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Systems Integration Assignment Report
Kafka & Kafka Streams

Technologies used

- MySQL database
- Kafka
- Kafka Streams
- REST standalone server from the blog

Running instructions and details

Due to big file sizes of jar files after maven compiling, we sent only the project that can be ran in any IDE. In IntelliJ IDEA you just need to import the project with Maven. MySQL connection is needed, so the server must be running. There is just one table in the database (items) with name(ID), quantity and price columns. For the program to work, there must be 5 products with exact names: bread, coffee, wine, milk, sandwich. Kafka server must be running, and the topics created (myreply, myreply2, purchases, shipments, reorder). There is one program for owner, customer and supplier - when running the client an argument is needed (customer, owner, supplier).

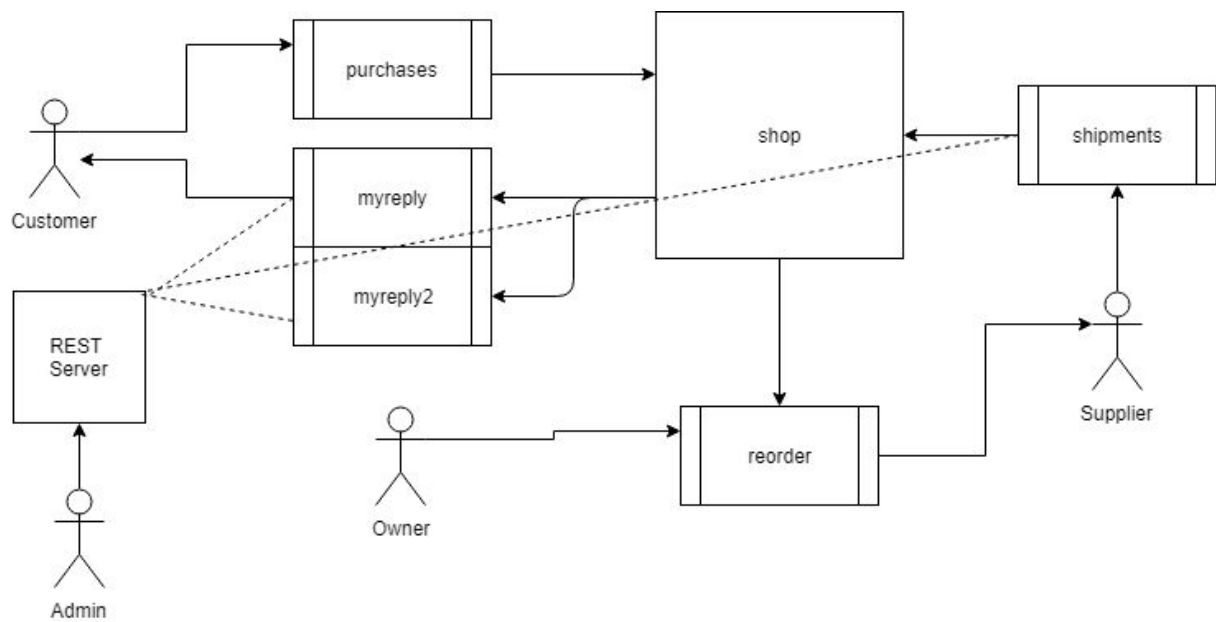
The client actors have just two commands - "get" and "auto". "Get" retrieves items from database and prompts user to enter data which will be sent to topics. "Auto" sets automatic mode on/off. During this mode, information will be sent automatically and randomly. Admin client has multiple commands to query the shop. Command "help" shows all of them.

Kafka topics

Information interchange is done by following communication points:

- customer -> purchases - <item name, price and quantity>
- purchases -> shop
- shop -> myreply - <return information or item name, price and quantity>
- myreply -> customer
- shop -> myreply2 - it was necessary to make another topic to avoid the following error in Kafka Streams processing: *"This is not the correct controller for this cluster"*.
- shop -> reorder - <item name, quantity>
- owner -> reorder - <item name, quantity>
- reorder -> supplier
- supplier -> shipments <item name, price and quantity>
- shipments -> shop

Below is the diagram that show flow of information:



Kafka Streams

All returned information from queries was processed by Kafka Streams and operations on them. The flow of information and transformations are presented below.

