

ESD

## Assignment - (4)

### # Aim:

Enhance web page developed in earlier assignment by rendering lists and portals, error handling, Router and style with React CSS also make it a responsive design to scale well across PC, tablet and mobile phone.

### # Objective:-

Enhance user Interface and experience.

Improve application Robustness and Navigation.

### # Theory:-

Q) ~~Explain How do lists and keys work in React?~~  
List are used to render multiple elements dynamically from arrays.

For example

```
const items = ['Apple', 'Banana', 'Cherry']
```

```
return
```

```
<ul>  
  <item.map(item=><li key = {item}>{item}</li>)>  
</ul>
```

```
};
```

Keys are unique identifiers assigned to list items to help React efficiently update and re-render only the elements that change. React uses keys to track which items have been added or reordered.

Q) What is a React Portal and when would you use it?  
A React Portal allows you to render a component's DOM hierarchy

Modals, pop-ups, toolbars, or dropdowns that need to visually "break out" of parent containers  
Portals let you keep your component logic in React while rendering elsewhere in the DOM

Q) Importance of Error Boundaries in React?

Error Boundaries are React components that catch JavaScript errors in their child component tree and display a fallback UI instead of breaking whole app

They catch errors during rendering in lifecycle methods, and in constructors of child components

Q) How does React Router enable single page Application (SPA) functionality?

React Router manages navigation without loading the page, giving illusions of multiple pages inside a single Page Application  
It listens to changes in URL

When path changes, it dynamically renders the matching React component without a full page reload

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