# Stock Price Forecasting

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# Introduction

- This Presentation will cover:
  - The business problem
  - Data
  - Methods
  - Results

# The problem

 ⋄ Retail investors account for up to 30% of trading volume

# The Problem

So how can we give retail investors a simple, easy to understand way to choose stocks?

# Who is the audience?

# Forecasting with ARIMA

MMM
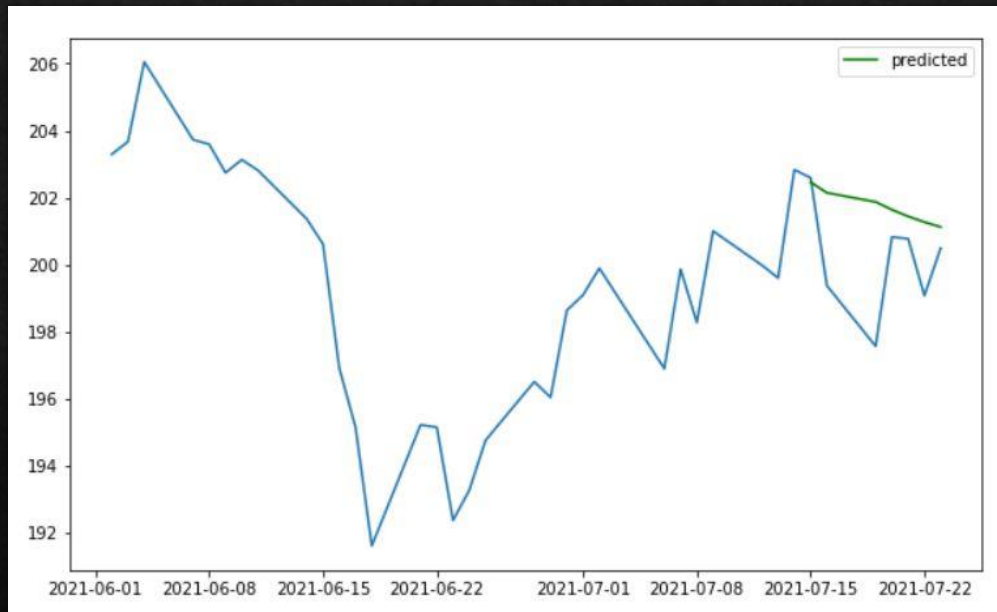


AAPL

# Prophet

## MMM



## AXP

# ARIMA vs Prophet

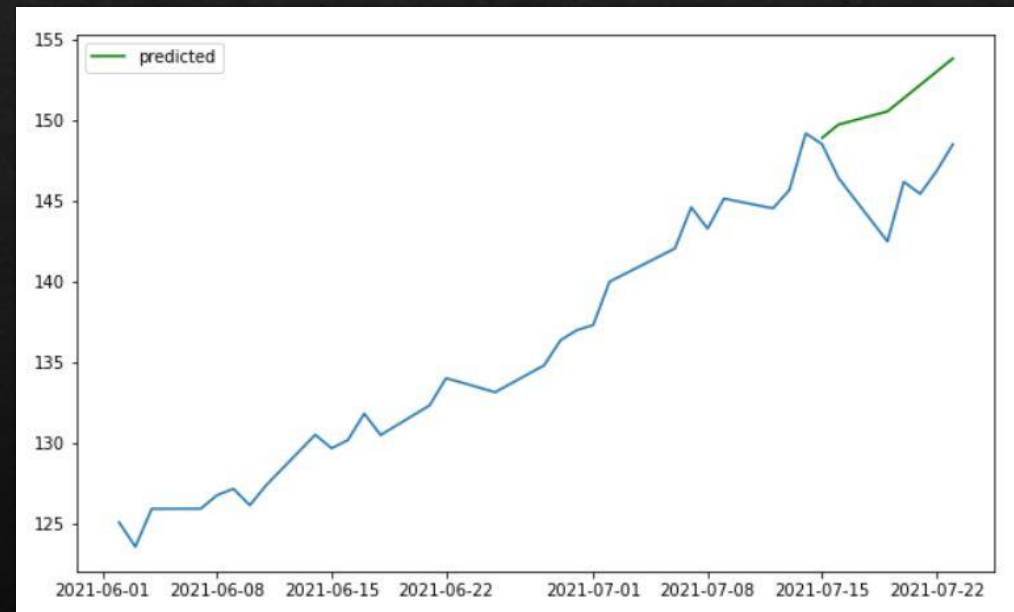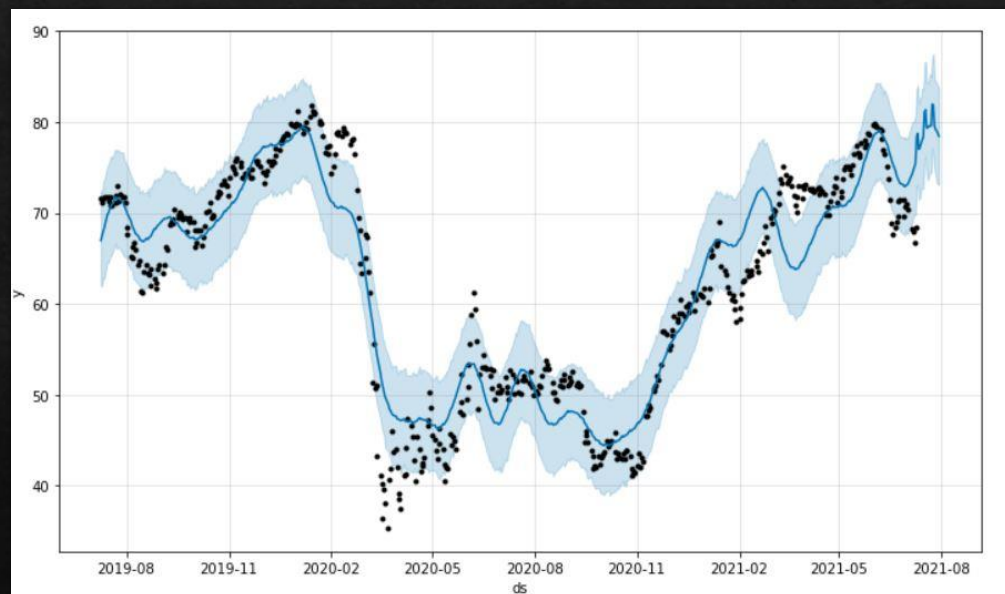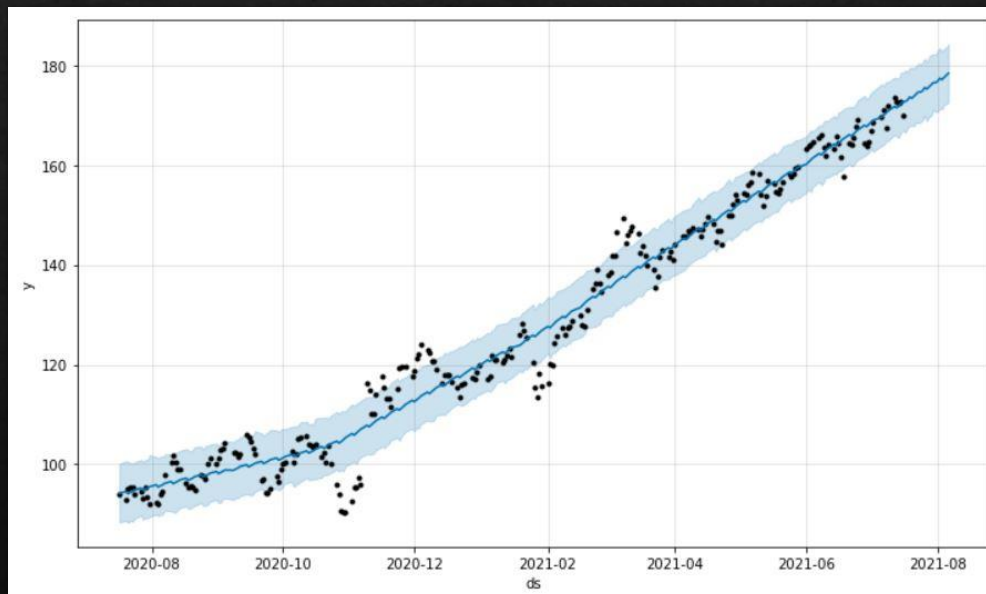| | Symbol | Train_Len | Test_Len | Exp_var | MAE | RMSE | R2 |
|---|---|---|---|---|---|---|---|
| 1 | MMM | 30 | 7 | 6.480774e-02 | 1.306134 | 1.471526 | 0.009088 |
| 5 | MMM | 720 | 7 | 2.220446e-16 | 1.381430 | 1.487678 | -0.012783 |
| 41 | AXP | 900 | 7 | 1.077875e-01 | 1.296784 | 1.483945 | -0.006632 |
| 40 | AXP | 720 | 7 | 1.059213e-01 | 1.299171 | 1.489844 | -0.014650 |
| 85 | AMGN | 30 | 21 | 8.035365e-02 | 1.651802 | 2.095074 | 0.044105 |
| 84 | AMGN | 14 | 21 | 9.815283e-02 | 1.677383 | 2.035643 | 0.097568 |
| 108 | AAPL | 180 | 7 | 0.000000e+00 | 1.306431 | 1.463181 | -0.014998 |
| 115 | AAPL | 180 | 14 | 0.000000e+00 | 1.468930 | 1.969493 | -0.244176 |
| 146 | CAT | 900 | 7 | -7.358317e-02 | 2.074228 | 2.572308 | -0.076399 |
| 144 | CAT | 360 | 7 | -5.799273e-03 | 2.077785 | 2.489329 | -0.008073 |

| | horizon | mse | rmse | mae | mape | mdape | smape | coverage |
|---|---|---|---|---|---|---|---|---|
| 0 | 2 days | 52.764097 | 7.263890 | 5.238207 | 0.029970 | 0.019928 | 0.029888 | 0.385506 |
| 1 | 3 days | 119.839458 | 10.947121 | 7.715429 | 0.044474 | 0.029549 | 0.044207 | 0.260648 |
| 0 | 2 days | 94.685846 | 9.730665 | 7.258065 | 0.058095 | 0.039634 | 0.057968 | 0.314363 |
| 1 | 3 days | 204.149914 | 14.288104 | 10.919213 | 0.088640 | 0.067578 | 0.088720 | 0.232784 |
| 0 | 2 days | 259.975489 | 16.123755 | 10.186850 | 0.043158 | 0.024419 | 0.043688 | 0.407459 |
| 1 | 3 days | 599.588460 | 24.486495 | 15.661054 | 0.066384 | 0.038856 | 0.067878 | 0.278120 |
| 0 | 2 days | 92.461517 | 9.615691 | 5.482373 | 0.045067 | 0.026104 | 0.047163 | 0.474704 |
| 1 | 3 days | 220.899762 | 14.862697 | 8.364964 | 0.069461 | 0.034532 | 0.075927 | 0.360823 |
| 0 | 2 days | 133.992780 | 11.575525 | 8.822443 | 0.046023 | 0.035453 | 0.045970 | 0.283273 |
| 1 | 3 days | 277.175247 | 16.648581 | 13.152346 | 0.069353 | 0.055988 | 0.069113 | 0.169523 |

# The Results

```
pred_4()

Enter 4 stock symbols: aal,f,fb,t
Working...
Stock: AAL
Percent Change: 7.18
Stock: F
Percent Change: 1.93
Stock: FB
Percent Change: 6.32
Stock: T
Percent Change: 0.35

According to the model, AAL has the highest upside.




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The creator and affiliates are not responsible for any potential losses. But totally responsible for any gains.
```

# Conclusion/Further work

◈ Prophet is the way to go

◈ FLASH---SPARKLE!!!

# Thank you!
## Questions?

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