Task 1

The task is to design a simple subset of stock manipulation system.

1. It should handle around 100 records per second.
2. Each record should have following fields in a format of your choice. (JSON, XML etc.)
3. First\_name;Last\_Name; Nationality;Country\_of\_Residence;date\_of\_birth;unique\_Trader\_id;Amount;currency;uniqu e\_Stock\_ID;Buy\_or\_Sell
4. For countries and nationalities above use ISO 3166-1 two digit country codes and not country names. See <https://en.wikipedia.org/wiki/ISO_3166-1>
5. Each Trader id and Stock id should be unique and mandatory. Create proper error-handling in case any mandatory fields are missing.
6. You can use any persistence mechanism to store the data.
7. It should check if in last 10 minutes, a trader with a certain Trader id, buys or sells a stock with the same Stock\_id more than 5 times. If yes: a) Log an alert; b) Flag the trader as problem trader in the persistence layer. c) Call REST web services of a regulatory authorities
8. In case information is sent to regulatory authorities either as XML or JSON - pass the following details of this trader to the regulatory authorities – First\_name;Last\_Name; Nationality;Country\_of\_Residence;date\_of\_birth;unique\_Trader\_id; unique\_Stock\_ID;Date and time the bad behaviour was detected. Please also document the XML schema or JSON schema you are using.
9. The REST web service of the regulatory authority should write this information in a Kafka topic or a JMS queue.. Another component should be listening on this queue/topic, and should simply write this in a log file.
10. The solution should be developed using Java, Spring and Apache Camel, you can use additional frameworks if needed.
11. Externalize properties which you think makes further functional and technical changed in application easier..
12. The project should be a standard maven project and should compile with standard maven on any machine.

Deliveries

An Architecture diagram for the application.

Working maven project with code (compile and running should be proven by 15 minute demo).

A maximum 4 page document explain the design briefly.

A small Readme file should be included in the main project.

Should take a maximum of 45 minutes to demo.

Keep in mind the performance and resilience aspects and the future extensibility of the application.