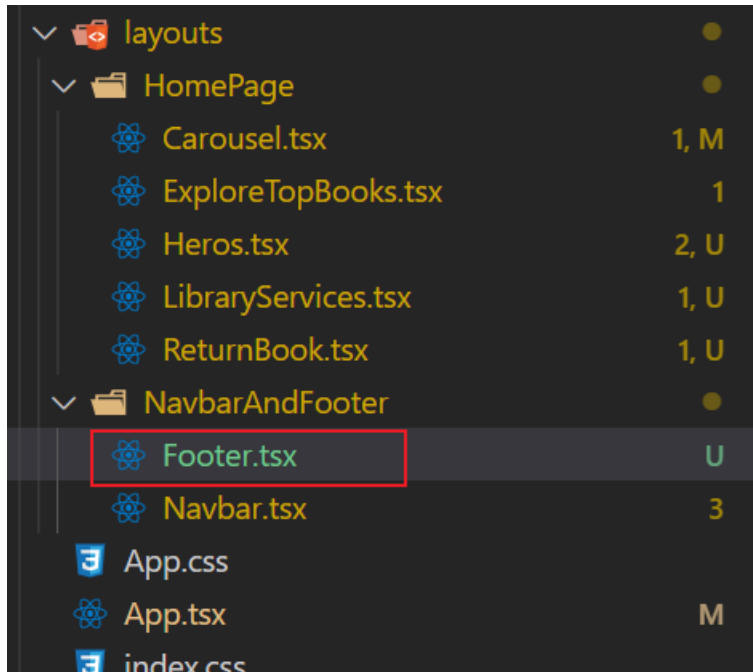

Write the Footer component code:

```tsx
src > layouts > NavbarAndFooter > ⚛ Footer.tsx > [∅] Footer
1    export const Footer = () => {
2      return (
3        <div className="main-color">
4          <footer className="container d-flex flex-wrap jutstify-content-between align-items-center py-5 main-color">
5            <p className="col-md-4 mb-0 text-white">© Example Library App, Inc</p>
6            <ul className="nav navbar-dark col-md-4 justify-content-end">
7              <li className="nav-item">
8                <a href="#" className="nav-link px-2 text-white">
9                  Home
10               </a>
11             </li>
12             <li className="nav-item">
13               <a href="#" className="nav-link px-2 text-white">
14                 Search Books
15               </a>
16             </li>
17           </ul>
18         </footer>
19       </div>
20     );
21   };
```

Add the Footer component in the App.tsx

```tsx
App.tsx M ×    Footer.tsx 2, U    ReturnBook.tsx 1, U    Carousel.tsx 1, M    Heros.ts

src > App.tsx > App
       You, 2 minutes ago | 1 author (You)
  1    import React from "react";
  2    import "./App.css";
  3    import { Navbar } from "./layouts/NavbarAndFooter/Navbar";
  4    import { ExploreTopBooks } from "./layouts/HomePage/ExploreTopBooks";
  5    import { Carousel } from "./layouts/HomePage/Carousel";
  6    import { Heros } from "./layouts/HomePage/Heros";
  7    import { LibraryServices } from "./layouts/HomePage/LibraryServices";
  8    import { Footer } from "./layouts/NavbarAndFooter/Footer";
  9
 10    function App() {
 11      // create a bootstrap navbar
 12      return (
 13        <div>
 14          <Navbar />
 15          <ExploreTopBooks />
 16          <Carousel />
 17          <Heros />
 18          <LibraryServices />
 19          <Footer />              You, 2 minutes ago • Uncommitted changes
 20        </div>
 21      );
 22    }
 23
 24    export default App;
```
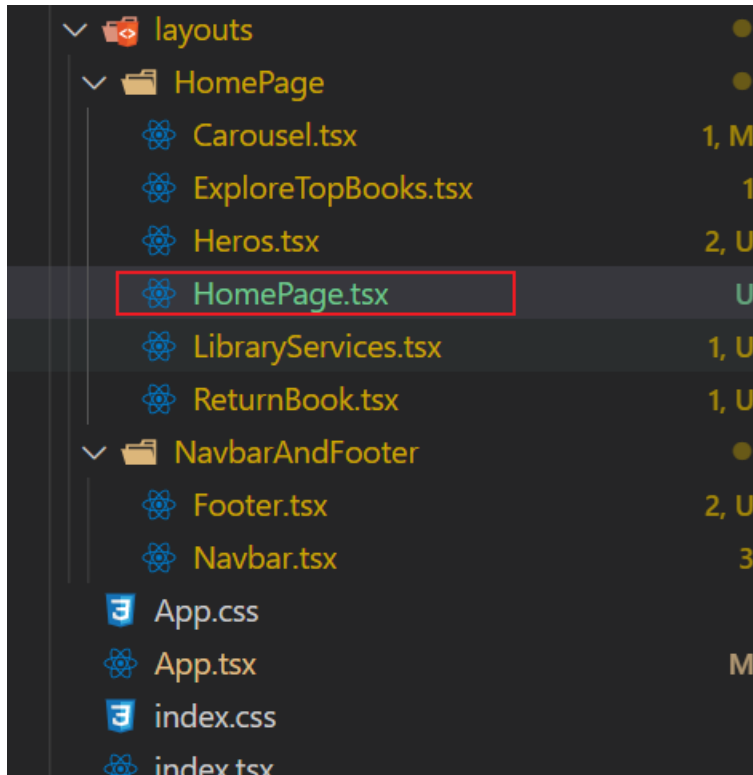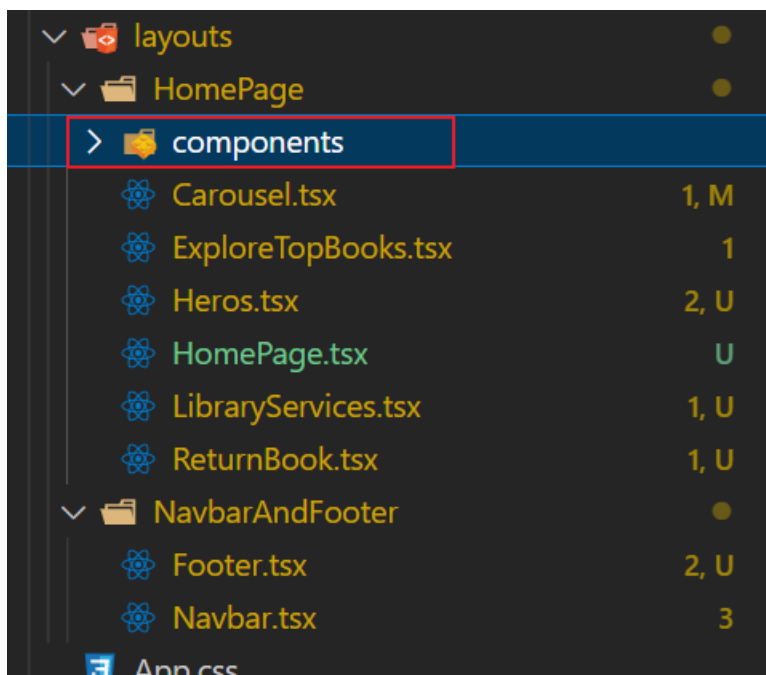
Run the application, we can get the page like this:
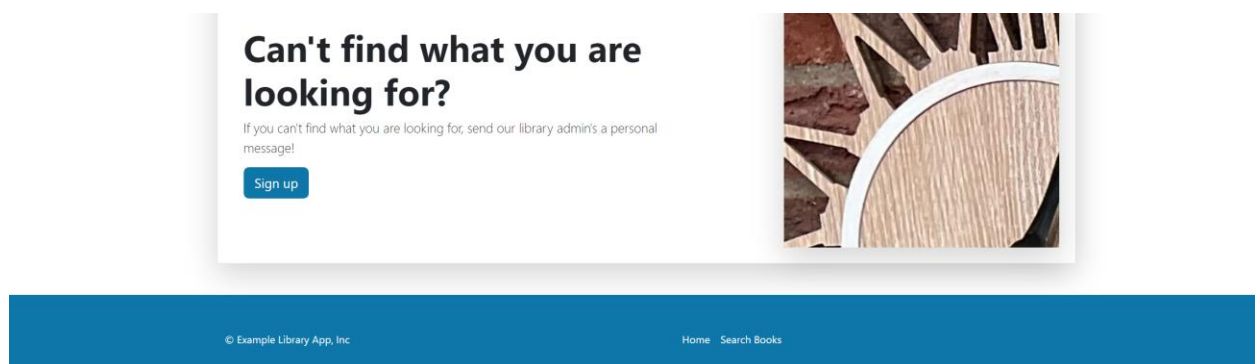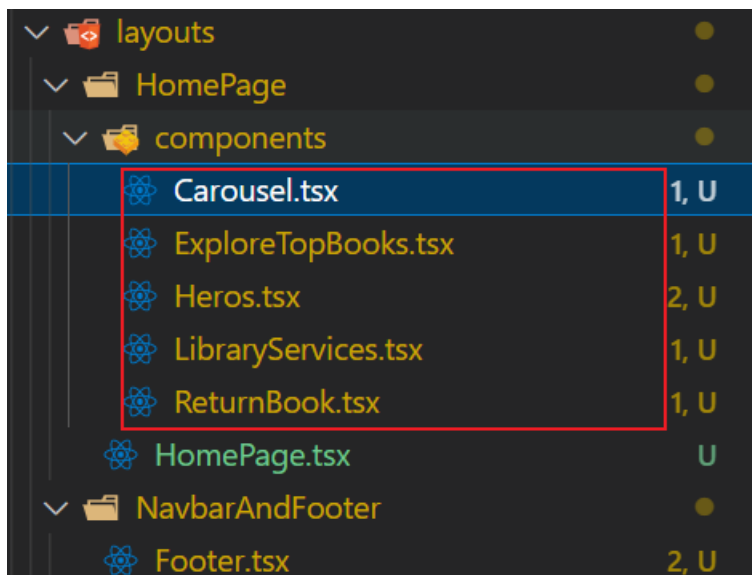
11. HOME PAGE CODE CLEAN UP

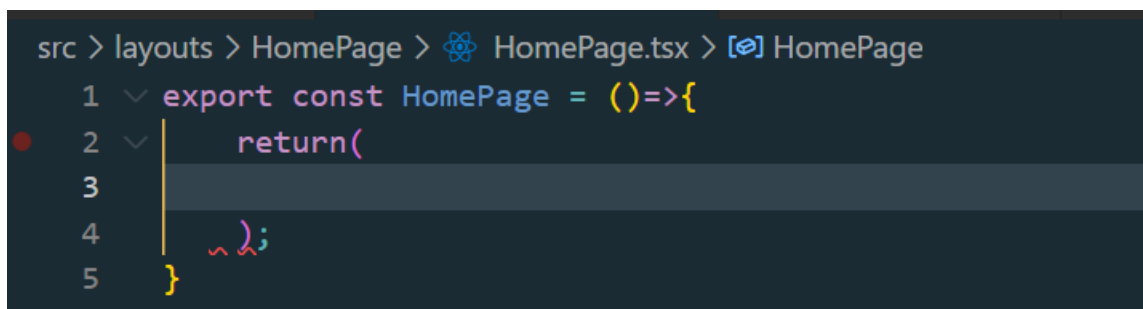Create a new file HomePage.tsx in the HomePage directory.

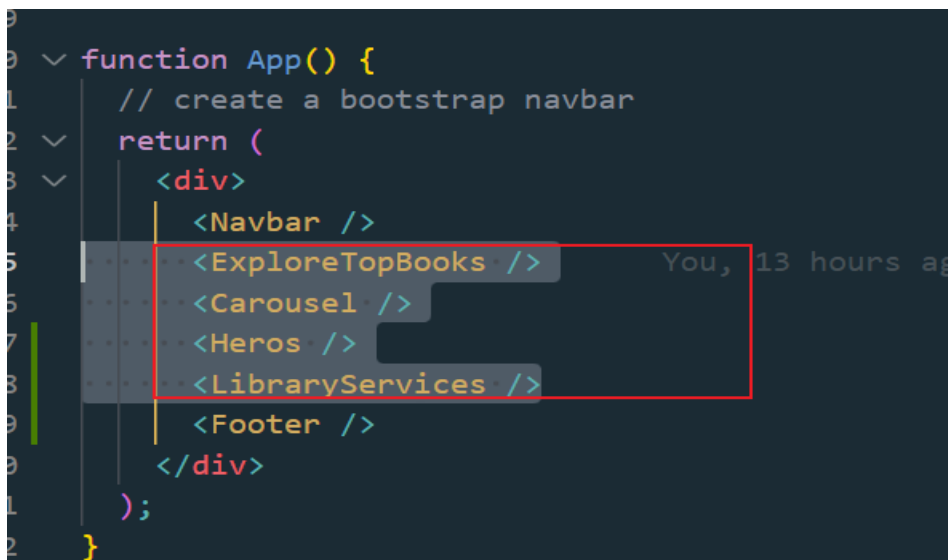Create another directory "components" in the HomePage directory.

Move all the components we created before in the HomePage directory except HomePage.tsx.


Go to HomePage.tsx, create export const HomePage() structure.

Go to App.tsx, move ExploreTopBooks, Carousel, Heros and LibraryServices component into our HomePage.tsx.

Paste them into return part. And we add a pair of empty tag to wrap all these four components.

```tsx
src > layouts > HomePage > ⚛ HomePage.tsx > [∅] HomePage
1    import { Carousel } from "./components/Carousel";
2    import { ExploreTopBooks } from "./components/ExploreTopBooks";
3    import { Heros } from "./components/Heros";
4    import { LibraryServices } from "./components/LibraryServices";
5
6    export const HomePage = () => {
7      return (
8        <>
9          <ExploreTopBooks />
10         <Carousel />
11         <Heros />
12         <LibraryServices />
13        </>
14      );
15   };
16
```

Go back to App.tsx, we remove all the import paths for the four components.

```tsx
⚛ App.tsx 7, M ✕     ⚛ HomePage.tsx U     ⚛ Footer.tsx 2, U     ⚛ Reti

src > ⚛ App.tsx > ...
     You, 16 seconds ago | 1 author (You)
1    import React from "react";
2    import "./App.css";
3    import { Navbar } from "./layouts/NavbarAndFooter/Navbar";
4    import { ExploreTopBooks } from "./layouts/HomePage/ExploreTopBooks";
5    import { Carousel } from "./layouts/HomePage/components/Carousel";
6    import { Heros } from "./layouts/HomePage/Heros";
7    import { LibraryServices } from "./layouts/HomePage/LibraryServices";
8    import { Footer } from "./layouts/NavbarAndFooter/Footer";
9
10   function App() {
11     // create a bootstrap navbar
12     return (
13       <div>
14         <Navbar />
15
16         <Footer />
17       </div>
18     );
19   }
20
21   export default App;
22
```

Then add the HomePage component in App.tsx

```tsx
src > ⚛ App.tsx > ⊘ App
        You, 1 second ago | 1 author (You)
   1 ∨ import React from "react";
   2    import "./App.css";
   3    import { Navbar } from "./layouts/NavbarAndFooter/Navbar";
   4    import { Footer } from "./layouts/NavbarAndFooter/Footer";
   5    import { HomePage } from "./layouts/HomePage/HomePage";
   6
   7 ∨ function App() {
   8      // create a bootstrap navbar
   9 ∨    return (
  10 ∨      <div>
  11          <Navbar />
  12          <HomePage />         You, now • Uncommitted changes
  13          <Footer />
  14        </div>
  15      );
  16    }
  17
  18    export default App;
```

In App.tsx, change function App() into export const App arrow function.

```tsx
App.tsx > ...
...
import React from "react";
import "./App.css";
import { Navbar } from "./layouts/NavbarAndFooter/Navbar";
import { Footer } from "./layouts/NavbarAndFooter/Footer";
import { HomePage } from "./layouts/HomePage/HomePage";

function App() {
  // create a bootstrap navbar
  return (
    <div>
      <Navbar />
      <HomePage />
      <Footer />
    </div>
  );
}

export default App;
```

```tsx
export const App = () => {
  // create a bootstrap navbar
  return (
    <div>
      <Navbar />
      <HomePage />
      <Footer />
    </div>
  );
};
```

Go to index.tsx, add "{ }" to "app" in the App import path

```
src > ⚛ index.tsx > ...
        You, 1 second ago | 1 author (You)
   1 ∨  import React from "react";
   2    import ReactDOM from "react-dom/client";
   3    import "./index.css";
   4    import { App } from "./App";          You, 1 second ago • Uncommitted
   5
   6 ∨  const root = ReactDOM.createRoot(
   7      document.getElementById("root") as HTMLElement
   8    );
   9 ∨  root.render(
  10 ∨    <React.StrictMode>
  11        <App />
  12      </React.StrictMode>
  13    );
```

Then there will be an error.

```
ERROR in ./src/layouts/HomePage/components/ReturnBook.tsx 12:13-73
Module not found: Error: Can't resolve './../../../Images/BooksImages/book-luv2code-1000.png' in 'C:\Boot-React-Project\boot-react-project\src\layouts\HomePage\components'
```

So go to the ReturnBook.tsx.

```
⚛ ReturnBook.tsx 1, U  ✕    ⚛ Carousel.tsx 1, U    ⚛ Heros.tsx 2, U    ⚛ LibraryServices.tsx 1, U    ⚛ ExploreTopBoo
src > layouts > HomePage > components > ⚛ ReturnBook.tsx > [∅] ReturnBook
   1    import React from "react";
   2
   3 ∨  export const ReturnBook = () => {
   4 ∨    return (
   5 ∨      <div className="col-xs-6 col-sm-6 col-md-4 col-lg-3 mb-3">
   6 ∨        <div className="text-center">
   7            <img
   8 ∨            src={require("./../../../Images/BooksImages/book-luv2code-1000.png")}
   9              alt="book"
  10              width="151"
  11              height="233"
  12            />
  13            <h6 className="mt-2">Book</h6>
  14            <p>Luv2Code</p>
  15 ∨          <a className="btn main-color text-white" href="#">
  16              Reserve
  17            </a>
  18          </div>
  19        </div>
  20      );
```

Then run the application. We can see the page.