Network and distributed programming project

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Create a system that simulates a simplified candy factory's operations. The factory uses a GUI application with options for working with users (viewing, deleting, blocking), reviewing all orders, and confirming or rejecting orders sent by customers, as well as working with products (CRUD = creating, viewing, editing, and deleting). In addition to the factory application, there are also GUI applications for customers and raw material distributors. The following text explains the processes and applications in the system:

The customer application is delivered to various customers/business partners of the candy factory. After launching the application, a login form is displayed, where users can enter their username and password. In addition to this, there is an option to open another form for registration. During the registration process, customers need to provide their company name, address, contact phone, username, and password (entered twice for confirmation). Registration and login to the system are performed by calling the appropriate RESTful endpoints of the factory. When a customer submits a registration request, the account will not be automatically activated; instead, an operator at the factory must approve the registration request. Once the user has an active account, they can log in to the system and have the options to view all products in a tabular format and create orders. Products are obtained from a REST service. When creating an order, the application user selects products (which can be multiple), and the order is sent to the factory's message queue (MQ) in XML format.

Working with users in the factory application provides a tabular view of all client accounts with options for approving or rejecting requests, deleting, and blocking. User accounts are stored in a "users.json" file on the server. The factory application also has CRUD options for working with products, which are stored in a Redis database. It is allowed to write code for automatically adding test data when the application is launched. Users can write a promotional message that is sent to all clients as a multicast. Client applications display this message somewhere on the interface.

In addition to the basic application, the factory also has an application for reviewing all orders. Operators log into this application by entering their names. User accounts are stored in a "factory_users.json" file, and login is performed using Secure Sockets.

Once logged in, operators have the option to retrieve and process orders. Orders are retrieved based on the time they were sent by clients, with the oldest orders being processed first. After reviewing an order, an operator can either reject or approve it. Afterward, the operator can retrieve the text order. Multiple operators can work simultaneously in the factory

In the main GUI application for the factory, there is an option to order raw materials from distributors. Distributors are connected to the factory as RMI (Remote Method Invocation) components. Each distributor has its own application where they enter the company name and generate their products.

Factory workers can view the list of all clients and the products of the selected client, which they can purchase by selecting the appropriate option and entering the quantity. All the communication mentioned above is carried out using RMI.

Upon completing the order processing, information about the order's status is sent via Secure Sockets and is stored in a TXT format on the factory server.