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Simulation Notes

There was too much randomness within the simulation for me to determine what was going on so I had to strip a lot of it out. Now the simulation simply has producers and consumers. Producers have attributes but consumers don't. Producers have goods or they don't as represented by a continuous spectrum from 0 - 1. Producers now have an unlimited supply of goods that they are randomly initialized with.

Test cases include:

- Two Factory Producers
- Two Fabricator Producers
- One Fabricator & One Factory Producer
- Producers with Similar Priced Goods but Different Goods to Sell
- Producers Similar Goods to Sell but Different Prices for Goods
- Producers Different Goods to Sell and Different Prices for Goods

We were planning on using the following equation:

$$d_m = \frac{1}{(t-m)^2} \times \frac{1}{c_m}$$

But for now the simulation is simply choosing a good and buying from whichever producer is selling it for the cheapest.

I will start with this prototype and call it **prototype1.py**.

In this prototype you can only use two producers in any scenario. Distance of good isn't considered. Only the price is determined in terms of choosing which producer to buy from.

The equation being used is:

$$d_m = \frac{1}{c_m}$$

Results for input parameters:

- SIMLENGTH = 100
- NUMGOODS = 10
- NUMCONSUMERS = 100(0)
- PERCENTFACTORY = 0.1

Despite changing the other parameters, when numGoods is at 10, producers with the highest average price never make the most profits.

Visualization Ideas [1]

Results for input parameters:

- SIMLENGTH = 100
- NUMGOODS = 100
- NUMCONSUMERS = 100(0)
- PERCENTFACTORY = 0.1

With 100 consumers the results tended to be between 30% and 36%. However when consumers were increased to 1000 the results were increased to between 26% and 44%.

Results for input parameters:

- SIMLENGTH = 100
- NUMGOODS = 1000
- NUMCONSUMERS = 100(0)
- PERCENTFACTORY = 0.1

With 100 consumers the results tended to be between 28% and 36%. With 1000 consumers the results were arond 40%.

1. When there are more producers in the simulation visualize these graphs: Producers on x-axis and profits on y-axis; Producers on x-axis and frequency of wins (in relation to highest profits); Producers on x-axis and average price of goods on y-axis.↵