

## **HOMEWORK – 3**

For this homework assignment, I had to implement Bayesian curve fitting and use it to predict the price of 10 stocks. The stocks that I chose were:

1. Apple (AAPL)
2. Amazon (AMZN)
3. Facebook (FB)
4. Google (GOOGL)
5. Netflix (NFLX)
6. Trip Advisor (TRIP)
7. Tesla (TSLA)
8. Twitter (TWTR)
9. Marriot Vacations (VAC)
10. Yelp (YELP)

I downloaded the data for these 10 stocks from the Yahoo! Finance website – [www.finance.yahoo.com](http://www.finance.yahoo.com) as csv files onto my local machine. Each csv file had around 250 values.

The basic idea is that even though the dataset size is 250, I restricted it to a size of 10 to get better results. This essentially serves as the training data for the algorithm. After the Bayesian fitting is completed, the predictions are obtained for the corresponding stock. The results obtained are shown below:

### **Predicting the price of stock AAPL....**

The actual value of the stock is: 200.62

Estimated value = 198.20

Mean error = 2.42

Relative error is = 0.01

**Predicting the price of stock AMZN....**

The actual value of the stock is: 1847.33

Estimated value = 1835.36

Mean error = 11.97

Relative error is = 0.01

**Predicting the price of stock FB....**

The actual value of the stock is: 177.82

Estimated value = 175.86

Mean error = 1.96

Relative error is = 0.01

**Predicting the price of stock GOOGL....**

The actual value of the stock is: 1206.45

Estimated value = 1207.53

Mean error = 1.08

Relative error is = 0.00

**Predicting the price of stock NFLX....**

The actual value of the stock is: 363.92

Estimated value = 364.70

Mean error = 0.78

Relative error is = 0.00

**Predicting the price of stock TRIP....**

The actual value of the stock is: 53.37

Estimated value = 52.86

Mean error = 0.51

Relative error is = 0.01

**Predicting the price of stock TSLA....**

The actual value of the stock is: 276.06

Estimated value = 274.45

Mean error = 1.61

Relative error is = 0.01

**Predicting the price of stock TWTR....**

The actual value of the stock is: 34.75

Estimated value = 34.79

Mean error = 0.04

Relative error is = 0.00

**Predicting the price of stock VAC....**

The actual value of the stock is: 100.16

Estimated value = 99.29

Mean error = 0.87

Relative error is = 0.01

**Predicting the price of stock YELP....**

The actual value of the stock is: 35.90

Estimated value = 35.39

Mean error = 0.51

Relative error is = 0.01