# Factory Candy Management System

The Factory Candy Management System is a simplified application that simulates the operations of a candy factory. The system consists of GUI applications for the factory, customers, and raw material distributors.

The customer application is distributed to various customers/business partners of the factory. Upon launching the application, users are prompted to log in with their username and password. They can also access a registration form to create a new account. Registration and login are performed through the factory's RESTful endpoints. Once a customer submits a registration request, the account needs to be manually approved by a factory operator. After the account is activated, customers can log in and access options such as viewing all products (in tabular format) and creating orders. Products are retrieved from a REST service. When creating an order, customers can select multiple products, and the order is sent to the factory in XML format via an MQ (Message Queue). The XML document format and corresponding XML schema for orders should be defined independently. Invalid orders will not be processed by the factory.

The factory application provides functionality for managing users, including viewing, deleting, and blocking customer accounts. User accounts are stored in a users.json file on the server. The factory application also allows CRUD operations for managing products, which are stored in a Redis database. Automatic generation of test data upon application startup is permitted. Factory operators can compose promotional messages that are sent to all customers as multicast. The customer applications display this message on their interfaces.

In addition to the core application, the factory has an application for reviewing all orders. Operators log in to this application using their names. User accounts are stored in a factory_users.json file, and login is performed using Secure Socket Layer (SSL). After logging in, operators can retrieve and process orders. Orders are retrieved from the MQ based on their submission time (oldest first). After reviewing an order, operators can approve or reject it. An automatic email is sent to the customer (if an email address is provided in the order) to notify them of the order status. Once processed, operators can proceed to the next order. Multiple operators can work simultaneously in the factory. The order status is sent over the Secure Socket Layer and stored in a text file on the factory server.

The main GUI application for the factory includes an option for ordering raw materials from distributors. Distributors are connected to the factory via Remote Method Invocation (RMI). Each distributor has their own application where they enter their company name and generate their products. Factory workers can view a list of all customers and the products available from a selected customer. They can place an order by specifying the quantity. All communication

between the factory and distributors is implemented using RMI. The process of discovering and connecting to distributors should be determined independently.

The system assumes that there is only one running instance of the factory application, multiple customer applications, and multiple distributor applications. Any aspects not explicitly defined in the text can be implemented according to your own discretion. Logger and properties files should be used.