1. **“Near By” Online Marketplace and Product Management by XYZ**

**Scenario:**

You have been tasked with building “Near By” an online marketplace with product management system for XYZ company that will allow users to easily find products close by.

The system should allow users to view and manage products, categories as well as track changes between data changes such as price history of products when edited. Additionally, you should implement sorting and filtering features for the product listing page. The system will consist of a backend developed using Spring Boot, a frontend developed using Angular (or any other framework/vanilla JS that candidate is familiar with), and an SQL database to store information.

**Requirements:**

**Backend (Spring Boot):**

Create a Spring Boot application with the necessary dependencies and database connectivity.

Define a **Product** entity with the following attributes (add additional if needed):

Product ID, Name, Description, Category, Price, GPS Coordinates, Views, Image

Define a **Category** entity with the following attributes (add additional if needed):

Category ID, Name

Define a **PriceHistory** entity with the following attributes (add additional if needed):

PriceHistory ID, Product ID, Price, Timestamp

Implement REST API endpoints for the following operations:

Retrieve a list of all products available for sale (implement filtering and sorting features).

Retrieve products by showing closest first for given coordinates.

Retrieve details of a specific product by Product ID (Consider product views property).

Retrieve a list of all product categories.

Add, update, delete a product (including tracking price history).

Add, update, delete product category.

**Bonus**:

Implement Authentication and Authorization

**Note:**

You will be working with big datasets.

**Frontend:**

Implement frontend application with needed components for the product listing page, product, and category management. Make all the pages and connect them as you see fit.

**Database (SQL):**

Set up an SQL database (MySQL, PostgreSQL, etc.) to store all the information.

Use code first or database first approach.

**Exercise Guidelines:**

Exercise should be done prior to live interview. During the interview the candidate should start by discussing the architecture and design of the application with the interviewer.

The candidate should demonstrate proficiency in SQL for database operations, Spring Boot for building REST APIs, and Angular or any other framework for front-end development.

The candidate is expected to complete as much of the exercise as possible within the time limit. Prioritize core functionalities while adding additional features and making sure that user is handling correctly potential future problems regarding big datasets and future development of the application.

During the exercise, the candidate's problem-solving skills, coding style, and ability to work with the specified technologies will be evaluated.

After completing the exercise, the candidate should be prepared to discuss their implementation choices, design considerations, and potential improvements.

**Candidate can use Google.**  
**ChatGPT or any other AI are not allowed!**