**J.P. Morgan Project Proposal: Electronic Tool to Trade ACME ETFs based on Time Weighted Average Price (TWAP)**

Team Name: Exception Handlers

Team Members: Leon Song (ls3233), Aaron Ong (ao2591), Jackie Lin (jl4162), Gabrielle Taylor (gat2118)

Team Number: 9

Current User Workflow: Right now our customers do trades manually. They receive a buy/sell order from a manager (e.g. sell 1000 shares), then they split the order up into smaller chunks and call the exchange house periodically to attempt to sell. We want to automate this process so it is less tedious.

Proposed Solution: v1.0 of our tool will be simple. It will allow **one** user to log in and input an order. We’ll use the TWAP algorithm to split the order into even chunks, and attempt to trade those chunks periodically until the market closes, logging both successful and failed trades.

Nuances of the Algorithm:

1. We split the order into even chunks.
2. Attempt to trade each chunk every X minutes (depending on how much time we have left before market close)
3. If a trade fails, try again. If it fails again, split it further and sell even smaller chunks (split in half)
4. Repeat this loop until the order is completed.

Error cases:

1. User cannot trade ETFs that he does not own (i.e. we should keep an inventory of the ETFs that a user has, and verify his orders against his inventory)
2. User cannot trade same ETF more than once in such a way that total quantity sold exceeds inventory (i.e. the system should evaluate sell orders based on total quantity of previous orders rather than completed partials)

Features for subsequent versions:

1. Be able to cancel or pause a trade midway
2. Support multiple traders logging in
3. Support multiple simultaneous trades
4. Improved Algorithm: T.W.A.P can be a naive algorithm that does not react to market conditions, once we get the tool up and running we can aim to develop more sophisticated techniques.

Technology Stack:  
Language: Python

Framework: Django

Database: SQL