1. **Requirements**

Implement and deliver four separate Spring Boot apps that are Spring REST Services or Spring REST clients (or both) and work together as a functional whole. Using Spring RestControllers, in defining services, and using Spring RestTemplates and WebClients for initiating client requests from one app to a supporting service app. **Please use of both of these features.**

I would like you to provide back to me a single Spring Boot app that is a Spring REST service, with the following requirements:

**Products API**

**Create a Spring Boot application that will provide a REST API service to add, update and delete a product, and to retrieve all products or a specific product by its id or by its name. A product type should include at least an id, a name and a purchase price. It can be assumed that a product is always in stock – there is no need to maintain an inventory of each product item. All product items are persisted to a database.**

Please read this document and let me know when you can deliver this to me.

ShopperUI

Client

Orders API

Carts API

Products API

1. **Products API:** Spring Boot application that will provide a REST API service to add, update and delete products, and to retrieve a product by id or name. A product type should include at least an id, a name and a purchase price. It can be assumed that a product is always in stock – there is no need to maintain an inventory of each product item. All product items are persisted to a database.
2. **Carts API:** Spring Boot application that will provide a REST API service to add products to a cart, delete products from a cart, and to clear all product items from a cart. A cart type should at least include an id, a collection of the product items that are contained in it and a total price of these contained products (the sum of the purchase prices of the contained products.) A cart can associate to many products and a product can associate to many carts. All carts are persisted to a database.
3. **Orders API:** Spring Boot application that will provide a REST API service to place an order from a cart. A customer name should be associated to each placed order. An order associates to one cart and a cart associates to one order. All placed orders are persisted to a database.
4. **Shopper User Interface Client:** A Spring Boot web application that allow users to:

* Select products for purchase by maintaining a cart (products are not created through this UI but should be available for retrieval)
* Add and remove products to/from a cart; the ablility to clear a cart.
* Check out and place an order.

1. The APIs mentioned above may share a database to make use of JPA relationships for maintaining the relevant tables. Or, these APIs may persist to different databases that can be realized with simple H2 databases.
2. Probably, it is best to first create the Products API service fully and use Postman to verify its features. Then, create the Carts API service fully and also test with Postman. After these APIs are working, then can start building the Shopper UI client as it pertains to products and carts. For the last leg, then can create the Orders API service and finalize the Shopper client for the integration of checking out and placing an order.
3. **Deliverables**

Provide back the four implemented Spring Boot applications: the Products API, the Carts API, the Orders API and the Shopper UI Client app.