13.React-HOL

1. Explain various ways of conditional rendering

React provides multiple ways to conditionally render elements:

- if / else statements inside a component function
- Ternary operator: condition ? trueComponent : falseComponent
- Logical AND (&&) operator: condition && component
- Element variables: assign different components to a variable and render it

2. Explain how to render multiple components

You can render multiple components using:

- Fragment <>...</> or <React.Fragment>
- Array of components
- Parent wrapping components

Example:

```
return (
  <>
    <Header />
    <Content />
    <Footer />
  </>
);
```

3. Define list component

A list component in React renders a list of items using .map():

```
function BookList({ books }) {
  return (
    <ul>
      {books.map(book => <li key={book.id}>{book.title}</li>)}
    </ul>
  );
}
```

4. Explain about keys in React applications

- Keys help React identify which items changed, added, or removed in a list.
- Keys should be **unique and stable** (e.g., id of an item).
- Helps improve performance and maintain state consistency.

5. Explain how to extract components with keys

When rendering lists, extract child components and pass keys to the component itself:

```
function BookItem({ book }) {
  return <li>{book.title}</li>;
}

function BookList({ books }) {
  return (
    <ul>
      {books.map(book => <BookItem key={book.id} book={book} />)}
    </ul>
  );
}
```

6. Explain React Map, map() function

- map() is used to iterate over arrays and return JSX for each element.
- It's a functional way to dynamically render lists.

Example:

```
const items = ['React', 'JS', 'HTML'];
const list = items.map((item, index) => <li key={index}>{item}</li>);
```

Hands-On

Code: App.js

```
import React from 'react';
import './App.css';
import CourseDetails from './CourseDetails';
import BookDetails from './BookDetails';
import BlogDetails from './BlogDetails';

function App() {
  return (
    <div className="container">
      <CourseDetails />
      <BookDetails />
      <BlogDetails />
    </div>
```

```
  );
}

export default App;
```

BlogDetails.js

```
import React from 'react';
function BlogDetails() {
  const blogs = [
    {
      title: 'React Learning',
      author: 'Stephen Biz',
      content: 'Welcome to learning React!',
    },
    {
      title: 'Installation',
      author: 'Schewzdenier',
      content: 'You can install React from npm.',
    },
  ];
  return (
    <div className="card blog-card">
      <h2>Blog Details</h2>
      {blogs.map((blog, index) => (
        <div key={index}>
          <h3>{blog.title}</h3>
          <p><strong>{blog.author}</strong></p>
          <p>{blog.content}</p>
        </div>
      ))}
    </div>
  );
}

export default BlogDetails;
```

BookDetails.js

```
import React from 'react';
function BookDetails() {
  const books = [
    { title: 'Master React', price: 670 },
    { title: 'Deep Dive into Angular 11', price: 800 },
    { title: 'Mongo Essentials', price: 450 },
  ];

  return (
    <div className="card book-card">
      <h2>Book Details</h2>
      {books.map((book, index) => (
        <div key={index}>
          <h3>{book.title}</h3>
          <p>{book.price}</p>
        </div>
      ))}
    </div>
  );
}

export default BookDetails;
```

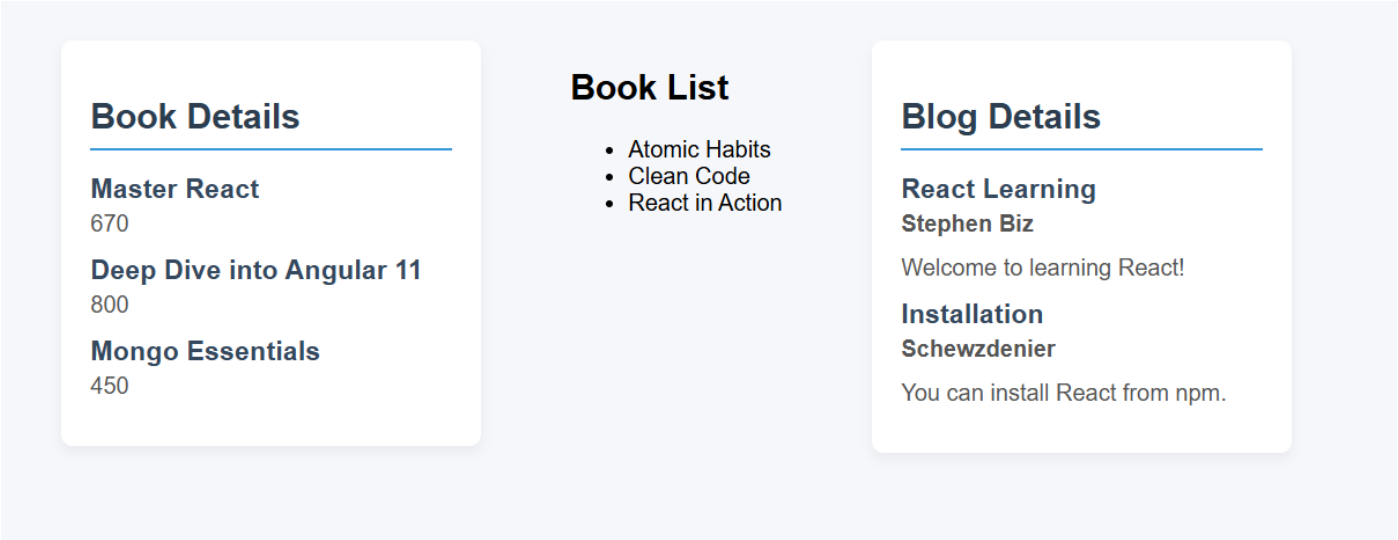
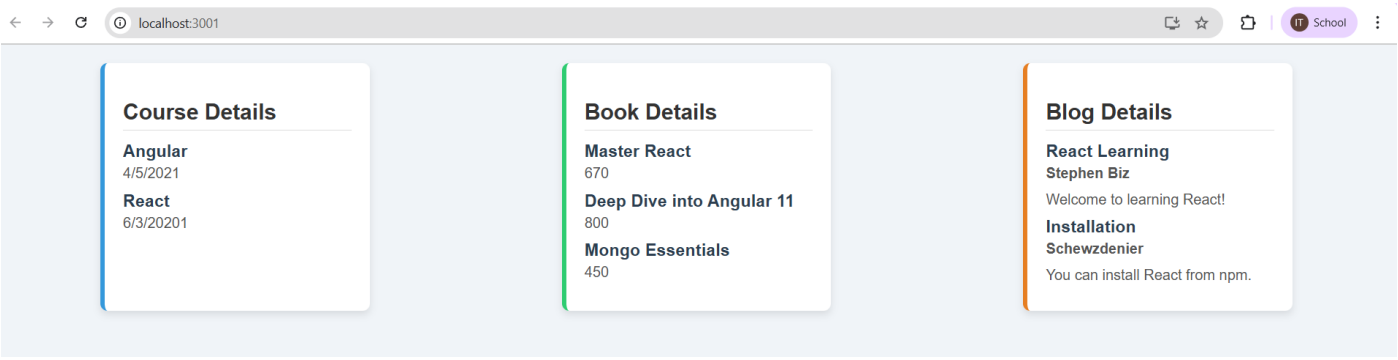
CourseDetails.js

```
import React from 'react';

function CourseDetails() {
  const courses = [
    { name: 'Angular', date: '4/5/2021' },
    { name: 'React', date: '6/3/20201' },
  ];

  return (
    <div className="card course-card">
```

```
    <h2>Course Details</h2>
    {courses.map((course, index) => (
      <div key={index}>
        <h3>{course.name}</h3>
        <p>{course.date}</p>
      </div>
    ))}
  </div>
 );
}

export default CourseDetails;
```

OUTPUT