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Case Study 2: E-commerce-Product-Listing

1.How would you fetch and display a list of products from an API in a React component?

I would use the useEffect hook to fetch data when the component mounts. The fetch() API can be used to request data from the server, and the result is stored in the component state using useState. Once the data is loaded, it can be mapped and displayed using JSX inside the return statement.

2.Describe how you would implement search and filter functionalities in the product listing page.

Search and filter can be implemented by maintaining state for the search input. As the user types into the search bar, the product list can be filtered based on product titles that match the search query. The filter function would be based on checking if the product titles include the search term (case insensitive).

3.How can you use React Router to navigate between different pages in the application?

React Router allows navigation between components using <Route> and <Link>. In the code, I define routes for the product listing and product details pages. The Link component is used to create navigable links, and dynamic parameters (like product ID) are passed in the URL for individual product details.

4.Explain how to use Styled-Components to style the product listing page.

Styled-Components allow writing actual CSS within JavaScript. I create styled components for the product grid, search bar, and product cards. Each styled component is given unique CSS properties for layout and styling, providing a modular way to style the page without the need for external CSS files.

5.What techniques would you use to optimize the loading time of the product images?

To optimize loading, I would lazy load images using the loading="lazy" attribute in the img tags. Additionally, I would serve optimized image formats (like WebP) and consider using a Content Delivery Network (CDN) to ensure faster image delivery.