# AN INTELLIGENT APPROACH TO DETECT ANOMALIES IN STOCK MARKET

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# Abstract

Stock market is the place to trade company stocks among market participants at an agreed price. Investors have to have a good knowledge about fluctuations of parameters of market and there is a possibility of novel investors get in trouble due to lack of awareness of fluctuations in market.

Rule based patterns are widely used in practice in the existing manipulation detection methods.

However manipulators constantly change their strategies and they find new ways to manipulate markets. Therefore rule based or static detection methods fail to detect these new evolving manipulation attempts.

The main project objective is to research and implement a method to detect these evolving stock abusing patterns. This project approaches the problem by analyzing daily price, volume values of transactions along with the behavior of customer.

Novelty of this research is having a learning phase to train the system. Previous work does not have a learning phase based on AIS theories in detecting stock market anomalies. Unlike simple statistical evaluations, system is capable of identifying stock market anomalies in a better rate due to supervised learning techniques.

System was tested based on real transaction data collected from Saudi Stock Exchange. First stage is supervised learning for price, volume anomaly detection and second stage is optimize results using customer behavior. More than 30,000 real transactions are used for testing in various models.