Portfolio Playground

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Motivation

Outline

Main Functionality

Portfolio Playground is a paper trading web-application with three main functionalities

- Portfolio creation and analysis
- Portfolio comparison
- Portfolio recommendation

Main Functionality - Creation and Analysis

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Our portfolio creation supports a variety of features including

- Over XXX stocks to choose from
- Large amounts of historical stock price data (19XX-2016)
- User inputs include number of shares purchased, portfolio creation date

Main Functionality - Creation and Analysis

Suppose we have a portfolio P consisting of stocks $P = \{s_1 \dots s_N\}$, where x_i is the number of shares of stock s_i, D_i is the dividends for stock s_i, and P_i^t is the price of a single share of stock s_i at time t. Then we can define,

Total Stock Return - (Weighted Percent Increase)

$$TSR = \sum_{i=1}^{N} x_i \left(\frac{P_i^{t_f} - P_i^{t_0} + D_i}{P_i^{t_0}} \right)$$

Diversity - (Weighted Correlation Coefficients)

$$Div = 1 - \frac{1}{Z} \sum_{i<j}^{N} x_i x_j Cor(P_i, P_j) \in [0, 1]$$

Main Functionality - Comparison

FRONT END PICTURE GOES HERE

Our portfolio comparison supports a variety of features including

- Stock price, total stock return, and diversity comparisons
- Aesthetically pleasing visualizations

Main Functionality - Recommendation

The most unique feature of Portfolio Playground is its state-of-the-art recommendation algorithms. This helps shape trading intuition for novice traders. The algorithms used are

- Random
- Highest Return
- Diverse Options

Recommender Algorithms - Random

Recommender Algorithms - Highest Return

Recommender Algorithms - Diverse Options

Database Design

What do we need to store?
Where are we getting it from?

Database Design

A diagram of the architecture goes here.

Front End

Questions

Questions?