

Advanced Angular - Case Study

Audio House is a seller of amateur and professional audio devices such as microphones, speakers, sub-woofers, stands, synthesisers, mixers, recorders, etc. They want us to create an online shopping platform as a proof of concept. The architect wants us to implement the solution using Angular 18. Her express wish is to use the idiomatic Angular 18 features such as standalone components, lazy-loaded routing, use of signals. She also wants to instil the best-practices of reactive programming where RxJS is used. Clean, decoupled, and modular coding practice is the goal of the organisation. Towards that goal, the following requirements are compiled. *You can implement as much functionality as you can. Developers at the advanced level can implement the stretch-goals listed at the end.*

Project-wise expectations:

- Clean and contemporary design using Angular Material or PrimeNG
- Use of suitable animations to enhance user experience
- Strict adherence to type-safety standards
- Global state-management using NgRx
- Using reactive forms for data entry forms
- Role-based access control using guards

Technical expectations:

1. Angular 18
2. NgRx for state-management
3. Angular Material/PrimeNg
4. Static data for products and auth using json-server (<https://www.freecodecamp.org/news/json-server-for-frontend-development>)

Business expectations:

1. Application has two sections, for regular (customers) and admin tasks.
 1. Regular section has a product catalog, search, filtration, shopping-cart, place order functionality. These functionalities are to be implemented as usual like an e-commerce web application. Regular section doesn't require login. But at the time of ordering, user details are required.
 2. Admin section needs an admin login. In the admin section, provide the features to add, update, and delete the products. Admin should be able to get all the orders placed. Admin can also declare a store discount on special occasions. This discount is generally applied to all the products.



Contoso Catnip's Friend

Watch your feline friend embark on a fishing adventure with Contoso Catnip's Friend toy. Packed with irresistible catnip and dangling fish lure.

9.99

1

Add to Cart



Salty Sailor's Squeaky Squid

Let your dog set sail with the Salty Sailor's Squeaky Squid. This interactive toy provides hours of fun, featuring multiple squeakers and crinkle tentacles.

6.99

1

Add to Cart



Mermaid's Mice Trio

Entertain your kitty with the Mermaid's Mice Trio. These adorable plush mice are dressed as mermaids and filled with catnip to captivate their curiosity.

12.99

1

Add to Cart



Ocean Explorer's Puzzle Ball

Challenge your pet's problem-solving skills with the Ocean Explorer's Puzzle Ball. This interactive toy features hidden compartments and treats, providing mental stimulation and entertainment.

11.99

1

Add to Cart



Pirate Parrot Teaser Wand

Engage your cat in a playful pursuit with the Pirate Parrot Teaser Wand. The colorful feathers and jingling bells mimic the mischievous charm of a pirate's parrot.

8.99

1

Add to Cart

Sample product catalog design

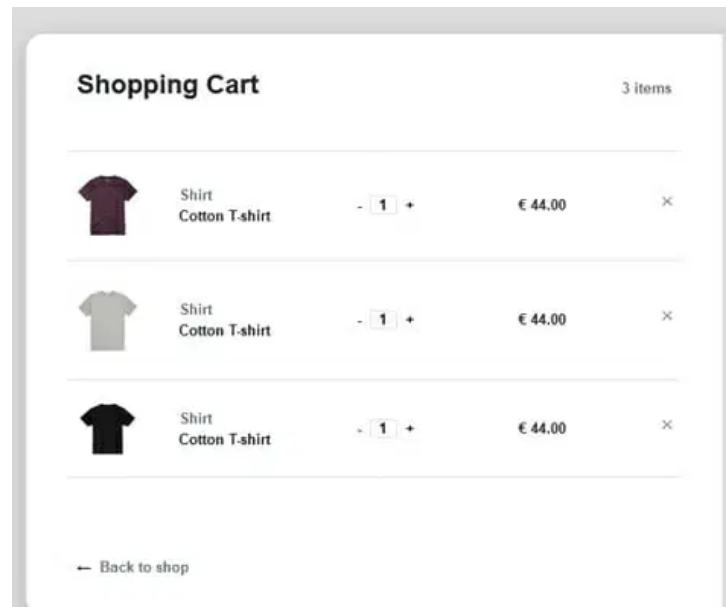
3. The product catalog page is the home page for the regular users. Provide the button to switch to admin section. Admin section should be guarded by login. The login credentials of admins can be stored in a static JSON file.
4. Product catalog page displays products as cards. You may consider the following design

5. When the admin announces the discount, every product price will be slashed by that discount. Consider the following design



Discounted price design

6. User can check the shopping cart at any time. This can be implemented as a modal/dialog or a separate routed page. Consider the following design:




Shopping cart design

7. If the user wishes to checkout (i.e., wants to place the order), the route should lead to ordering page. Consider the following design:

8. Admin uses the product form to add new products or update existing products. Consider the following design:

Controls and Validations

Simple validations

Required text	<input type="text"/>
Optional text	<input type="text"/>
Email	<input type="text"/>
Equal	<input type="text" value="first"/> <input type="text" value="firs"/>
Max length	<input type="text" value="I am a ver long text"/> <small>The length of this input must be 10 characters or fewer.</small>
Min length	<input type="text" value="Hey!"/>
Number	<input type="text" value="8"/>
Min value	<input type="text" value="1"/>
Max value	<input type="text" value="10"/>
Date	<input type="text" value="YYYY-MM-DD"/> 
<input type="checkbox"/> Accept terms and conditions	

Product entry/update form

9. Stretch-goals for developers:
1. Consider integrating with a real backend (.NET/Java/Node.js) and a database (MySQL, SQL Server, PostgreSQL, MongoDB)
 2. Consider implementing JWT-based authentication
 1. You may wish to implement OAuth 2.0 cloud-based solutions or use Keycloak
 2. You may wish to implement Spring Security/Microsoft Identity framework-based solutions
 3. Consider microfrontends for shopping and admin separation
 4. Consider integrating dashboards for the admin. You may define useful KPIs. Use convenient charting/graphing components to build visually appealing dashboards.
 5. Consider integrating an automated chatbot for customers

6. Consider creating reviews for products. Customers can write reviews and rate the products (on the scale of 5)
7. Consider providing longer description of a product, different images, technical specifications
8. Consider making the site responsive and mobile-friendly
9. Consider adding visually appealing animations when critical actions are performed by the user such as selecting a product, adding it to the cart, processing for checkout, placing the order, etc.