

Routing in React

- Routing a technique uses in Web Applications to configure User and SEO friendly URL.
- User Friendly URL allows you to query any content directly from URL

Without Routing

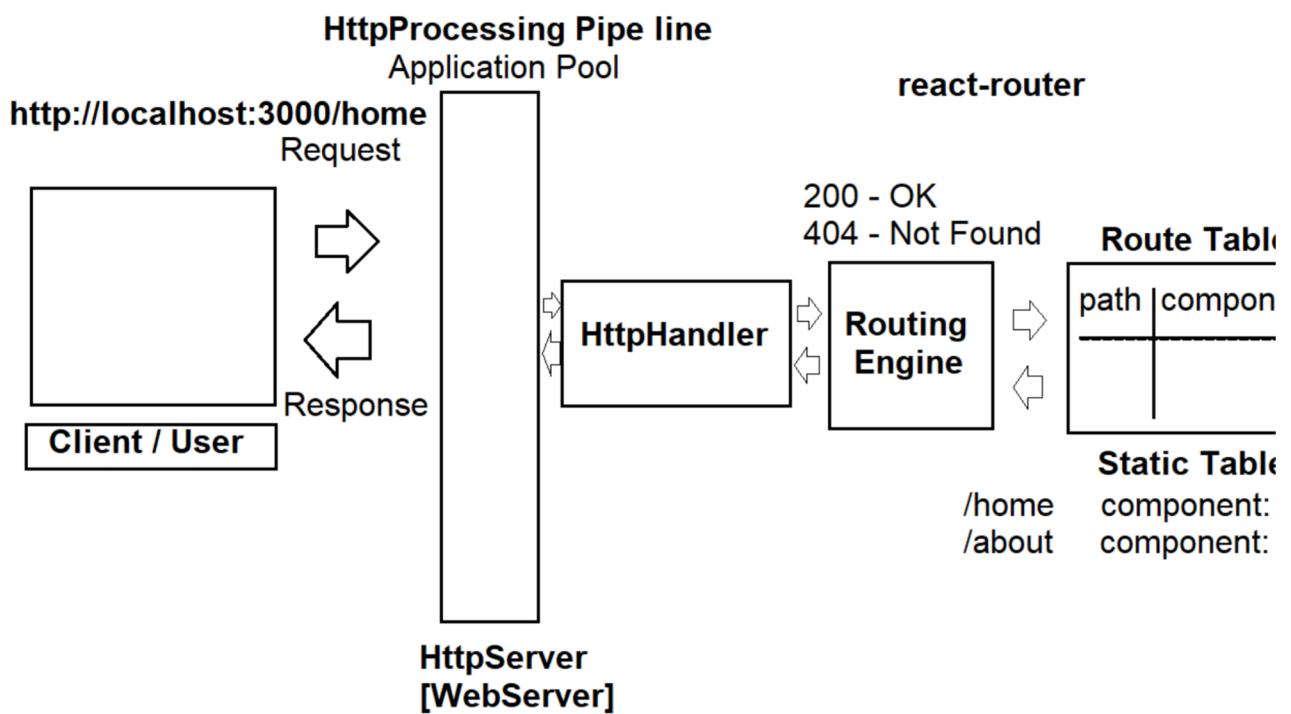
<http://www.amazon.in/electronics.php?category=mobiles&model=redmi&maxPrice=15000>

With Routing

<http://www.amazon.in/electronics/mobiles/redmi/15000> [REST URL]

- SEO can't identify the exact location in page without routing.
- Routing makes url's SEO friendly.
- Routing implements AJAX
- It allows to load new component or contents into page without reloading the complete page.

- In SPA routing play the key role in handling navigation.
- User can stay on one page and can get access to everything on to the page.



Basic Routing

- **Install React Router Module**
> `npm install react-router-dom --save`

- **Basic Classes required for configuring route**
 - o **Router**
 - o **Route**
- **Router is not understandable to Legacy Browser, hence you have to translate as “BrowserRouter” native to browser.**
- Router configures “Router Table”
- Route defines individual route.

Syntax:

<Router>

<Route path="" component={ } />

<Route path="" component={ } />

</Router>

Ex:

AppHomeComponent.js

```
import React from 'react';
```

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

import LoginComponent from
'./LoginComponent';

const HomeComponent = () =>(
  <>
    <h2>Amazon Home</h2>
    <p>Online Shopping</p>
  </>
)

const ContactComponent = () => (
  <>
    <h2>Contact Us</h2>
    <p>help@amazon.in</p>
  </>
)
```

```
export default class AppHomeComponent
extends React.Component
{
  render(){
    return(
      <Router>
        <header>
          <span><Link to="/home"> Home
</Link></span>
          <span> | </span>
          <span><Link to="/contact">
Contact </Link> </span>
          <span> | </span>
          <span><Link to="/login"> Login
</Link> </span>
        </header>
        <hr />
```

```
        <Route path="/home"  
component={ HomeComponent } />  
  
        <Route path="/contact"  
component={ ContactComponent } />  
  
        <Route path="/login"  
component={ LoginComponent } />  
  
    </Router>  
  
)  
  
}  
  
}
```

Redirection of Route

- The component `<Redirect>` is used in route to configure redirection to an existing path instead of re-defining the path and its parameters.

Syntax:

```
<Route path="/home">
```

```
<Redirect to="/" />  
</Route>
```

Route for No-Match – Generic Route

- If client request can't be processed due to "404" status code, which is **not-found**, then React renders an Empty page.
- No component is rendered.
- You have to configure "generic" route that delivers a component when request mismatch.
- The route path for generic route is defined as “*”

Syntax:

```
<Route path="*"/>  
  <NotFoundComponent />  
</Route>
```

Note: All generic routes are defined at the end.

Switch for Routes

- Switch is a selector
- A <Switch> looks through all its children <Route> elements and renders the first one whose path is matching with specified URL.
- It uses “exact” attribute to find and render the exact match.
- It will terminate the execution after rendering the component.
- It will walkthrough all the routes and render only the route that matches your condition.

Syntax:

<Switch>

```
<Route exact path="/">
```

```
  <Component />
```

```
</Route>
```

```
<Route path="">  
  <Component />  
</Route>  
</Switch>
```

Configuring Links for Navigation

- The component `<Link>` is used to configure a Hyperlink that navigates to specific route path.

Syntax:

```
<Link to="pathname"> Text </Link>
```

Ex:

ApphomeComponent.js

```
import React from 'react';  
  
import { BrowserRouter as Router, Route, Link, Redirect, Switch, useLocation } from  
'react-router-dom';
```

```
import LoginComponent from
'./LoginComponent';

const HomeComponent = () =>(
  <>
    <h2>Amazon Home</h2>
    <p>Online Shopping</p>
  </>
)
const ContactComponent = () => (
  <>
    <h2>Contact Us</h2>
    <p>help@amazon.in</p>
  </>
)
const NotFoundComponent = () => {
  return(

```

```
<>

    <h2>Page You Requested
<code>{window.location.href}</code> Not
Found</h2>

</>

)

}
```

```
export default class AppHomeComponent
extends React.Component
{
  render(){
    return(
      <Router>
        <header>
          <span><Link to="/home"> Home
</Link></span>
          <span> | </span>
```

```
<span><Link to="/contact">
Contact </Link> </span>

<span> | </span>

<span><Link to="/login"> Login
</Link> </span>

</header>

<hr />

<Switch>

<Route exact path="/">
  <HomeComponent />
</Route>

<Route path="/home">
  <Redirect to="/"></Redirect>
</Route>

<Route path="/contact">
  <ContactComponent />
</Route>

<Route path="/login">
```

```
        < LoginComponent />
    </Route>
    <Route path="/">
        <NotFoundComponent />
    </Route>
</Switch>
</Router>
)
}
}
```

Routing Example

- Add a new folder into “src” by name “AmazonSite”
- Add following files
 - o IndexComponent.js
 - o HomeComponent.js
 - o ElectronicsComponent.js
 - o FootwearComponent.js
 - o FashionComponent.js

- HeaderComponent.js
- FooterComponent.js
- NavBarComponent.js
- **HomeComponent.js**

```
import React from 'react';

export default class HomeComponent
extends React.Component
{
  render(){
    return(
      <div>
        <h2>Amazon Home</h2>
        <p>Special Offers - Upto 70%
Sale</p>
      </div>
    )
  }
}
```

- **Electronics, Footwear, Fashion Components similar in design**

```
import React from 'react';

export default class FashionComponent
extends React.Component
{
  render(){
    return(
      <div>
        <h2>Electronics Home</h2>
        
        
      </div>
    )
  }
}
```

- **HeaderComponent.js**

```
import React from 'react';
```

```
export default class HeaderComponent
extends React.Component
```

```
{  
  render(){  
    return(  
      <div className="mt-2 bg-primary  
text-center text-white">  
        <h1><span className="bi bi-  
cart4"></span> Amazon Shopping</h1>  
      </div>  
    )  
  }  
}
```

- **FooterComponent.js**

```
import React from 'react';  
  
export default class FooterComponent  
extends React.Component  
{  
  render(){  
    return(  
      <div className="bg-primary text-  
white text-center mt-2">
```

```
<i>&copy; copyright 2021 -  
Amazon</i>  
</div>  
)  
}  
}  
- NavBarComponent.js
```

```
import React from 'react';  
import { Link } from 'react-router-dom';  
  
export default class NavBarComponent  
extends React.Component  
{  
  render(){  
    return(  
      <div>  
        <nav>  
          <ul className="list-unstyled">  
            <li className="d-grid mt-3">
```

```
        <Link to="/home"
      className="btn btn-
    primary">Home</Link>
      </li>
      <li className="d-grid mt-3">
        <Link to="/electronics"
      className="btn btn-
    primary">Electronics</Link>
      </li>
      <li className="d-grid mt-3">
        <Link to="/footwear"
      className="btn btn-
    primary">Footwear</Link>
      </li>
      <li className="d-grid mt-3">
        <Link to="/fashion"
      className="btn btn-
    primary">Fashion</Link>
      </li>
    </ul>
  </nav>
</div>
```

```
        )  
    }  
}
```

- **IndexComponent.js**

```
import React from 'react';  
import { BrowserRouter as Router, Route, Switch, Link, useLocation, Redirect } from  
'react-router-dom';  
import FooterComponent from  
'./FooterComponent';  
import HeaderComponent from  
'./HeaderComponent';  
import HomeComponent from  
'./HomeComponent';  
import NavBarComponent from  
'./NavBarComponent';  
import FootwearComponent from  
'./FootwearComponent';  
import FashionComponent from  
'./FashionComponent';
```

```
import ElectronicsComponent from
'./ElectronicsComponent';

export default class IndexComponent
extends React.Component
{
  render(){
    return(
      <Router>
        <HeaderComponent />
        <div className="row"
style={{height:'400px'}}>
          <div className="col-3">
            <NavBarComponent />
          </div>
          <div className="col-9">
            <Switch>
              <Route exact path="/">
                <HomeComponent />
              </Route>
              <Route path="/home">
```

```
        <Redirect  
        to="/"></Redirect>  
        </Route>  
        <Route path="/electronics" >  
            <ElectronicsComponent />  
        </Route>  
        <Route path="/footwear" >  
            <FootwearComponent />  
        </Route>  
        <Route path="/fashion" >  
            <FashionComponent />  
        </Route>  
    </Switch>  
    </div>  
    </div>  
    <FooterComponent/>  
  </Router>  
)  
}  
}
```

Route Parameters

EX:

DetailsComponent.js

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

```
const DetailsComponent = () => {
  let {id, name, price} = useParams();
  return(
    <div>
      <h2>Product Details</h2>
      <dl>
        <dt>Id</dt>
```

```
<dd>{id}</dd>
<dt>Name</dt>
<dd>{name}</dd>
<dt>Price</dt>
<dd>{price}</dd>
</dl>
</div>
)
}
export default DetailsComponent;
IndexComponent.js
<Route path="/details/:id/:name/:price">
    <DetailsComponent />
</Route>
```

Nested Routes

- Add a new component

CategoriesComponent.js

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

```
const CategoriesComponent = () => {
  let categories = [
    {CategoryId: 1, CategoryName: 'Electronics'},
    {CategoryId: 2, CategoryName: 'Footwear'},
    {CategoryId: 3, CategoryName: 'Fashion'}
  ];
  return(
    <div>
      <h2>Categories List</h2>
      <ul>
        {
          categories.map(category=>
            <li
              key={category.CategoryId}>
              <Link to={'/products/' +
                category.CategoryId}>{category.CategoryName}</Link>
            </li>
          )
        }
    </div>
  );
}
```

```
        }
      </ul>
    </div>
  )
}

export default CategoriesComponent;
```

- **ProductsComponent.js**

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

const ProductsComponent = () => {
  let {id} = useParams();
  let products = [
    {Name: 'Samsung TV', Price: 45000.55, CategoryId: 1},
    {Name: 'Earpods', Price: 3400.44, CategoryId: 1},
    {Name: 'Nike Casuals', Price: 6000.44, CategoryId: 2},
  ];
  return (
    <div>
      <h1>Product Details</h1>
      <p>Product ID: {id}</p>
      <table border="1">
        <thead>
          <tr>
            <th>Category</th>
            <th>Product Name</th>
            <th>Price</th>
          </tr>
        </thead>
        <tbody>
          <tr>
            <td>{products[0].CategoryId}</td>
            <td>{products[0].Name}</td>
            <td>{products[0].Price}</td>
          </tr>
          <tr>
            <td>{products[1].CategoryId}</td>
            <td>{products[1].Name}</td>
            <td>{products[1].Price}</td>
          </tr>
          <tr>
            <td>{products[2].CategoryId}</td>
            <td>{products[2].Name}</td>
            <td>{products[2].Price}</td>
          </tr>
        </tbody>
      </table>
      <Link to="/">Go Back</Link>
    </div>
  );
}
```



```
        </tr>
      )
    }
  </tbody>
</table>
<br/>
<Link to="/categories">Back to
Categories</Link>
</div>
)
}
export default ProductsComponent;
- IndexComponent.js
import React from 'react';
import { BrowserRouter as Router, Route,
Switch, Link, useLocation, Redirect } from
'react-router-dom';
import FooterComponent from
'./FooterComponent';
import HeaderComponent from
'./HeaderComponent';
```

```
import HomeComponent from
'./HomeComponent';
import NavBarComponent from
'./NavBarComponent';
import FootwearComponent from
'./FootwearComponent';
import FashionComponent from
'./FashionComponent';
import ElectronicsComponent from
'./ElectronicsComponent';
import DetailsComponent from
'./DetailsComponent';
import CategoriesComponent from
'./CategoriesComponent';
import ProductsComponent from
'./ProductsComponent';

export default class IndexComponent
extends React.Component
{
  render(){
    return(

```

```
<Router>
  <HeaderComponent />
  <div className="row"
style={{height:'400px'}}>
    <div className="col-3">
      <NavBarComponent />
    </div>
    <div className="col-9">
      <Switch>
        <Route exact path="/">
          <HomeComponent />
        </Route>
        <Route path="/home">
          <Redirect
            to="/"></Redirect>
        </Route>
        <Route path="/electronics" >
          <ElectronicsComponent />
        </Route>
        <Route path="/footwear" >
          <FootwearComponent />
        </Route>
      </Switch>
    </div>
  </div>
</Router>
```