How to do CRUD operations in ReactJS ?

CRUD operation in React stands for Create, Read, Update, and Delete. CRUD is an important concept for organizing and managing data across the web application. We will perform CRUD operation in the React application with local storage in the form of JavaScript Objects instead of using JSON servers or Axios in React. CRUD operations are referred to as

- **Create:** Creating a post or adding the table row, adding data to the webpage, or creating content.
- **Read:** Reading or retrieving data from a web page
- **Update:** Updating or editing existing content on the webpage
- **Delete:** Deleting and removing the entry or content/post from the webpage

Approach

To implement CRUD operations in React JS on locally stored data, use a data file array.js and create different components home, create, edit and link them with the data present in the js file. Access the data from the JavaScript Localstorage API . Add routing for these components using react-router-dom ann style using the React-Bootstrap UI components and Bootstrap style classes.

Steps to create the application

Step 1: Let's start building the Front-end part with React. To create a new React App, enter the following code into the terminal and hit enter.

```
npx create-react-app crud_app
```

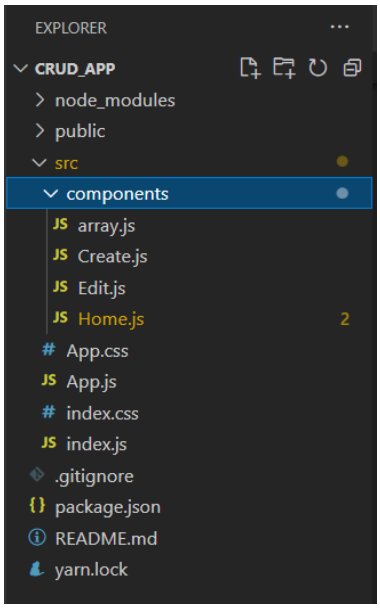
Step 2: Move into the React project folder.

```
cd crud_app
```

Step 3: Install other dependencies using this command

```
npm i react-bootstrap bootstrap@5.1.3 react-router-dom
```

Project Structure:



Updated dependencies in **package.json** file will look like:

```
"dependencies": {
        "@testing-library/jest-dom": "^5.17.0",
        "@testing-library/react": "^13.4.0",
        "@testing-library/user-event": "^13.5.0",
```

```
        "bootstrap": "^5.1.3",
        "react": "^18.2.0",
        "react-bootstrap": "^2.9.0",
        "react-dom": "^18.2.0",
        "react-router-dom": "^6.16.0",
        "react-scripts": "5.0.1",
        "web-vitals": "^2.1.4"
}
```

Example: This example show CRUD operations on a locally stored data file named **array.js** using React JS.

Javascript

```
// Filename - App.js

import React from "react";
import {
    BrowserRouter as Router,
    Route,
    Routes,
} from "react-router-dom";
import "./App.css";
import Create from "./components/Create";
import Edit from "./components/Edit";
import Home from "./components/Home";

function App() {
    return (
        <div className="App">
            <h1 className="geeks">GeeksforGeeks </h1>
            <h3>CRUD App</h3>
            <Router>
                <Routes>
                    <Route path="/" element={<Home />} />
                    <Route
                        path="/create"
                        element={<Create />}
                    />
                    <Route
                        path="/edit"
                        element={<Edit />}
                    />
                </Routes>
            </Router>
        </div>
```

```
    );
}

export default App;
```

Javascript

```
// Filename - components/array.js

// Javascript object named array
// with 3 key-values
const array = [
    {
        id: "1",
        Name: "Shivansh",
        Age: "23",
    },
    {
        id: "2",
        Name: "Simran",
        Age: "22",
    },
    {
        id: "3",
        Name: "Aakash",
        Age: "23",
    },
];

export default array;
```

Javascript

```
// Filename - components/Create.js

import React, { useState } from "react";
import { Button, Form } from "react-bootstrap";
import "bootstrap/dist/css/bootstrap.min.css";
import array from "./array";
import { v4 as uuid } from "uuid";
import { Link, useNavigate } from "react-router-dom";

function Create() {
    // Making usestate for setting and
    // fetching a value in jsx
    const [name, setname] = useState("");
    const [age, setage] = useState("");
```

```
// Using useNavigation for redirecting to pages
let history = useNavigate();

// Function for creating a post/entry
const handelSubmit = (e) => {
    e.preventDefault(); // Prevent reload

    const ids = uuid(); // Creating unique id
    let uni = ids.slice(0, 8); // Slicing unique id

    // Fetching a value from usestate and
    // pushing to javascript object
    let a = name,
        b = age;
    if (name == "" || age == "") {
        alert("invalid input");
        return;
    }
    array.push({ id: uni, Name: a, Age: b });

    // Redirecting to home page after creation done
    history("/");
};

return (
    <div>
        <Form
            className="d-grid gap-2"
            style={{ margin: "5rem" }}
        >
            {/* Fetching a value from input textfirld
                in a setname using usestate*/}
            <Form.Group
                className="mb-3"
                controlId="formBasicName"
            >
                <Form.Control
                    onChange={(e) =>
                        setname(e.target.value)
                    }
                    type="text"
                    placeholder="Enter Name"
                    required
                />
            </Form.Group>

            {/* Fetching a value from input textfirld in
                a setage using usestate*/}
```

```
                    <Form.Group
                        className="mb-3"
                        controlId="formBasicAge"
                    >
                        <Form.Control
                            onChange={(e) =>
                                setage(e.target.value)
                            }
                            type="number"
                            placeholder="Age"
                            required
                        />
                    </Form.Group>

                    {/* handing a onclick event in button for
                        firing a function */}
                    <Button
                        onClick={(e) => handelSubmit(e)}
                        variant="primary"
                        type="submit"
                    >
                        Submit
                    </Button>

                    {/* Redirecting back to home page */}
                    <Link className="d-grid gap-2" to="/">
                        <Button variant="info" size="lg">
                            Home
                        </Button>
                    </Link>
                </Form>
            </div>
        );
}

export default Create;
```

Javascript

```
// Filename - components/Home.js

import React from "react";
import { Button, Table } from "react-bootstrap";
import "bootstrap/dist/css/bootstrap.min.css";
import array from "./array";
import { Link, useNavigate } from "react-router-dom";

function Home() {
```

```
let history = useNavigate();

// You may skip this part if you're
// using react-context api or redux
function setID(id, name, age) {
    localStorage.setItem("id", id);
    localStorage.setItem("Name", name);
    localStorage.setItem("Age", age);
}

// Deleted function - functionality
// for deleting the entry
function deleted(id) {
    let index = array
        .map(function (e) {
            return e.id;
        })
        .indexOf(id);

    // deleting the entry with index
    array.splice(index, 1);

    // We need to re-render the page for getting
    // the results so redirect to same page.
    history("/");
}

return (
    <div style={{ margin: "5rem" }}>
        <Table striped bordered hover size="sm">
            <thead>
                <tr>
                    <th>Name</th>
                    <th>Age</th>
                </tr>
            </thead>
            <tbody>
                {/* Mapping though every element
                    in the array and showing the
                    data in the form of table */}
                {array.map((item) => {
                    return (
                        <tr>
                            <td>{item.Name}</td>
                            <td>{item.Age}</td>

                            {/* getting theid,name, and
                                age for storing these
                                value in the jsx with
```

```
                                onclick event */}
                            <td>
                                <Link to={`/edit`}>
                                    <Button
                                        onClick={(e) =>
                                            setID(
                                                item.id,
                                                item.Name,
                                                item.Age
                                            )
                                        }
                                        variant="info"
                                    >
                                        Update
                                    </Button>
                                </Link>
                            </td>

                            {/* Using thr deleted function passing
                                the id of an entry */}
                            <td>
                                <Button
                                    onClick={(e) =>
                                        deleted(item.id)
                                    }
                                    variant="danger"
                                >
                                    Delete
                                </Button>
                            </td>
                        </tr>
                    );
                })}
            </tbody>
        </Table>

        {/* Button for redirecting to create page for
            insertion of values */}
        <Link className="d-grid gap-2" to="/create">
            <Button variant="warning" size="lg">
                Create
            </Button>
        </Link>
    </div>
  );
}

export default Home;
```

Javascript

```
// Filename - Edit.js
import React, { useEffect, useState } from "react";
import { Button, Form } from "react-bootstrap";
import "bootstrap/dist/css/bootstrap.min.css";
import array from "./array";
import { Link } from "react-router-dom";
import { useNavigate } from "react-router-dom";

function Edit() {
    // Here usestate has been used in order
    // to set and get values from the jsx
    const [name, setname] = useState("");
    const [age, setage] = useState("");
    const [id, setid] = useState("");

    // Used for navigation with logic in javascript
    let history = useNavigate();

    // Getting an index of an entry with an id
    let index = array
        .map(function (e) {
            return e.id;
        })
        .indexOf(id);

    // Function for handling the edit and
    // pushing changes of editing/updating
    const handelSubmit = (e) => {
        // Preventing from reload
        e.preventDefault();
        if (name == "" || age == "") {
            alert("invalid input");
            return;
        }

        // Getting an index of an array
        let a = array[index];

        // Putting the value from the input
        // textfield and replacing it from
        // existing for updation
        a.Name = name;
        a.Age = age;


        // Redirecting to main page
```

```
        history("/");
    };

    // Useeffect take care that page will
    // be rendered only once
    useEffect(() => {
        setname(localStorage.getItem("Name"));
        setage(localStorage.getItem("Age"));
        setid(localStorage.getItem("id"));
    }, []);

    return (
        <div>
            <Form
                className="d-grid gap-2"
                style={{ margin: "5rem" }}
            >
                {/* setting a name from the
                    input textfiled */}
                <Form.Group
                    className="mb-3"
                    controlId="formBasicEmail"
                >
                    <Form.Control
                        value={name}
                        onChange={(e) =>
                            setname(e.target.value)
                        }
                        type="text"
                        placeholder="Enter Name"
                    />
                </Form.Group>

                {/* setting a age from the input textfiled */}
                <Form.Group
                    className="mb-3"
                    controlId="formBasicPassword"
                >
                    <Form.Control
                        value={age}
                        onChange={(e) =>
                            setage(e.target.value)
                        }
                        type="number"
                        placeholder="Age"
                    />
                </Form.Group>

                {/* Hadinling an onclick event
```

```
                    running an edit logic */}
                <Button
                    onClick={(e) => handelSubmit(e)}
                    variant="primary"
                    type="submit"
                    size="lg"
                >
                    Update
                </Button>

                {/* Redirecting to main page after editing */}
                <Link className="d-grid gap-2" to="/">
                    <Button variant="warning" size="lg">
                        Home
                    </Button>
                </Link>
            </Form>
        </div>
    );
}

export default Edit;
```

CSS

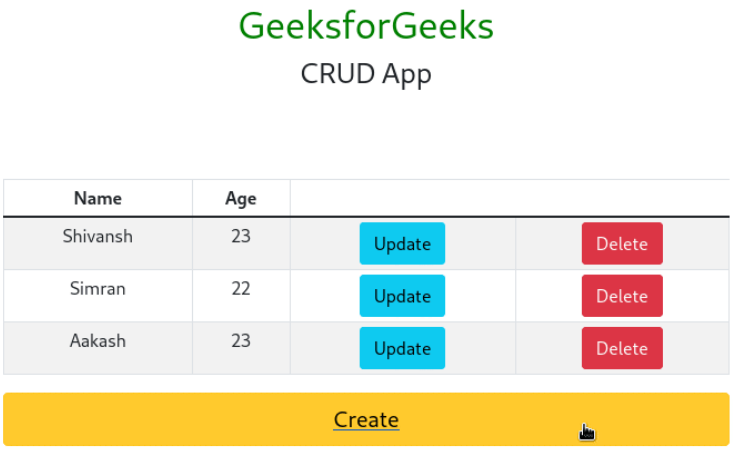
```
/* App.css */
.App {
    text-align: center;
}
.geeks {
    color: green;
}
```

Steps to run the application:

Step 1: Use this npm command in project directory to run the applicaion.

```
npm start
```

Output: This output will be visible on **http://localhost:3000/**



The CRUD operations in React JS are performed on Local Storage, for learning CRUD operation with ReactJS and NodeJS please refer to How to build a basic CRUD app with Node.js and ReactJS?

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