

CurrencyHFT

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Jack Cusick, James Nakashian, Patrick Engelsman, Matthew Cordone, Ayushi Mishra

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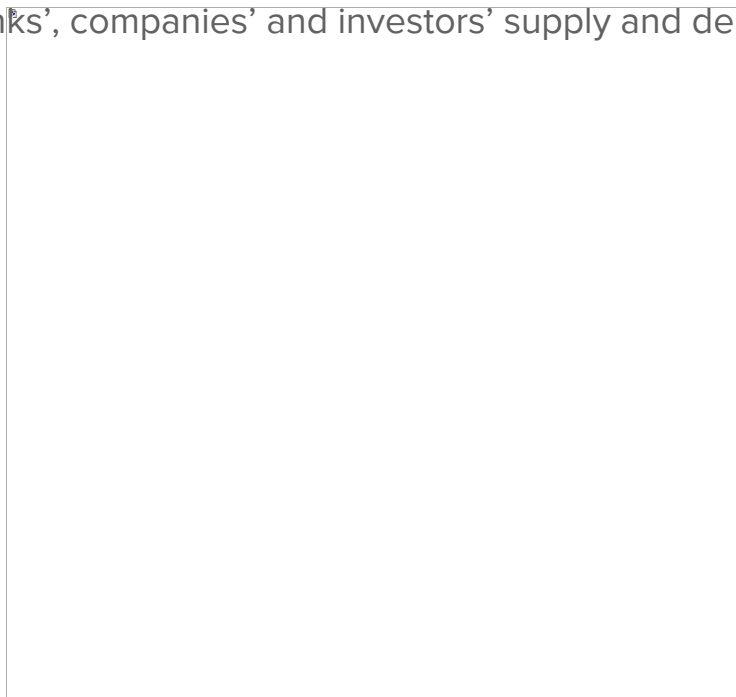
- Marketing
- Demo
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- What worked/didn't
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High Frequency Trading (HFT)

- Capital Markets: stocks and bonds
- Stock Exchanges: NASDAQ, NYSE, LSE, etc.
- Arbitrage
 - The simultaneous purchase and sale of a stock to profit on the differences in price
 - Example:
 - Microsoft trading at \$20 on NYSE
 - Microsoft trading at \$25 on LSE
 - I buy Microsoft at \$20 on NYSE and sell at \$25 on LSE
- Risk Free Profit
- Exploited from 2005 to 2009 to *steal* tens of billions from the market

The Forex Market

- Global decentralized marketplace
 - Aggregation of banks', companies' and investors' supply and demand



Triangular Arbitrage

- Exploit an arbitrage opportunity resulting from exchange rate disparities among different currencies.
- Example
 - Start with **100 USD**
 - Trade @ .93 for **93 Euros**
 - Trade @ 121.69 for **11,317 Yen**
 - Trade @ .01 for **113 USD**



CurrencyHFT

- Investigate the arbitrage opportunities in the Forex Market
- Demand for supplemental financial tools following the 2008 financial crisis

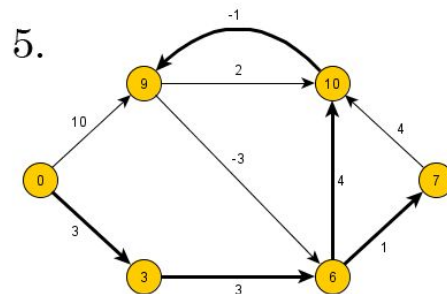
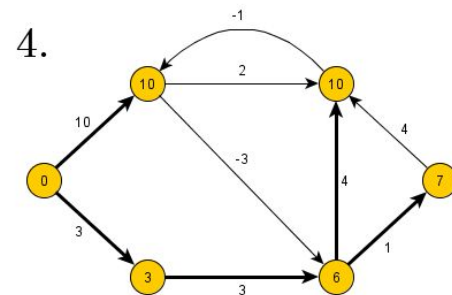
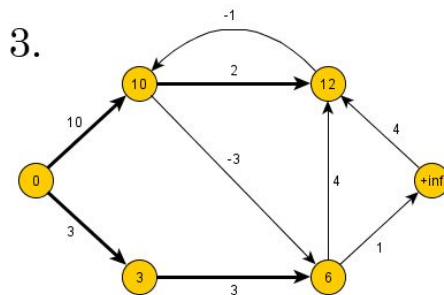
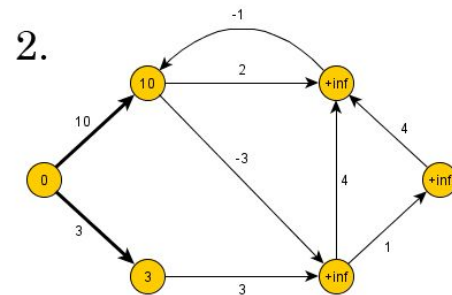
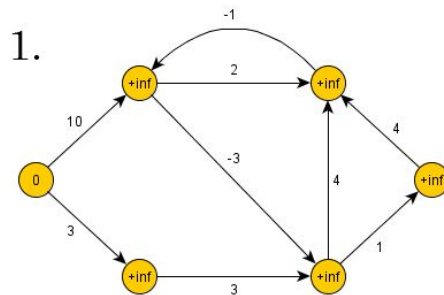
Demo

Technical Details



Technical Details

- Longest Path Problem
 - Bellman-Ford Algorithm
- Data Conversion
 - $-\log(\text{rate})$
 - Adjacency matrix
- Negative Cycles
 - Issues
 - Detection



What Worked/Didn't Technical

- What worked
 - Node.js & C++: The Unholy Combination
 - Python web scrapers
 - Yahoo
- What didn't
 - React
 - Bank websites hard to scrape
 - Yahoo is inconsistent

Future

- Real-time data
- More currencies
- More banks
- Connection to an officially licensed trading entity
- Interactive currency exchange graph

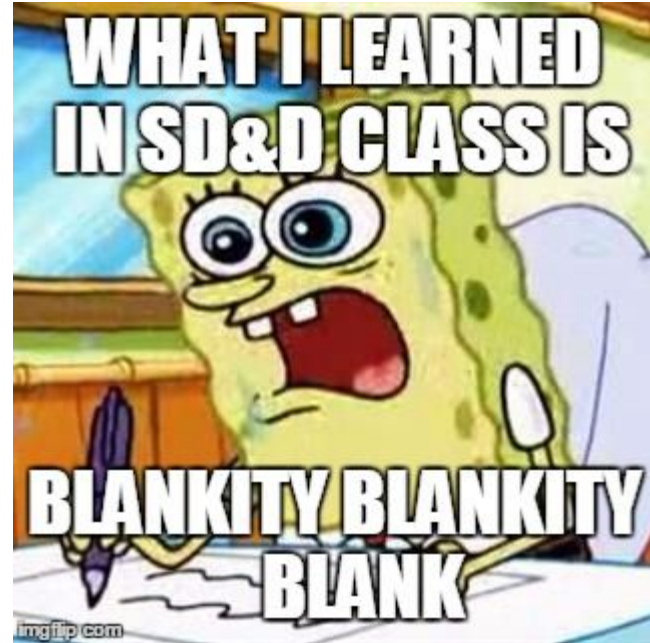
What Worked/Didn't Project Management

- What worked
 - Github Repo, Issues and Wiki
 - Slack
 - Google Docs
 - Group hackathon
 - Making a wiki early
- What didn't
 - Following self made deadlines
 - Breakdown of work to members
 - Communication of people working on backend and frontend
 - Our use of git branching
 - Meeting schedule

Group Dynamics

- All group members worked positively together
- Casual and productive work environment
- Jack: Project manager (Jack of all Trades)
- Ayushi: Main front-end developer
- Pat and James: Main back-end developers
- Matt: Main documenter

What We Learned





THANK YOU!