# Stock Market - Simulation.

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**Scope of project.**

This project is simplified example of stock market simulation of buying and selling stocks, all code was made and compiled using Java Standard Edition 8 SDK, no external frameworks and JUnit were used for simplicity of running this example.

**Abstract description.**

Application at start, initializes stocks using the data provide in the requirements document, all values a divided by 100, as “*All number values in pennies*”, price values are random generated with the upper limit of 100. Afterwards the Dividend Yield and P/E Ratio is calculated for each stock.

Next step is a simulation of trading using a 10 payers trader threads, which are generating randomly buy, sell orders, placing them in the order book, each buy order is ordered in descending order by price and timestamp, each sell order is ordered in ascending order by price and descending order by timestamp.

If a buy order price is equal to or higher than the lowest priced sell order available in the sell orders list, the buy transaction is made, if quantity of buy order is higher then sell order offers, next sell order is searched see if main condition is met.

If a sell order price is equal to or lower than the highest priced buy order available in the buy orders list, the sell transaction is made, if quantity of sell order is higher then buy order offers, next buy order is searched see if main condition is met.

For each matched buy/sell order, new transaction is generated, its results are printed in the screen, and internally intermediate result of volume weight stock price is calculated.

Passing 5 minutes, all player threads are finished, and volume weight stock price is calculated and ca printed for each stock.

The final calculation is all share index, which is calculated basted on previous results and printed in the screen.

**Model class diagram.**

Class diagram shows relationships between stock market main model.

