Project Questions:

1. Study whether only a few, select stocks (FAANG) predict the movement of the NASDAQ stock market
   1. This would involve initially establishing whether stocks (like Facebook, Amazon, Apple, Netflix, and Google) are correlated with the market.
   2. Then linear regression and machine learning approaches would be use to establish whether the effect is causative.
   3. The results of this study would help reveal whether the NASDAQ is a biased indictor, and doesn’t reflect the bulk of stocks (~3000) making up the NASDAQ.
2. Study whether dividend producing stocks are more likely to provide consistent returns than growth-related stocks without dividends.
   1. This would involve initially establishing whether dividend stocks more consistently outperform stocks that do not offer a dividend.
      1. The analysis would also consider whether the dividend rate matters. One might expect that the highest dividend producing stocks actually perform worse, while low-to-medium yields might outperform all other stocks (including those not handing out dividends).
   2. This analysis would utilize linear regression and machine learning approaches to establish whether investing approaches into dividend producing stocks are superior to traditional approaches of investing into the S&P500 stocks.
   3. This study would help reveal whether investing in dividend producing stocks is better than stocks that don’t provide a dividend (a large majority).
3. Determine signatures of momentum in stocks. Momentum investing involves looking for short-term periods where the price of a stock is either over-values or under-valued.
   1. I would initially determine whether regular cycles occur in stock price, such that the stock price is regularly elevated/depressed from a moving average.
   2. Different approaches like linear regression, kalman filters, recursive Bayesian filtering would be used to establish a baseline, and then fluctuations around the baseline would be observed.
   3. The goal would be to develop a model to predict the presence of local peaks/troughs in stock price before they happen, which would help in investing in stocks that are depressed and selling stocks that are overpriced.