

4.React-HOL

1. Explain the need and benefits of component lifecycle

The component lifecycle in React represents the phases a component goes through from creation to removal. It is essential for:

- Managing side effects (e.g., API calls)
- Initializing and cleaning up resources
- Improving performance
- Handling errors gracefully
- Performing actions at specific points in a component's life (mounting, updating, unmounting)

Benefits:

- Efficient UI updates
- Cleaner component structure
- Helps manage asynchronous operations
- Better debugging and error handling using lifecycle hooks

2. Identify various lifecycle hook methods

React class components support the following **lifecycle hook methods**:

Phase	Lifecycle Methods
Mounting	constructor(), static getDerivedStateFromProps(), render(), componentDidMount()
Updating	shouldComponentUpdate(), render(), getSnapshotBeforeUpdate(), componentDidUpdate()
Unmounting	componentWillUnmount()
Error Handling	componentDidCatch()

3. List the sequence of steps in rendering a component

Component Lifecycle Order (Mounting phase):

1. constructor()
2. static getDerivedStateFromProps()
3. render()
4. componentDidMount()

On update:

1. static getDerivedStateFromProps()
2. shouldComponentUpdate()
3. render()

4. `getSnapshotBeforeUpdate()`
5. `componentDidUpdate()`

On error:

1. `componentDidCatch()`

HANDS-ON

CODE: Post.js

```
class Post {  
  constructor(id, title, body) {  
    this.id = id;  
    this.title = title;  
    this.body = body;  
  }  
}
```

```
export default Post;
```

Posts.js

```
import React, { Component } from 'react';  
import Post from './Post';
```

```
class Posts extends Component {  
  constructor(props) {  
    super(props);  
    this.state = {  
      posts: [],  
      hasError: false,  
    };  
  }  
}
```

```
loadPosts = () => {  
  fetch('https://jsonplaceholder.typicode.com/posts')  
    .then(response => response.json())  
    .then(data => {  
      const postList = data.slice(0, 10).map(post =>
```

```
        new Post(post.id, post.title, post.body)
    );
    this.setState({ posts: postList });
  })
  .catch(error => {
    console.error('Error fetching posts:', error);
    this.setState({ hasError: true });
  });
};
```

```
componentDidMount() {
  this.loadPosts();
}
```

```
componentDidCatch(error, info) {
  alert('Something went wrong!');
  console.log(error, info);
}
```

```
render() {
  return (
    <div>
      <h1>Blog Posts</h1>
      {this.state.posts.map(post => (
        <div key={post.id}>
          <h3>{post.title}</h3>
          <p>{post.body}</p>
        </div>
      ))}
    </div>
  );
}
```

```
export default Posts;
```

App.js

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

```
import Posts from './Posts';
```

```
function App() {
```

```
  return (
```

```
    <div className="App">
```

```
      <Posts />
```

```
    </div>
```

```
  );
```

```
}
```

```
export default App;
```

OUTPUT

Blog Posts

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