Coding test

Disclaimer

Introduction

We would like you to write a Java service (it should be delivered in the form of maven/gradle project) according to instructions given below. Task was designed in a way that development of main part should take one day. You're given **3 days** from the moment of receiving this description to prepare your solution and send it back to us. **Thus we expect you to focus on high quality of code by using the best coding standards and principles you know, unit tests etc. Application should be also easy to extend in the future.** There is a second part that is extension of main part and is not mandatory.

Main activity part description:

The role of the service to validate the trade information – FX Spot, Forward, Options. In addition there should be a small client provided Validation results shall be displayed in the console, logs or displayed in the GUI with the information about the failure.

Technical requirements:

1. The service shall expose a REST interface consuming trades in JSON format and returning validation result to the client
2. Service shall be flexible to extend the validation logic in terms of:
- new business validation rules
- new products to be supported
3. Service should support graceful shutdown

Business requirements:

1. The following basic validation rules shall be implemented:

   ALL:
   - value date cannot be before trade date
   - value date cannot fall on weekend or non-working day for currency
   - if the counterparty is one of the supported ones
   - validate currencies if they are valid ISO codes (ISO 4217)

   SPOT, FORWARD:
   - validate the value date against the product type

   OPTIONS specific:
   - the style can be either American or European
   - American option style will have in addition the excerciseStartDate, which has to be after the trade date but before the expiry date
   - expiry date and premium date shall be before delivery date

2. The validation response should include information about errors detected in the trade (in case multiple are detected, all of them should be returned) and in case of bulk validation additional linkage between the error and the actual trade

Assumptions:

1. Current date is 09.10.2016
2. Supported counterparties (customers) are : PLUTO1, PLUTO2
3. Only one legal entity is used: CS Zurich

Extra activity part description (not mandatory):

1. Expose performance metrics of the application including: number of requests processed, processing time (min, max, average quantile95)
2. Describe and present the approach for providing high availability of the service and its scalability
3. Create online documentation of the REST API exposed by the service
4. Provide a simple HTML5 GUI where one could enter trade information, do the validation and display the status of it

Assumptions:
1. Use assumptions from main part. Any other necessary parameters (if needed) should be real - taken from the market (provide address of source page).

Results delivery
In order to send test results back to us:

1. Make a ZIP archive of your solution project. **All binary files should be removed from solution before making the ZIP file (otherwise solution will be blocked by email filter)!**

2. Go to https://www.credit-suisse.com/securecom/ and follow instructions given on the page and hints below.
   - in *E-mail address (sender)* field type in your e-mail address,
   - in *E-mail address (recipient)* field type krystian.brachmanski@credit-suisse.com
   - leave recipient mobile phone field empty
   - when appropriate page displays attach your solution ZIP file
   - once you confirm file sending please note down the token number that will be presented to you

3. Due to security reasons please do not send token number by email. Please pass it to your recruiter or we may contact you at time given by you (in comment section).

On next pages you'll find test data.

Sample test trade data:


```
[
{"customer":"PLUTO1","ccyPair":"EURUSD","type":"Spot","direction":"BUY","tradeDate":"2016-08-
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