React JS Training

(Intermediate to Advanced)

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Schedule for React JS Training

Day#	Date	Topic
Day-1	23-Nov-2023	State Management : Class Components
Day-2	24-Nov-2023	State Management : Functional Components, Hooks
Day-3	27-Nov-2023	Http Client Programming – AJAX Calls to APIs (Node JS)
Day-4	28-Nov-2023	Working with Forms, Validations, Services
Day-5	29-Nov-2023	Redux – State Management Library
Day-6	**30-Nov-2023**	**Routing – SPA in React JS**
Day-7	01-Dec-2023	Unit Testing React Application

Duration : 7 days (2hours per day) ; 9:30 am to 11:30 pm; 23th Nov – 1st Dec

Day6
Routing – SPA in React JS

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Index – Day6

1. Implement SPA using React Routing
2. Navigations in React
3. Configure Routes in React Apps
4. Route Links in React Apps
5. Handling Invalid Routes
6. Handling Route Parameters
7. Authenticate the Routes
8. Handling Authentication Tokens
9. Redirect to another route using code

Single Page Applications (Routing – Navigations)

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React App

localhost:3000

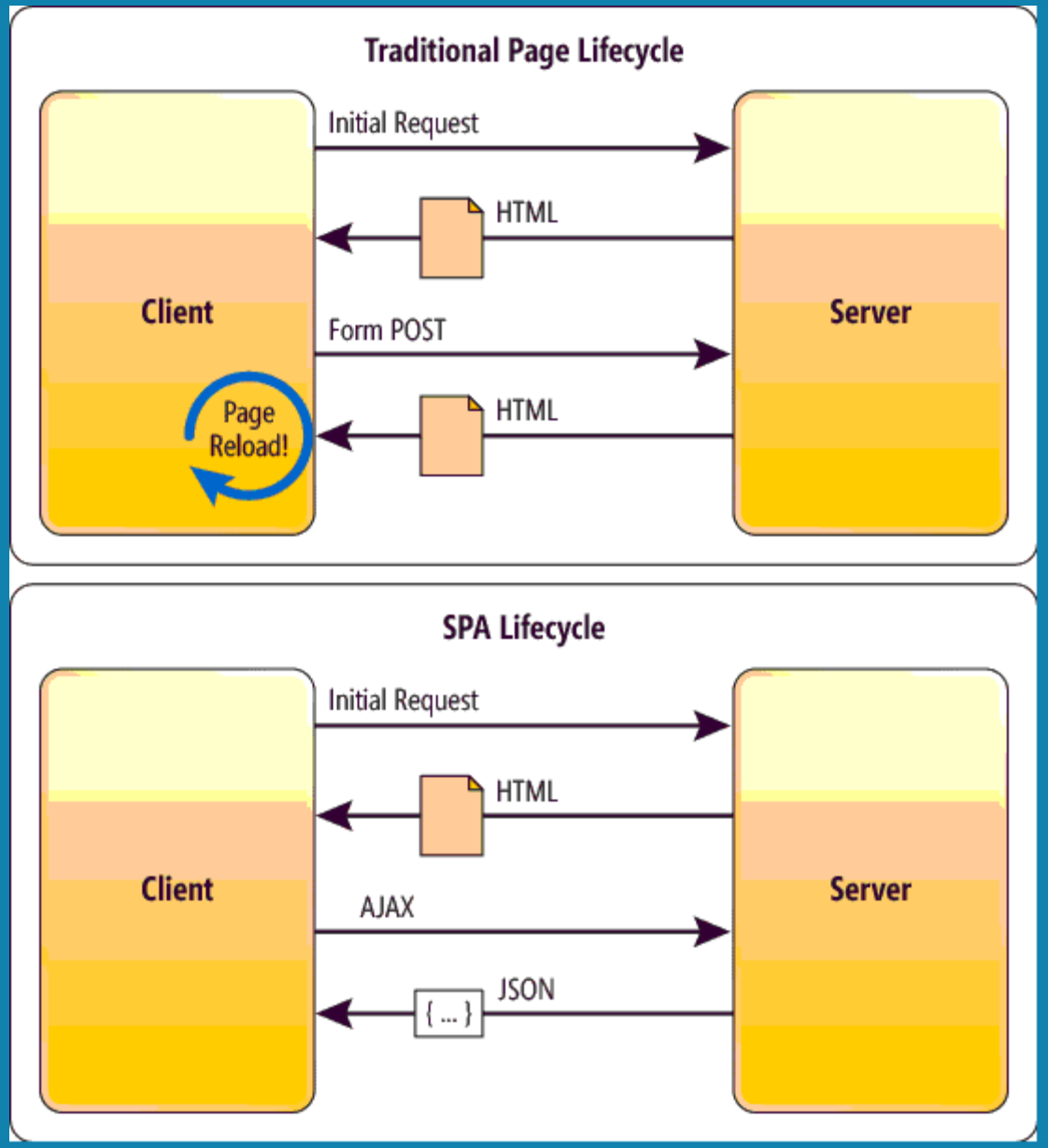
Routing implementation in React Applications

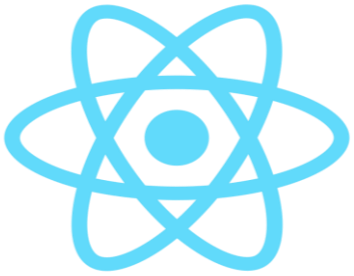
Home |Employees |Departments |About |Contact |

Welcome to SPA using React JS

What is SPA?

- A single-page application (SPA) is a web application or website that interacts with the user by dynamically rewriting the current web page with new content.
- It updates partial, instead of loading entire new pages
- The goal is faster transitions that make the website feel more like a desktop app.


Traditional Page Lifecycle
Initial Request
HTML
Client
Server
Form POST
Page Reload!
HTML
SPA Lifecycle
Initial Request
HTML
Client
Server
AJAX
JSON
{ ... }



Implement SPA in React
Routes in React

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Steps to Implement

1. Install react-router-dom package
2. Import the required items in index.js
3. Configure the routes with corresponding components
4. Preparing Hyperlinks using Link tag
5. Provide routing details in root.render() method.

index.js

Implementation

Install react-router-dom module

```
npm install react-router-dom --save
```

Import the required items in index.js

```
import {Routes, Route, Link, BrowserRouter as Router }
                from 'react-router-dom';
```

Configure the routes and Prepare Hyperlinks

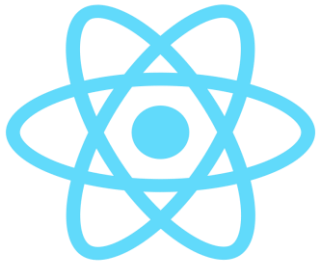
```
const routing = (
<Router>
        <Link   to="/">Home</Link>
        <Link   to="/Emps">Employees</Link>

        <Routes>
            <Route path="/"         element= { <App /> } />
            <Route path="/Emps" element= { <Emps /> } />
            .....
          </Routes>
    </Router>
);
```

Routing details in ReactDOM.render()

```
const root =
ReactDOM.createRoot(document.getElementById('root’));

root.render(
  <React.StrictMode>
    {routing}
  </React.StrictMode>
);
```



How to handle invalid route?

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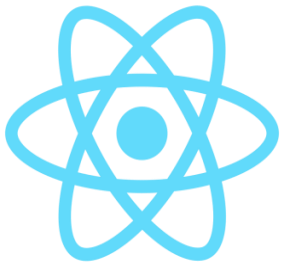
How to handle invalid route?

```
  <Route path="*"   element= {  <NotFound />  } />
```

```
function  NotFound(){
    return <div>
           ……
    </div>;
  };
 export default NotFound;
```



How to handle route parameters?

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How to handle route parameters?

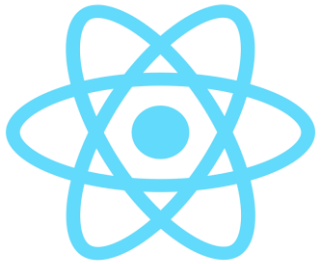
```
<Route path="/Details/:id" element= { <Details />  }  />
```

```
<Link  to={"/Details/" + item.empno}>Details</Link>
```

```
import { Link, useParams } from 'react-router-dom';

function Details(props)
{
    const { id }  =  useParams();
    ……….
}

export default Details;
```



How to navigate to route using code?

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Programmatic Navigations

```
import { useNavigate } from "react-router-dom";
let navigate = useNavigate();
navigate("/Emps");
```

Practice Hands-Ons

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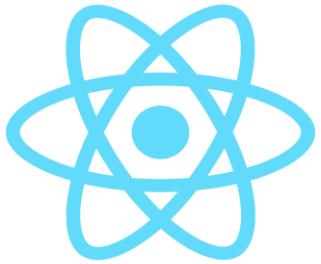

How to protect the routes?
How to configure authenticated routes?

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Authenticated Routes

- Configure the required routes with protection
- Handling Protected Routes
  a. Verify the authentication token
  b. Not Authenticated : Redirect to Login Route
  c. Authenticated : Redirect to required route
- Login Component
  a. Verify the user credentials
  b. Valid : Create token, Redirect to required route

Dependent Concepts

- Redirect to routes programmatically
- Storing tokens using **Web Storage** (HTML5 API)
  - sessionStorage
  - localStorage
- Reading **route** parameters
- Reading **query string** params

Practice Hands-Ons

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