Report 1: Examining the impact of antifragility and networked based decision making on the stock market

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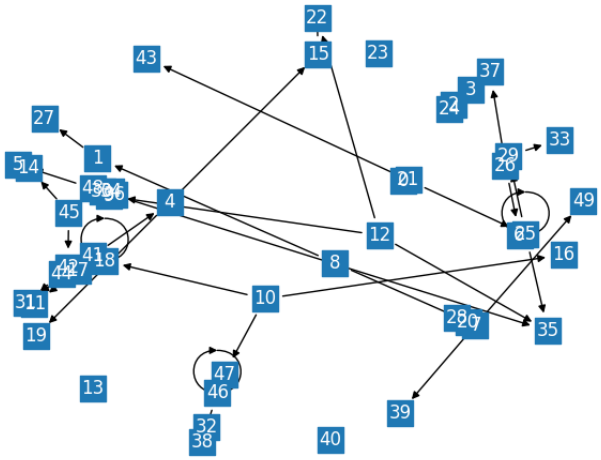

Fig. 1: Sample graph generated

I. Current Status

Research has been done on the topic of modeling the market as a complex network. Of the two common approaches for modeling the market, the team is taking the approach of modeling the market as a network of brokers. Metrics such as Pearson Correlation Coefficient and mutual information rate for evaluating the relationships of stocks have been considered. Further, different methods of analyzing risk have been examined. The current thoughts are evaluating risk as a weighted combination of percentage of total investments, dividend versus value stocks, large cap and small cap ratios, and a risk reqard ratio.

Further, data has been collected and formatted to be selected by start date and rate of trades.

Additionally, a Broker class has been developed that includes functions for updating status every turn, evaluating the risk based on the influence factor from neighbors. This class has been added to networks and random influence weights assigned. This can be viewed in Figure 1. The edges of the graph are directed as influence of one broker on another could go both ways and are weighted according to the influence this broker has.

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