Project Architecture & Plan
Group 3 - Pygang

SENG 468
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Initial Requirements

Functional Requirements

- Users can manage their account and buy and sell stocks
- The system provides a complete history of transactions for individual users and the entire system
- A buy or sell transaction will not go through until the user commits the transaction within one minute.
- An automated buy or sell point for a stock will not result in negative account balances when triggered
- A user is given feedback for any successful commands or errors

Initial Requirements

Performance Requirements

- A commit takes less than 15 seconds update the system
- The system handles the final workload without faults or errors
- Error messages do not expose underlying technologies/architecture
- User commands are sanitized
- All transactions are logged

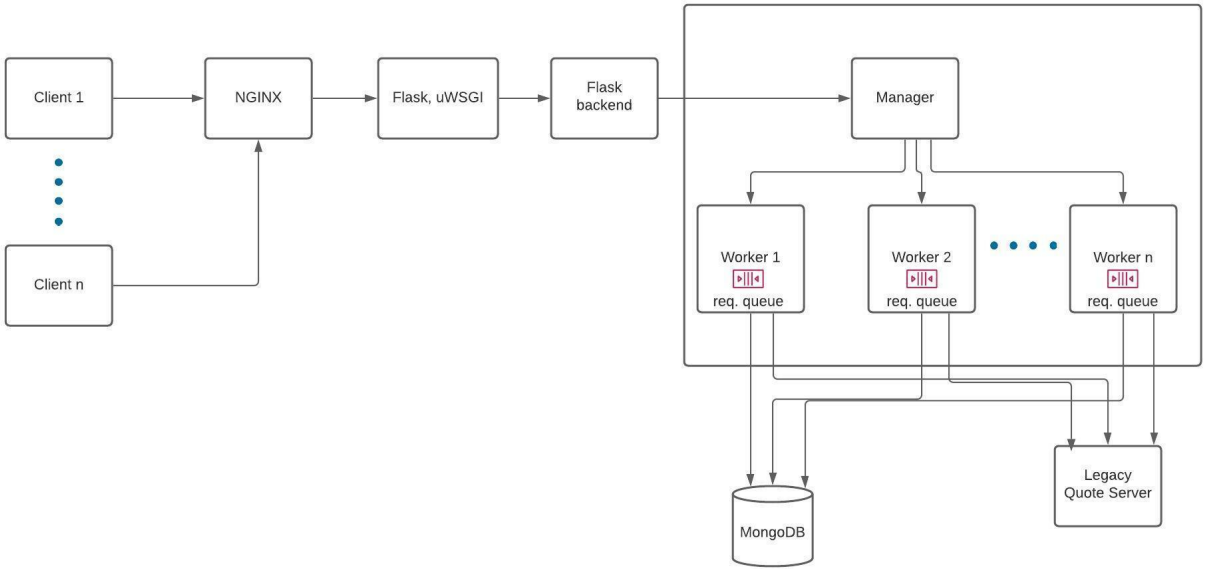
Design Constraints

- A web application with a UI
- Docker Container technologies are used.
- The system interfaces with the Legacy Coder Server to receive stock quotes.
- The system's architecture is distributed.
- The server code is run on the Linux Lab B203 machines.
- All logs are available as an ASCII text file.

Tools & Libraries

- Docker containers initialized with docker-compose
- NGINX, uWSGI, and Flask frontend
- Python3 backend
    - Multiple worker containers with singular manager load-balancer
- Local MongoDB database

Architecture & Dev. Platform



Project Plan

Date	Deliverable
February 7th, 2021	• Verified execution of 1 user workload file
February 14th, 2021	• Verified execution of 10 user workload file
February 21st, 2021	• Verified execution of 45 user workload file
February 28th, 2021	• Verified execution of 100 user workload file
March 14th, 2021	• Verified execution of 1000 user workload file
March 27th, 2021	• Verified execution of final workload file

Task Delegation

Tasks and Subtasks		Team Member(s)
Setting up the MongoDB container		Oliver
Creating the worker container	Needs to handle incoming commands	Oliver
	Needs to interface with the quote server	Janhavi
	Needs to interface with the MongoDB instance	Rory
Creating the manager container	Creating a module for handling the workload files	Rory, Oliver, Janhavi
Creating the module to handle logging		Oliver
Front-end	Creating a user interface for performing day trading operations	Janhavi
	Setup NGINX and uWSGI in their containers	Rory
Performance verification	Testing and analysing the performance of the system	Rory, Janhavi, Oliver