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Machine Learning Project

Stock Market Prediction

Market efficiency refers to the degree to which stock prices and other securities prices reflect all available and relevant information. The theory of efficient market hypothesis (EMH) states that it is not possible for an investor to outperform the market, because all of the available data has already been built into all stock prices. There are a wide range of strategies that investors use when making decisions in the market, but the stock market tends to be extremely unpredictable due to the abundant factors influencing its results. This problem of instability and unpredictability can be solved with machine learning.

Understanding the underlying stock price dynamics is incredibly important for investors and researchers, because it controls the economy and affects everyone. The input space will be the change in the daily stock prices of a given set of stocks. The output space will be a set of decisions indicating whether or not to buy or sell the stock.

There is data available for the learning task. The Dow, Nasdaq, and S&P all have data available online. This data includes most popular stocks, stocks that have gained, stocks that have lost, commodities, world markets, and more. The learning paradigm will be supervised, because the project will revolve around learning a mapping between an input x, change in stock, and a desired output y, decision to buy or sell.