 **Routing**

* Main route: /products — displays product listing.
* Child route: /products/:id — displays product details based on the id (route parameter).
* Protect both routes using a route guard (canActivate).

 **API Integration**

* Use **DummyJSON Products API**
  + Example list API: https://dummyjson.com/products/search?q=
  + Example detail API: https://dummyjson.com/products/{id}

 **Search**

* Add a search bar to filter products by name.
* Use **debounce** (500ms) to reduce API calls as the user types.

 **Infinite Scroll**

* Load more results as the user scrolls.
* Support pagination using limit and skip parameters.

 **Product Card Display**

* Show product image, title, price, and description.
* Use card layout with a responsive grid (Angular Material or CSS Grid).

 **Loading & Empty States**

* Show a loader while fetching data.
* Show a "No results found" message if search returns nothing.

 **Authentication Simulation**

* Store a mock token in localStorage on login.
* AuthGuard should check the presence of this token to allow route access.

**Technical Requirements**

* Use Angular's **HttpClient**, **ActivatedRoute**, and **Router**
* Use **RxJS operators**: debounceTime, switchMap, distinctUntilChanged
* Implement a custom **AuthGuard**
* Display error handling for invalid product IDs in detail route