

iCommerce Shopping

Software Design Document

1. Purpose

This document aims to describe the design that will be applied to this project to build the iCommerce Shopping application.

2. Tools and environment

- Java 11
- Spring boot (JPA, Hibernate, Devtools included)
- Postgresql 12
- Draw.io and StarUML (for UML designs)
- Eclipse or IntelliJ for IDE

3. Solution architecture

3.1. Overview

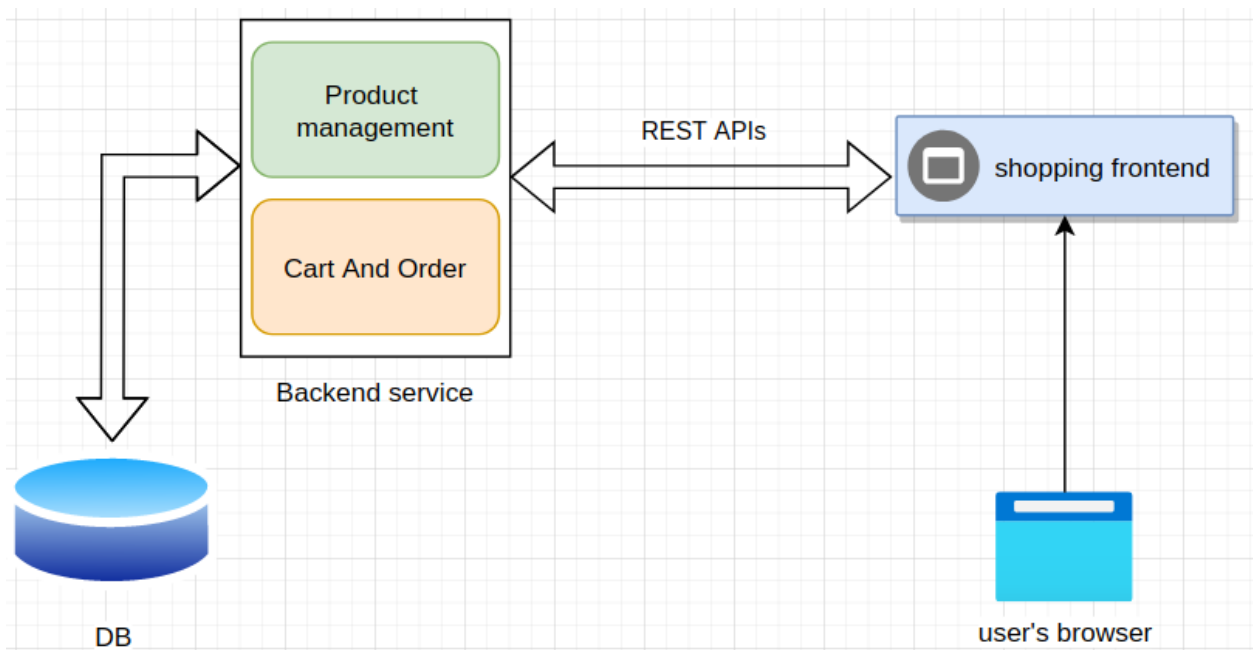


Fig 1: Solution diagram

In this architecture, we have two main components:

- **Backend service:** Developed using Spring Boot and related technologies such as Spring JPA, Hibernate. The backend service consists of two modules, product management and Cart management. Backend service exposes REST APIs for frontend applications to consume.
- **Web frontend application:** The web application will be developed using Angular 12. It will provide UI for users to do shopping and consume REST APIs from Backend server.

3.2. Important note on user identification

Because this is a MVP version and we do not have a requirement for user management, for that reason we don't develop a module for user management and user authentication and authorization as well.

So how do we identify a user when he/she adds a product to his/her cart? In this case, the frontend application will generate a session ID and assign the user session and we will use this session ID to identify the shopping session from users.

3.3. Classes and entities

For the MVP version, product's information in iCommerce Shop consist of the following properties:

- Name
- Brand
- Category
- Price
- Colour

For the software system to manage and identify the product items, we will add a field **id** to each product item. We will use two classes Cart and CartItem to represent the cart and items in the cart respectively. The Figure 2 below shows the classes and their relationship to others.

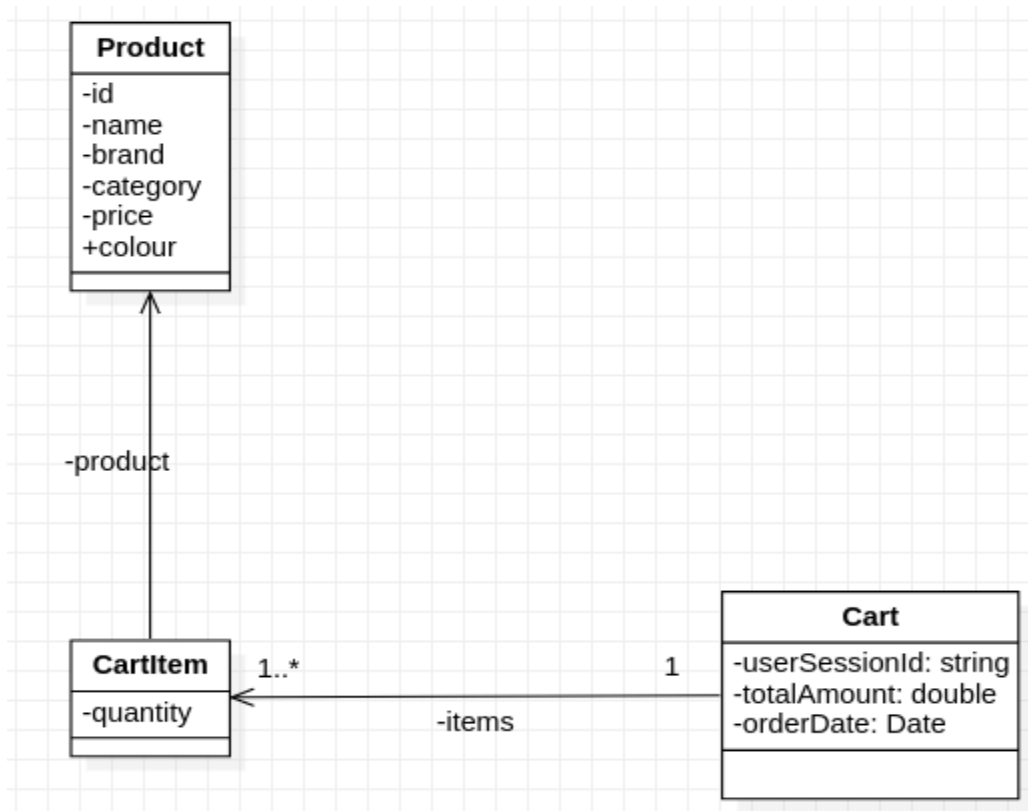


Fig 2: Class diagram