Info Sheet

General Information

Title of the project: Insight into trading limits
Name of the client organization: Optiver
Date of the final presentation: July 2nd, 2018
Description: On the options market the spreads can be high, and the number of shares is quite low. There are just too little traders interested in options for it to be a low cost and effective market. Optiver aims to act as a market maker, providing liquidity to the market. It both offers to sell and buy instruments for prices that are reasonably close to each other. Optiver needs to have a good calculation of the theoretical price of an instrument, and competes with other market makers to do trades. Constantly putting in orders and monitoring them is done using algorithms, which can do this automatically and efficiently. These algorithms could potentially make mistakes, when something unforeseen happens or when there is a bug in the code. Other systems are needed to monitor the risks these algorithms are taking. This new system is a third line of defense, a post-process verification system, acting on the communication between the traders of Optiver and the market, to establish if any of these limits are broken. This system is expected to run over night to verify the over 100 million trade requests that accumulate during the morning, day, and evening trading sessions.
This project required the acquisition of explicit knowledge of the financial market, optimization techniques, advanced debugging skills, and data analysis in order to meet this goal. The project mostly acquired hinder due to some lack of knowledge on the specifics of certain markets, and the presence of data inconsistencies.
With the completion of the project, the product is expected to run daily as a check on the existing risk control systems.
Members of the project team:
Name: Eric Cornelissen
Interests: Back-end development, Software Quality, Data Science
Roles: Developer, Head Quality Control, RiskGuard Specialist
Contributions: Code Quality Control, Extensive code review, RiskGuard API development

Name: Joost Verbraeken
Interests: Software Architecture, Data Science, Finance
Roles: Developer, Lead Tester, Limit Specialist
Contributions: Testing, Optimization, Ticker Tape development, Limit checking

Name: Cornel de Vroomen
Interests: Trading, Finance, Data Science
Roles: Developer, Head Communications, AuditRecord Specialist
Contributions: Breach validation, Ledger development, organization/communication

Name: Nick Winnubst
Interests: Back-end development, Architecture Design, Finance, Multimedia Computing
Roles: Developer, Software Architect, OrderLog Specialist
Contributions: Architecture Design, Testing, Parallelization

All team members contributed to preparing the report, the final project presentation, general development of the program, and bug fixing.
Client and Coach
Name and affiliation of the client: Kris Manios and David Martens, Optiver, Amsterdam
Name and affiliation of the project coach: Georgios Gousios, EWI - TU Delft, Delft

Contact:
Eric Cornelissen, ericornelissen@gmail.com
Cornel de Vroomen, corneldevroomen@live.nl
Nick Winnubst, nwinnubst@gmail.com
Joost Verbraeken, mail@joostverbraeken.nl

The final report for this project can be found at: http://repository.tudelft.nl