Personalized data API

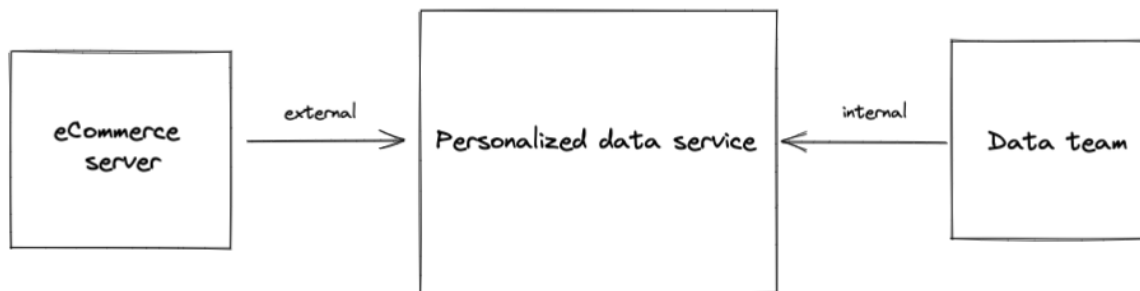Thanks for taking the time to work on this assignment.

This assignment is a close simulation of our day-to-day work at NIQ Activate and is meant to evaluate your design and coding skills.
Below you will find the assignment requirements. Feel free to ask any questions you might have throughout the process.

One of our modules in NIQ Activate is an API service that provides shoppers personalized information to eCommerce servers.
The service consists of 2 main parts:

1. **Interface with data team (internal)** - Receiving shoppers' personalized information and product metadata from our data team and storing it in a specified database.
2. **Interface with eCommerce (external)** - Provide fast-reading operation for the shoppers' personalized information.

External and Internal interface description

Internal Interface (with data team):
- Shopper personalized product list

```json
{
 "shopperId": "S-1000",
 "shelf": [
   {
     "productId": "MB-2093193398",
     "relevancyScore": 31.089209569320897
   },
   {
     "productId": "BB-2144746855",
     "relevancyScore": 55.16626010671777
   },
   {
     "productId": "MD-543564697",
     "relevancyScore": 73.01492966268303
   }
 ]
}
```

- Product metadata

```json
{
 "productId": "BB-2144746855",
 "category": "Babies",
 "brand": "Babyom"
}
```

External Interface (with eCommerce):
- Get Products by shopper (with filters)
    - *Shopper ID* - String, required
    - *Category* - String, optional
    - *Brand* - String, optional
    - *Limit* - Integer, optional, default = 10, max = 100

Task focus
- Your task is to implement a service that answers the interfaces above (both internal & external interfaces).

- You should deliver your solution with a link to a private repository in an online source control tool of your choice (GitHub, GitLab, bitbucket, etc.)

Task review

On your task review you should be able to:
- Run live tests on the system
- Connect to the database and run live queries
- Explain the performance considerations
- Answer additional architecture questions, please make sure you have some tool you can draw, share, and display your ideas (for example https://excalidraw.com/)

Technical tools

Please use the following tech stack
- Server - Java
- Database - Postgres, MySQL

General

- The eCommerce interface is a real-time interface and requires high performance.
- You can use any tool or online resource you want.
- The database design and deployment are the parts of the task. Please use a persistent database
- The implementation should be as clean, readable, and efficient as possible.
- Please reach out to us for consultation - as you would if you were building this service as an engineer here at NIQ Activate:-)

Good luck!