React Js

1. How to create a react project

Asus@ASUS-VIVOBOOK-PRO-15 MINGW64 /d/IMPMyWorkplace/React (main)

**$ npx create-react-app NameOfProject**

1. how to run app

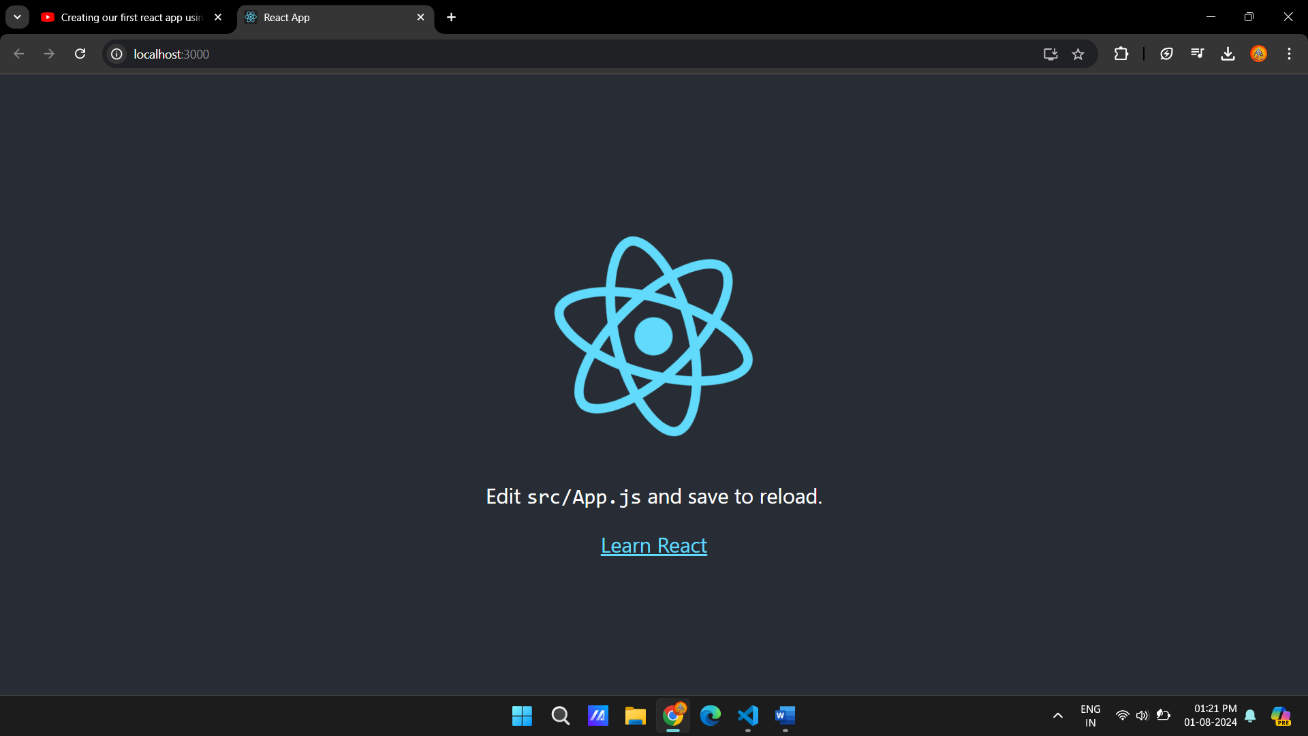
Asus@ASUS-VIVOBOOK-PRO-15 MINGW64 /d/IMPMyWorkplace/React (main)

**$ cd my-app1**

Asus@ASUS-VIVOBOOK-PRO-15 MINGW64 /d/IMPMyWorkplace/React/my-app1 (main)

**$ npm start**

1. output

****

1. basic javascript

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Document</title>

    <script>

        // "use strict";

        m = 30;//if not strict mode fine

        // ReferenceError: m is not defined

        console.log('hi this is how printing')

        // this is comment

        var a = 20;

        var a = 40;

        console.log('this is how variable declared', a);// this is how variable declared 40

        const x = 10;

        //x=10+20;  //!TypeError: Assignment to constant variable. //means we can not update it

        let y = 10;

        // let y=30; //Cannot redeclare block-scoped variable 'y'.

        let z = {

            r: 20,

            a: 30,

            b: 50,

            c: function myfunction(k) {

                console.log(k);

            }

        }

        console.log(z);

        /\*

            index.html:31 {r: 20, a: 30, b: 50, c: ƒ}

            z.c(5)

            5

            z.a

            30

        \*/

        function myFun(name) {

            console.log('hi ', name);

        }

        /\*

            myFun()

            hi  undefined

        \*/

        document.addEventListener('click', function click() {

            console.log('this is printing when user click on h1');

            //alert('this is alert');

            /\*

                this is printing when user click on h1

                [Violation] 'click' handler took 1784ms

            \*/

            let conf = confirm('are sure?');

            console.log(conf);

        });

        /\*

            true/false

            'click' handler took 2306ms

        \*/

        arr = [10, 20, 30];

        console.log(arr);//[10, 20, 30]

        arr.forEach(element => {

            console.log(element);

        });

        /\*

            10

            20

            30

        \*/

        console.log(this);//Window {window: Window, self: Window, document: document, name: '', location: Location, …}

        function fun1() {

            console.log(this);

        }

        fun1();//Window {window: Window, self: Window, document: document, name: '', location: Location, …}

        fun2 = (number) => {

            console.log("the number is", +  this);

        }

        fun2();//the number is NaN

        setTimeout(()=>{

            console.log('I am callback function==> i will print after 3 milisecound');

        },3000);

        console.log('i am below of call back function');

        /\*

            i am below of call back function

            I am callback function==> i will print after 3 milisecound

        \*/

</script>

</head>

<body>

    <h1>Hi I am learning javascript</h1>

</body>

</html>

1. imp point

we can not directly add multiple tags in App.js

we got an error JSX expressions must have one parent element.

import './App.css';

function App() {

  return (

    <div className="1">

      <h1>1</h1>

    </div>

    <div className="2">

      <h1>2</h1>

    </div>

  );

}

export default App;

so, to do that we have an option

we simply write our code in <> </> in this braces

import './App.css';

function App() {

  return (

    <>

      <div className="1">

        <h1>1</h1>

      </div>

      <div className="2">

        <h1>2</h1>

      </div>

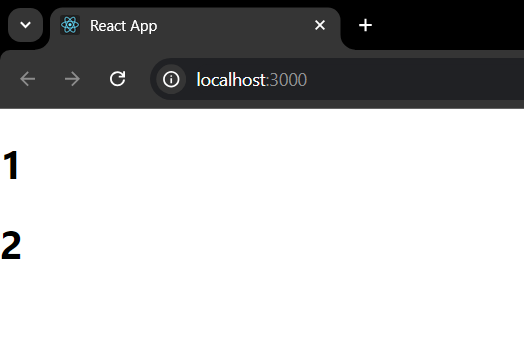
    </>

  );

}

export default App;

no error



1. is we can add js directly in App.js let’s try it

import './App.css';

let name = "Suraj";

function App() {

  return (

    <>

      <p>trying to print name variable <b>name</b></p>

      {/\* not printing variable name \*/}

      <p>trying to print name variable<b>{name}</b> </p>

      {/\* it will print variable name \*/}

    </>

  );

}

export default App;

so, to do that we simply use { } brackets to print variables from js to react

**let a=”Data”;**

**function App(){**

**return(**

**<h1> { a } </h1>**

**);**

**}**

1. now how to add bootstrap to our app

[**https://getbootstrap.com/docs/5.3/getting-started/introduction/**](https://getbootstrap.com/docs/5.3/getting-started/introduction/)

visit this link and then copy script and css and add it to index.html file in public folder

//my-app1\public\index.html

<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="utf-8" />

  <link rel="icon" href="%PUBLIC\_URL%/favicon.ico" />

  <meta name="viewport" content="width=device-width, initial-scale=1" />

  <meta name="theme-color" content="#000000" />

  <meta name="description" content="Web site created using create-react-app" />

  <link rel="apple-touch-icon" href="%PUBLIC\_URL%/logo192.png" />

  <link rel="manifest" href="%PUBLIC\_URL%/manifest.json" />

  <title>React App</title>

  <!-- added bootstrap css  -->

  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet"

    integrity="sha384-QWTKZyjpPEjISv5WaRU9OFeRpok6YctnYmDr5pNlyT2bRjXh0JMhjY6hW+ALEwIH" crossorigin="anonymous">

</head>

<body>

  <noscript>You need to enable JavaScript to run this app.</noscript>

  <div id="root"></div>

  <!-- addded bootstrap script  -->

  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"

    integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDzOxhy9GkcIdslK1eN7N6jIeHz"

    crossorigin="anonymous"></script>

</body>

</html>

1. now how to copy bootstrap component and add to project

<https://getbootstrap.com/docs/5.3/components/navbar/>

adding navbar to the App.js

* after copying component, we need to check is there any tag that not closed

like,

* hr tag
* img tag
* input tag

so, we need to manually close those tags or else getting error JSX element 'input' has no corresponding closing tag.

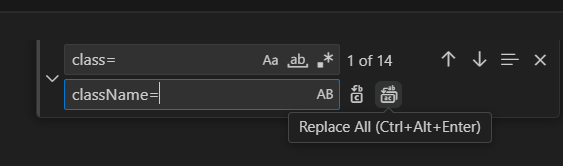
* One more thing is important like we need to change href=” #” to href=”/” because we need to make routes not simply change page or else we get an error

The href attribute is required for an anchor to be keyboard accessible. Provide a valid, navigable address as the href value. If you cannot provide an href, but still need the element to resemble a link, use a button and change it with appropriate styles.

* Now we can not use class directly In app.js because it will consider class as in js so we need to change it with className

**Class**🡺**className**

**To change cltr+f then add “class=” in search bar and replace all with “class Name”**

****

now our App.js looks like

import './App.css';

function App() {

  return (

    <>

      <nav className="navbar navbar-expand-lg bg-body-tertiary">

        <div className="container-fluid">

          <a className="navbar-brand" href="/">Navbar</a>

          <button className="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

            <span className="navbar-toggler-icon"></span>

          </button>

          <div className="collapse navbar-collapse" id="navbarSupportedContent">

            <ul className="navbar-nav me-auto mb-2 mb-lg-0">

              <li className="nav-item">

                <a className="nav-link active" aria-current="page" href="/">Home</a>

              </li>

              <li className="nav-item">

                <a className="nav-link" href="/">About</a>

              </li>

            </ul>

            <form className="d-flex" role="search">

              <input className="form-control me-2" type="search" placeholder="Search" aria-label="Search" />

              <button className="btn btn-outline-success" type="submit">Search</button>

            </form>

          </div>

        </div>

      </nav>

    </>

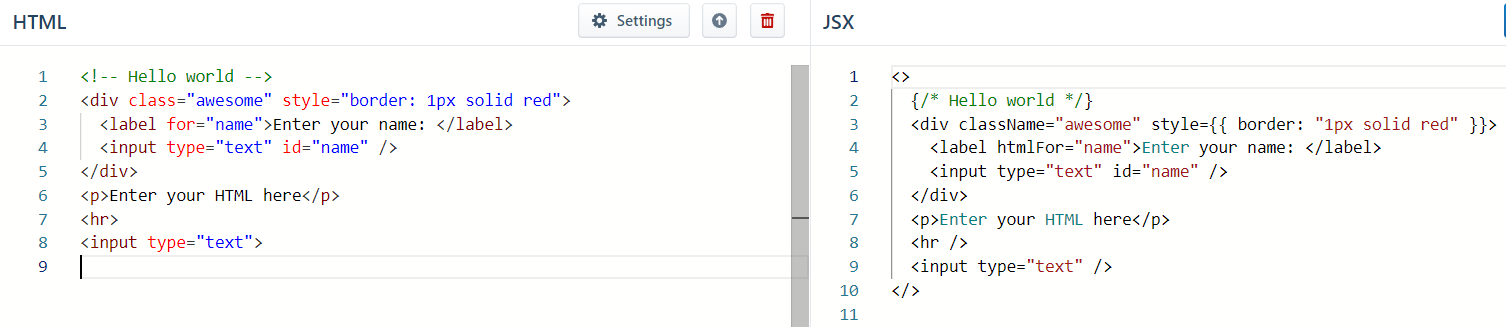
  );

}

export default App;

1. So why actually need to change

Because App.js uses JSX language which is similar to html



JSX looks like HTML, but under the hood it is transformed into plain JavaScript objects. You can’t return two objects from a function without wrapping them into an array. This explains why you also can’t return two JSX tags without wrapping them into another tag or a Fragment.

1. Modules in js **(to run default file open it in its directory node ./name.js)**

Named modules and default modules

* If we declared variable in one module and export it by default then while importing it to any other module, we can import it by using any name it will work

Module2.mjs =>

Const a=20;

Export default a;

Module1.mjs =>

Import xyz from ‘module2.mjs’

Console.log(xyz); //works

* But of we exporting it using export only(which means named export), then while importing we must define same name as present it in its own name

Module2.mjs =>

const a=20;

export a;

Module1.mjs =>

Import xyz from ‘module2.mjs’

Console.log(xyz); //won’t work

//my-app1\src\**module2.mjs**

const a="suraj";

const b="adarsh";

const c="shubh";

const d="sonya";

export default d;

export {a,b,c};

//my-app1\src\**module1.mjs**

import xyz,{a,b,c} from './module2.mjs'

// import xyz,{x1,x2,x3} from './module2.mjs'

//for named we must define same name as declared or while exporting and importing

//!import xyz, { x1, x2, x3 } from './module2.mjs'

//!              ^^

//!SyntaxError: The requested module './module2.mjs' does not provide an export named 'x1'

//this will not work

// console.log("a:"+x1);

// console.log("b:"+x2);

// console.log("c:"+x3);

//console.log("d:"+xyz);

console.log("a:"+a);

console.log("b:"+b);

console.log("c:"+c);

console.log("d:"+xyz);

output:

**React/my-app1 (main)**

**$ node ./src/module1.mjs**

**a:suraj**

**b:adarsh**

**c:shubh**

**d:sonya**

1. What is component and how to use it in js

The above task we can done with component means adding code in one file an using it in App.js

Using class name of that component

import './App.css';

import Navbar from './components/Navbar';//importing component

function App() {

  return (

    <>

//adding name of a component

      <Navbar />

    </>

  );

}

export default App;

//my-app1\src\components\Navbar.js

import React from 'react'; //imr

//rfc ==> react function based component

export default function Navbar() {

    return (

        <nav className="navbar navbar-expand-lg bg-body-tertiary">

            <div className="container-fluid">

                <a className="navbar-brand" href="/">Navbar</a>

                <button className="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

                    <span className="navbar-toggler-icon"></span>

                </button>

                <div className="collapse navbar-collapse" id="navbarSupportedContent">

                    <ul className="navbar-nav me-auto mb-2 mb-lg-0">

                        <li className="nav-item">

                            <a className="nav-link active" aria-current="page" href="/">Home</a>

                        </li>

                        <li className="nav-item">

                            <a className="nav-link" href="/">About</a>

                        </li>

                    </ul>

                    <form className="d-flex" role="search">

                        <input className="form-control me-2" type="search" placeholder="Search" aria-label="Search" />

                        <button className="btn btn-outline-success" type="submit">Search</button>

                    </form>

                </div>

            </div>

        </nav>

    )

}

1. What is prop in js

Prop basically a property for short which are basically used to pass arguments from functions

In a component if we need a component but by its different property in above ex if I want navbar but with different title name then that time prop will be used.

import React from 'react'; //imr

import PropTypes from 'prop-types'; //impt

//rfc ==> react function based component

export default function Navbar(prop) {

    return (

        <nav className="navbar navbar-expand-lg bg-body-tertiary">

            <div className="container-fluid">

//here defining a prop for title

                <a className="navbar-brand" href="/">{prop.title}</a>

                <button className="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

                    <span className="navbar-toggler-icon"></span>

                </button>

                <div className="collapse navbar-collapse" id="navbarSupportedContent">

                    <ul className="navbar-nav me-auto mb-2 mb-lg-0">

                        <li className="nav-item">

//here defining a prop for title

                            <a className="nav-link active" aria-current="page" href="/">{prop.home}</a>

                        </li>

                        <li className="nav-item">

//here defining a prop for title

                            <a className="nav-link" href="/">{prop.about}</a>

                        </li>

                    </ul>

                    <form className="d-flex" role="search">

                        <input className="form-control me-2" type="search" placeholder="Search" aria-label="Search" />

                        <button className="btn btn-outline-success" type="submit">Search</button>

                    </form>

                </div>

            </div>

        </nav>

    )

}

   import './App.css';

      import Navbar from './components/Navbar';//

      function App() {

        return (

          <>

            <Navbar title="Suraj" home="Home" about="About"/>

          </>

        );

      }

      export default App;

but what if we forgot to add prop in app.js then it will not show that data. So, for that we can define its type and requirement

import React from 'react'; //imr

import PropTypes from 'prop-types'; //impt

//rfc ==> react function based component

export default function Navbar(prop) {

    return (

        //code

//code

    )

}

Navbar.propTypes =

{

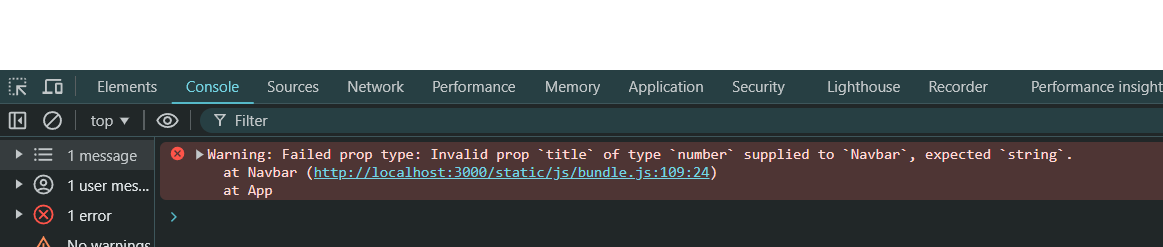
    title: PropTypes.string, //pts

    home: PropTypes.string,

    about: PropTypes.string,

}

And now if we trying to add number instead of String then we got an error



**Now how to make them required**

Navbar.propTypes =

{

    title: PropTypes.string.isRequired,//pts

    home: PropTypes.string.isRequired,

    about: PropTypes.string.isRequired,

}

1. State in react and how to handle it?

//how to tell react that we are going to use a useState

import React, { useState } from 'react'

**React hooks are functions that allow functional components to tap into state and lifecycle features previously exclusive to class components, making it easier to manage stateful logic in a more consistent way**

Because we are using function component, we called useState so it is a hook.

//this is how we define a initial state and function to update it

// Returns a stateful value, and a function to update it.

    const [text, setText] = useState("Enter Text Here");

* text holds the **current state** (initially set to "Enter Text Here").
* setText is the **function** to update the text state.

So question we to change state

setText="hello"; incorrect way to handel state

setText("hello"); correct way to handel state

1. create a component

//my-app1\src\components\TextForm.js

// this is how we using hooks in react(useState is called hook beacause of we are try to using it in a functional base component)

import React, { useState } from 'react'

export default function TextForm(prop) {

    function onClickUpper() {

        let newText = text.toUpperCase();

        setText(newText);

    }

    function onClickLower() {

        let newText = text.toLowerCase();

        setText(newText);

    }

    //in text area always gives us a event

    function handelOnChange(event) {

        // setText="hello"; incorrect way to handel state

        // setText("hello"); correct way to handel state

        //we can change what user is typing in textarea

        setText(event.target.value);

    };

    // Returns a stateful value, and a function to update it.

    const [text, setText] = useState("Enter Text Here");

    return (

        <div>

            <div className="mb-3">

                <textarea className="form-control" id="exampleFormControlTextarea1" value={text} onChange={handelOnChange} rows="8"></textarea>

            </div>

            <button type="button" className="btn btn-primary" onClick={onClickUpper}>UpperCase</button>

            <button type="button" className="btn btn-primary" onClick={onClickLower}>LowerCase</button>

        </div>

    )

}

setText(event.target.value);

this is how we can get user typed text in text area if we remove it we can not type in text area

1. import this and use it in App.js

import './App.css';

import Navbar from './components/Navbar';//

import TextForm from './components/TextForm';

function App() {

  return (

    <>

      <Navbar title='TextUtils' home="Home" about="About" />

      <div className="container">

        <h3>Enter Text Below</h3>

        <TextForm />

      </div>

    </>

  );

}

export default App;

1. Output

Success

1. Using state adding word count and character length preview.

React, { useState } from 'react'

export default function TextForm(prop) {

    function onClickUpper() {

        let newText = text.toUpperCase();

        setText(newText);

    }

    function onClickLower() {

        let newText = text.toLowerCase();

        setText(newText);

    }

    function handelOnChange(event) {

        setText(event.target.value);

    };

    const [text, setText] = useState("");

    return (

        <>

        <div className='container py-2'>

            <div className="mb-3">

                <textarea className="form-control" id="exampleFormControlTextarea1" value={text} onChange={handelOnChange} rows="8"></textarea>

            </div>

            <button type="button" className="btn btn-primary mx-2" onClick={onClickUpper}>UpperCase</button>

            <button type="button" className="btn btn-primary mx-2" onClick={onClickLower}>LowerCase</button>

        </div>

        <div className="container">

            <h3>Summery</h3>

            <p>{text.split(" ").length} words and {text.length} characters</p>

            <h3>preview</h3>

            <p>{text.length===0?"please enter text":text}</p>

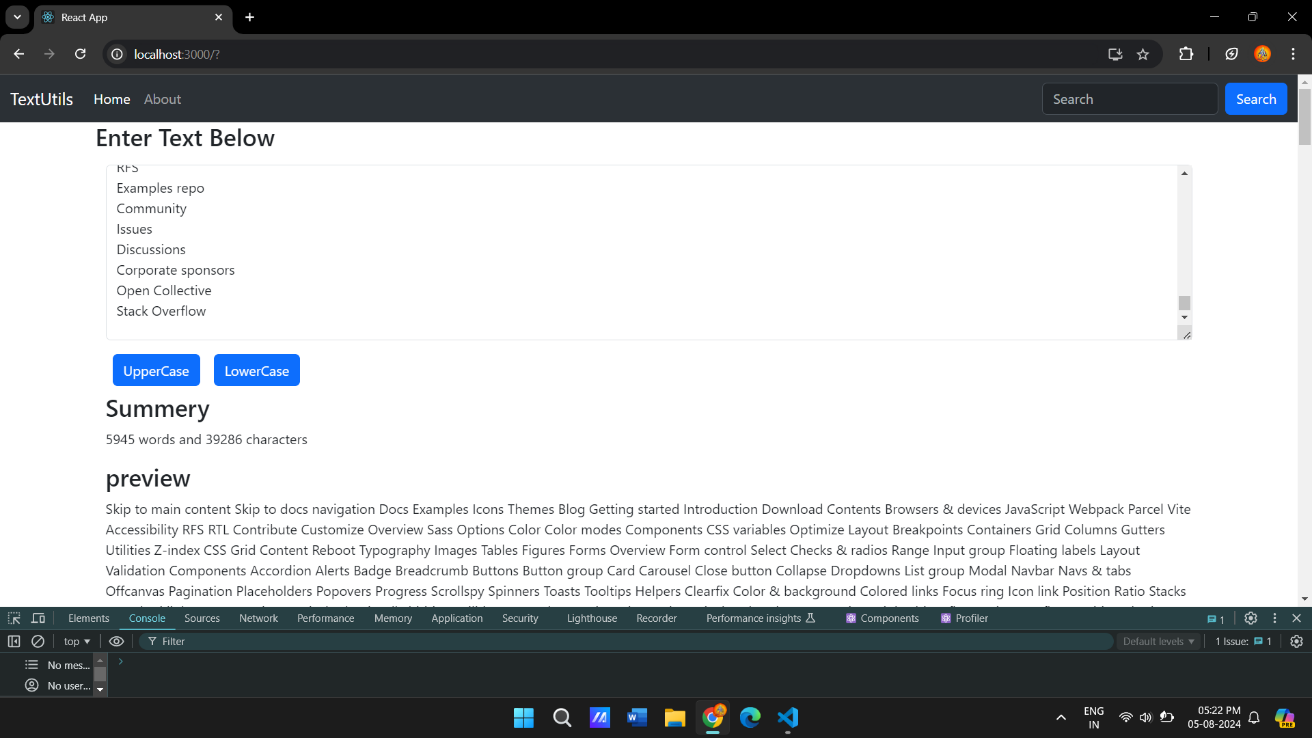
        </div>

        </>

    )

}

Output:



1. Toggle Theme using state
2. Create component

import React, { useState } from "react"

export default function About() {

    const [btnText, setBtnText] = useState("Enable Dark Mode");

    const [myStyle, setMyStyling] = useState({

        color: 'black',

        backgroundColor: 'white',

    });

    function toggleTheme() {

        if (myStyle.color === 'black') {

            setMyStyling(

                {

                    color: 'white',

                    backgroundColor: 'black',

                }

            );

            setBtnText('Enable light Mode');

        }

        else {

            setMyStyling({

                color: 'black',

                backgroundColor: 'white',

            });

            setBtnText('Enable dark Mode');

        }

    }

    return (

        <div style={myStyle}>

            <div className="accordion" id="accordionExample" style={myStyle}>

                <div className="accordion-item">

                    <h2 className="accordion-header">

                        <button className="accordion-button" type="button" data-bs-toggle="collapse" data-bs-target="#collapseOne" aria-expanded="true" aria-controls="collapseOne" style={myStyle}>

                            Accordion Item #1

                        </button>

                    </h2>

                    <div id="collapseOne" className="accordion-collapse collapse show" data-bs-parent="#accordionExample">

                        <div className="accordion-body" style={myStyle}>

                            <strong>This is the first item's </strong>

                        </div>

                    </div>

                </div>

                <div className="accordion-item">

                    <h2 className="accordion-header">

                        <button className="accordion-button collapsed" style={myStyle} type="button" data-bs-toggle="collapse" data-bs-target="#collapseTwo" aria-expanded="false" aria-controls="collapseTwo">

                            Accordion Item #2

                        </button>

                    </h2>

                    <div id="collapseTwo" className="accordion-collapse collapse" data-bs-parent="#accordionExample">

                        <div className="accordion-body" style={myStyle}>

                            <strong>This is the second item's accordion body.</strong>

                        </div>

                    </div>

                </div>

                <div className="accordion-item">

                    <h2 className="accordion-header">

                        <button className="accordion-button collapsed" style={myStyle} type="button" data-bs-toggle="collapse" data-bs-target="#collapseThree" aria-expanded="false" aria-controls="collapseThree">

                            Accordion Item #3

                        </button>

                    </h2>

                    <div id="collapseThree" className="accordion-collapse collapse" data-bs-parent="#accordionExample">

                        <div className="accordion-body" style={myStyle}>

                            <strong>This is the third item's accordion body.</strong>

                        </div>

                    </div>

                </div>

            </div>

            <button type="button" onClick={toggleTheme} className="btn btn-primary my-3">{btnText}</button>

        </div>

    )

}

1. Add or import it in App.js

      <About />

1. Output

