

## TWAP EXECUTION REPORT

DATA ENGINEERING | HOMEWORK 5

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### **Agenda:**

The objective of this assignment was to connect MT4 to the Oanda trading platform and trade 1 Million USD for Long EURCHF and Short USDCAD. These currencies were selected from the list of “Forecastable Currency Pairs” that we prepared in our Assignment 3. The currency pairs are traded in four intervals as follows:

Interval 1: 4:30pm to 6:30pm | 2 hrs ; Interval 2: 7pm to 10pm | 3 hrs ;

Interval 3: 11pm to 1am | 2hrs ; Interval 4: 3am to 6pm | 3 hrs

[Note: The assignment was to execute code from 3pm to 6am but while executing at that time we faced “ConnectionError” multiple times, hence it took some time to debug the code and we had to push our interval 1 execution by 1.5 hours and hence, the timing for the first execution is different from the mentioned time frame. But we have made sure to keep the rest of the interval timings same as asked in the assignment 5.]

We have calculated the required vectors for each interval as given below:

### **LONG EUR-CHF**

Interval	Executed Quantity	Percentage of Executed Quantity	Non Executed Quantity	Percentage of Non Executed Quantity	Average Execution Price
Interval 1	200000	100.0	0	0.0	0.9864026315789470
Interval 2	10000	3.33	290000	96.67	0.9864055
Interval 3	0	0.0	200000	100.0	0.9864055
Interval 4	0	0.0	300000	100.0	0.9864055
Total Vectors	210000 (of 1M USD)	21.0 (of 1M USD)	790000 (of 1M USD)	79.0 (of 1M USD)	0.9864047828947370

### **SHORT USD-CAD**

Interval	Executed Quantity	Percentage of Executed Quantity	Non Executed Quantity	Percentage of Non Executed Quantity	Average Execution Price
Interval 1	200000	100	0	0	1.3591310526315800
Interval 2	0	0	300000	100	1.3591310526315800
Interval 3	0	0	200000	100	1.3591310526315800
Interval 4	0	0	300000	100	1.3591310526315800
Total Vectors	200000 (of 1M USD)	20 (of 1M USD)	800000 (of 1M USD)	80 (of 1M USD)	1.3591310526315800

We couldn't execute the total orders for the second, third and fourth intervals because:

1. In the case of Long EURCHF, the current price was less than the average price of the previous interval.
2. In the case of Short USDCAD, the current price was more than the average price of the previous interval.

Our Regression results are:

1. For Long EURCHF:  $R^2 = 0.8700$  and  $RMSE = 0.0001$
2. For Short USDCAD:  $R^2 = 0.8102$  and  $RMSE = 0.0001$

After obtaining the execution data, we performed a regression using price as the dependent variable. We observed that, we got a good fit of regression model, which implies that the predicted prices will be in the same range with less variance. Hence, we can now strongly suggest that a trade would be profitable if executed as Short EURCHF.

Similarly, for the Short USDCAD, after we got the regression results, we can now confidently say that executing LONG USDCAD would be profitable for a trader instead of going for Short USDCAD.