

Guidelines -

1. You are free to use any language you are comfortable with.
2. Please state any assumptions you make while implementing the solution.
3. Avoid usage of any 3rd party libraries/packages
4. Include a small write-up on the design decisions and architecture.
5. Adding tests would fetch bonus points
6. Do not circulate the question on social media. By making the question public, you are putting yourself at a disadvantage.

On a front office trading platform, one of the services would send order orders to exchange for execution. Exchange may send a variety of responses to an order depending on various factors. Automation is an essential part of SDLC and we would like to automate this flow such that exchange behavior can be controlled and made predictable.

One possible way to control the exchange behavior is to implement a rule engine which can be used to generate a specific kind of a response to a request matching a certain criterion.

The rules can be –

- If the qty of an order is multiple of x then generate NEW_ORDER_CONFIRM otherwise reject
- If the symbol is xyz then generate new_order_confirm and trade_confirm
- If price is greater than x for symbol xyz then reject
- If price is 123 then generate reject
- And so on..

We need you to implement an application which –

1. Receives the incoming requests
2. Parses the requests
3. Evaluates the configured rules
4. Send the response back as per the rule outcome. The rule can be configured to send more than one response to a request.

The request/response may be sent/received over TCP or from file or shared memory. You are free to choose the transport mechanism of your choice.

Also, write a script which compares the received responses with the responses stored in a golden copy source. Any difference should be highlighted in a file/email or over console.

Sample request –

RequestType:NEWORDER|OrderID:480069891|Token:0|Symbol:IFEU_BRN
FMZ0022!|Side:B|Price:157.4000000000000568|Quantity:5|QuantityFilled:0|DisclosedQty:5|TimeStamp:1666287639395048969|Duration:DAY|OrderType:LIMIT|Account:bjEROM
|Exchange:0|NumCopies:0

Possible responses -

ResponseType:NEW_ORDER_CONFIRM|OrderID:480069891|Symbol:IFEU_BRN
FMZ0022!|Side:B|Price:157.4000000000000568|Quantity:5|AccountID:bjEROM
|ErrorCode:1|TimeStamp:1666287639692625876|Exchange_Order_Id:13007294|ChildResponseType:NULL_RESPONSE_MIDDLE|Duration:DAY|ExchTs:1666287639962000000

ResponseType:TRADE_CONFIRM|OrderID:480069891|Symbol:IFEU_BRN
FMZ0022!|Side:B|Price:158.4000000000000568|Quantity:3|AccountID:bjEROM
|ErrorCode:1|TimeStamp:1666287790603407546|Exchange_Order_Id:13007306|ChildResponseType:NULL_RESPONSE_MIDDLE|Duration:DAY|ExchTs:1666287790989000000

ResponseType:REJECT|OrderID:480069891|Symbol:IFEU_BRN
FMZ0022!|Side:B|Price:158.4000000000000568|Quantity:4|AccountID:bjEROM
|ErrorCode:100109|TimeStamp:1666287933899054797|Exchange_Order_Id:0|ChildResponseType:
CANCEL_ORDER_REJECT_MIDDLE|Duration:DAY|ExchTs:0