

Trading Simulator

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Introduction:

This educational game is an introduction for beginners to further understand/familiarise the mechanics of one of the fundamentals which is news trading. The game is written in python and for interface the pygame engine is used.

Game Mechanics:

Within the game, we made a simulation of what you would expect when trading, including a chart, buy/sell interface, wallet and most importantly the deciding factor which is news snippets. A second within the game represents a day in real life, the game would last for a total of around 6 minutes. Players can buy/sell stock by inputting the amount of stock in an input box. Fees of 0.5% are present per transaction.

Objectives:

The objective of the game is to beat the market as the player represents a day trader, in other words the player has to sell/buy stocks at the right timing according to the news and outperform a long term stockholder (for a year).

Decision-Making and News Analysis(player-wise):

To further explain the decision making while analysing the news, we have gathered a dataset of different real-life simulations of a stock, such as “new product line”, “failed yearly safety test” etc. Each news brings different changes to the stock, and the player has to predict accordingly to the news whether it is a rise/dip of stock, how big of an impact it would be, how long it would affect the stock.

Design Inspiration:

The retro 8-bit design of the game is based on the old design of the bloomberg terminal and vintage trading interfaces in the 2000s. We have drawn the pixel art by ourselves.

Price Generation Mechanism:

The price of the stock is simulated using the Geometric Brownian Motion used in a famous model called the Black-Scholes model. This model is a good reflection of the nature of the market due to its unpredictability and randomness. We changed the ‘mu’ parameter of the equation to simulate the effect of the news on the price. ‘Mu’ is the general rise/fall in asset price over time. By drastically increasing/decreasing Mu for a short period of time, we simulate shocks in the market.

News Snippets:

We have gathered real life news to better simulate the market, which is past news events, and its effect on the market, by following a similar pattern, intensity and duration, the game and simulating a realistic environment. So by playing the game, the player can accumulate experience to better understand the market hence improving trading skills.

In summary, Trading simulator is a retro-style market simulation game written in python using the pygame engine. Players take on the role of a trader attempting to beat a long-term investor. The purpose of this game is for players to build familiarity with the market system, and to understand the difficulty of consistently beating the market. Happy trading!