



Group I	Introduction-AVTI	Introduction-EA	Basic Analysis1	Basic Analysis2	B
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“ Stocks Comparison

EA VS ACTIVISION BLIZZARD

Ziqi Gong / Tianyao Feng / Siying Yang / Xi Yang

Group I

”



PART 01. Source and Manipulation

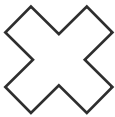
Introduction about the two companys
and basic analysis in Tableau



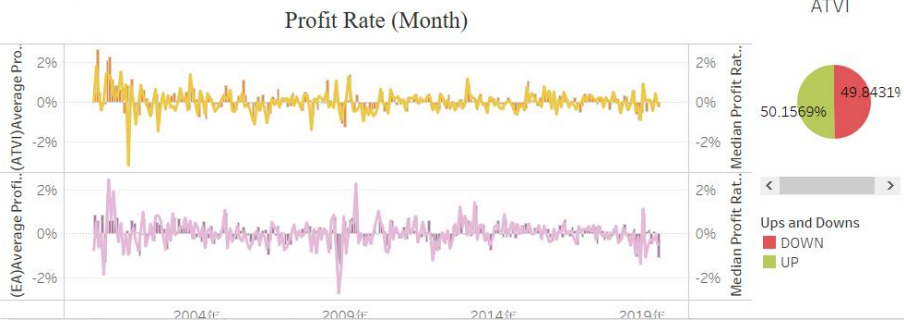
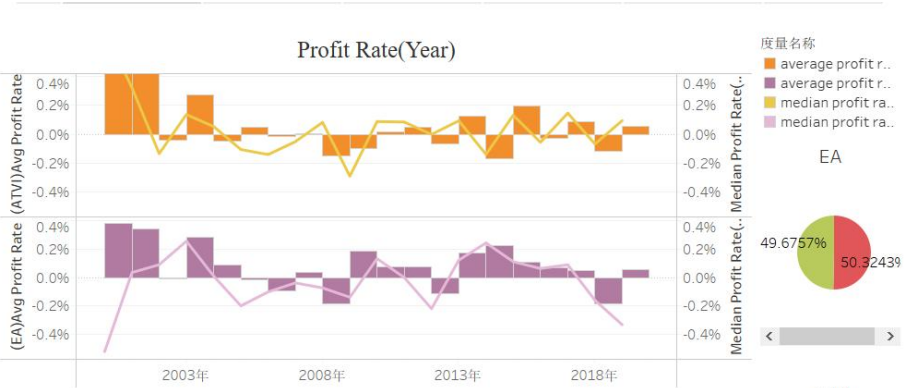
Source and Manipulation

PART ONE

Data Source



Kline



Basic Analysis

Less funds
more fluctuation
more activity
Better profitability

EA

ATVI

Bigger funds
less fluctuation
less activity
Less profitability

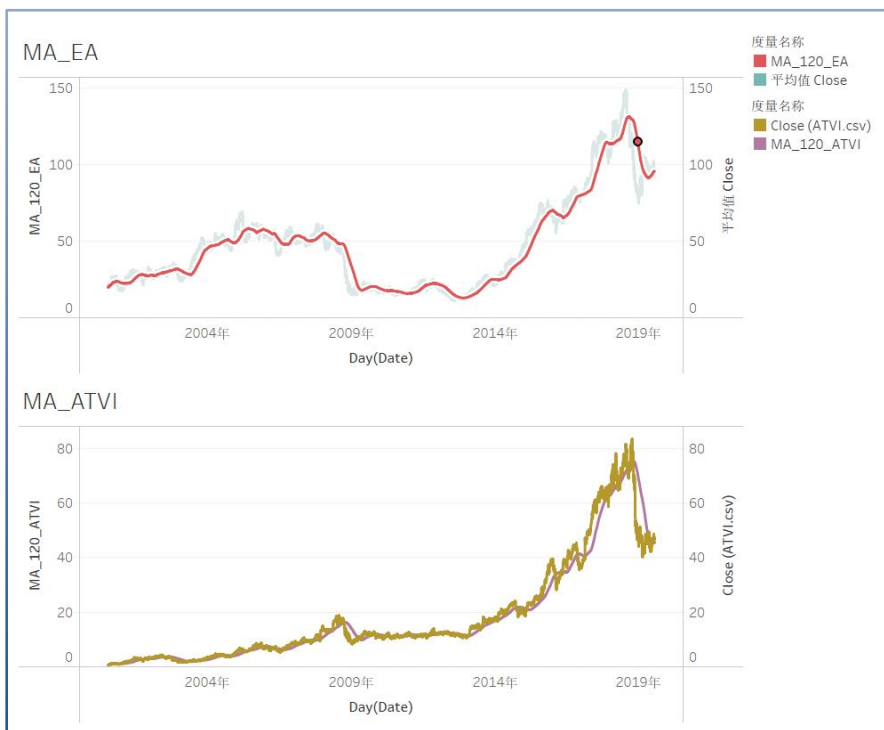
PART 02. KPIs in Tableau

Introduction about two KPI: MA & BBI



KPIs

PART TWO



KPI – MA

The situation in ATVI is not quite positive for its downward trend.



KPI – BBI

EA shows the descending trend, while ATVI has a short-term investment chance.



PART 03. Forecast Models in Python

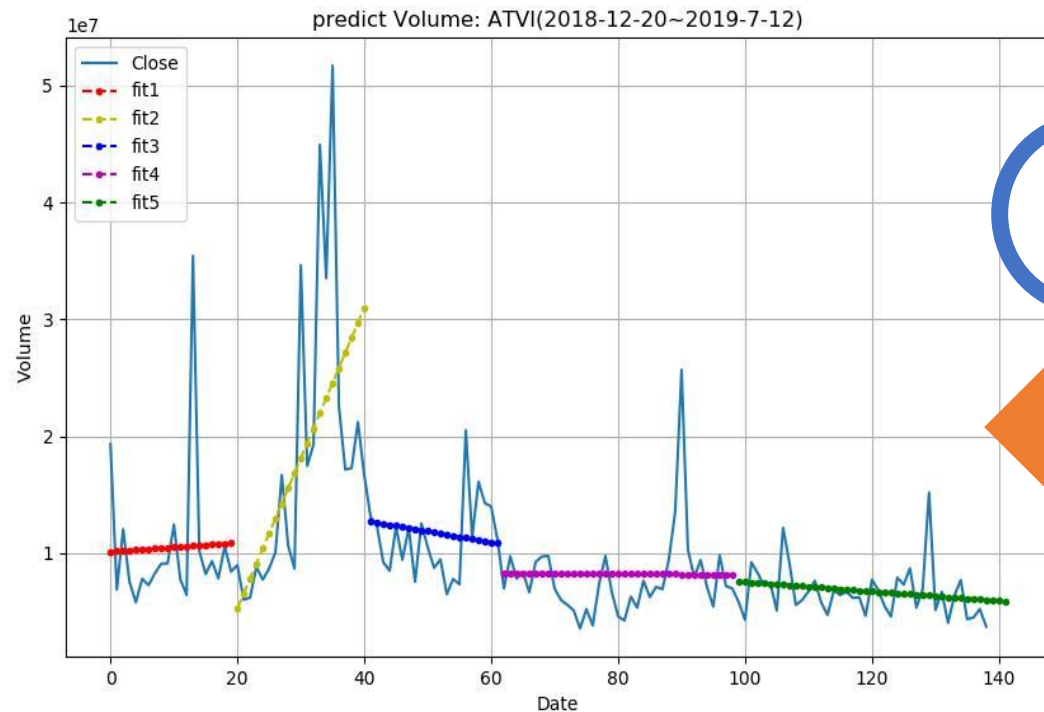
Moving Average Method/ Simple Linear Regression /Multiple
Regression/ Regression for Volume / Light GBM .



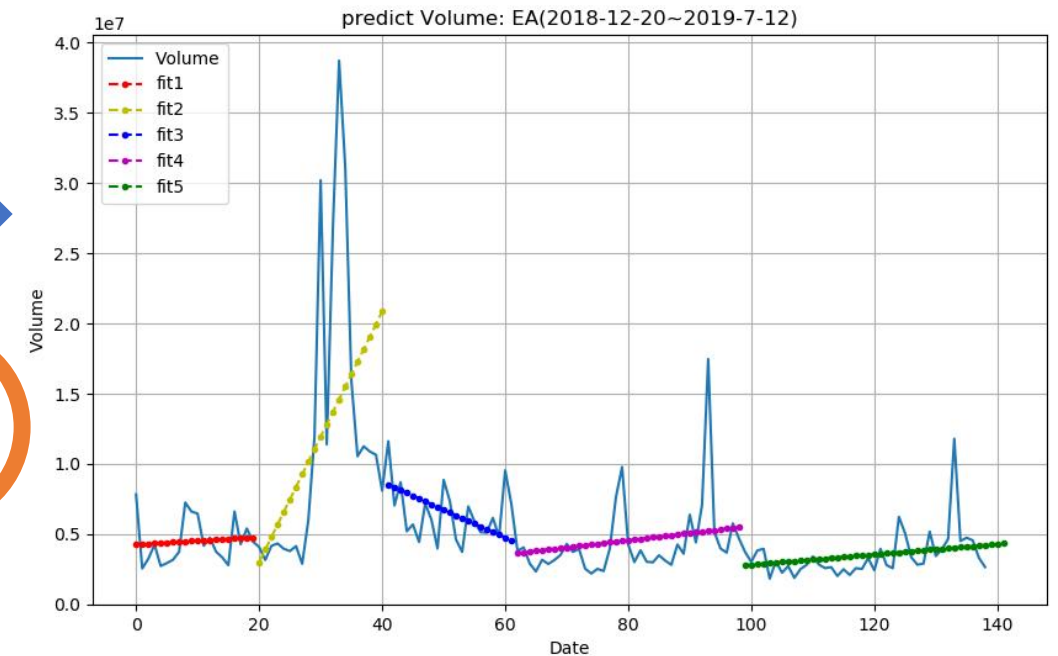
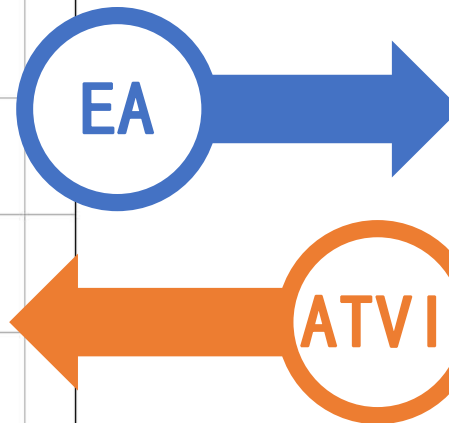
Forecast Models in Python

PART THREE

- Regression for volume



ATVI: $\text{Volume} = -40600 * \text{Date} + 11596994.8$



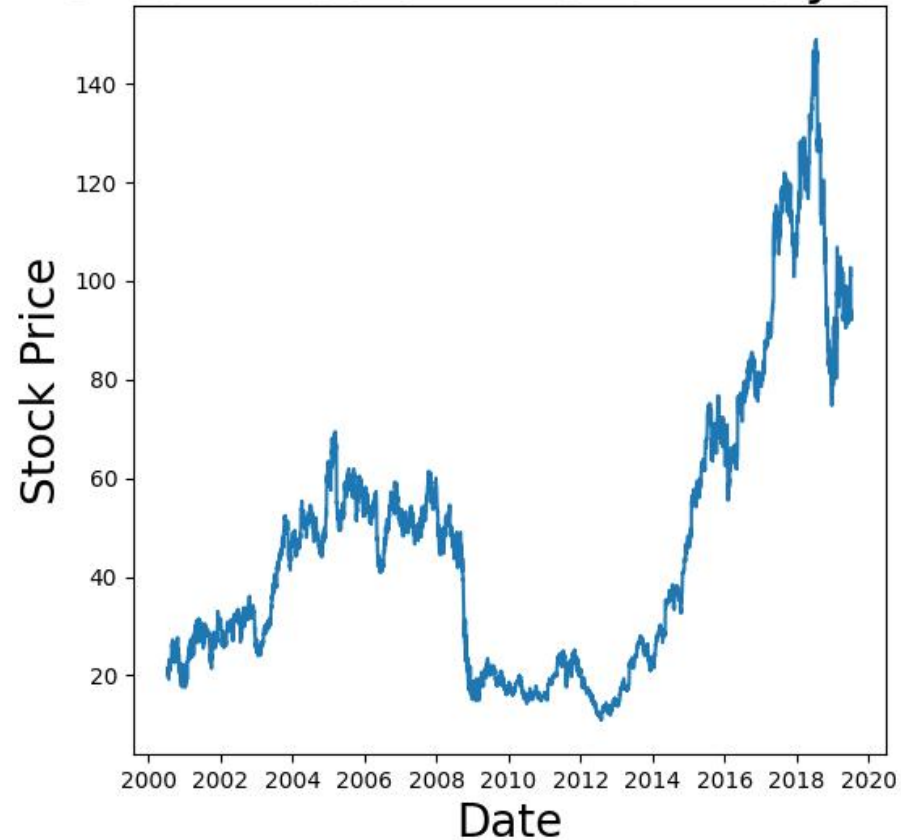
EA: $\text{Volume} = 36595.96 * \text{Date} - 826041$

Forecast Models in Python-Basic Regression

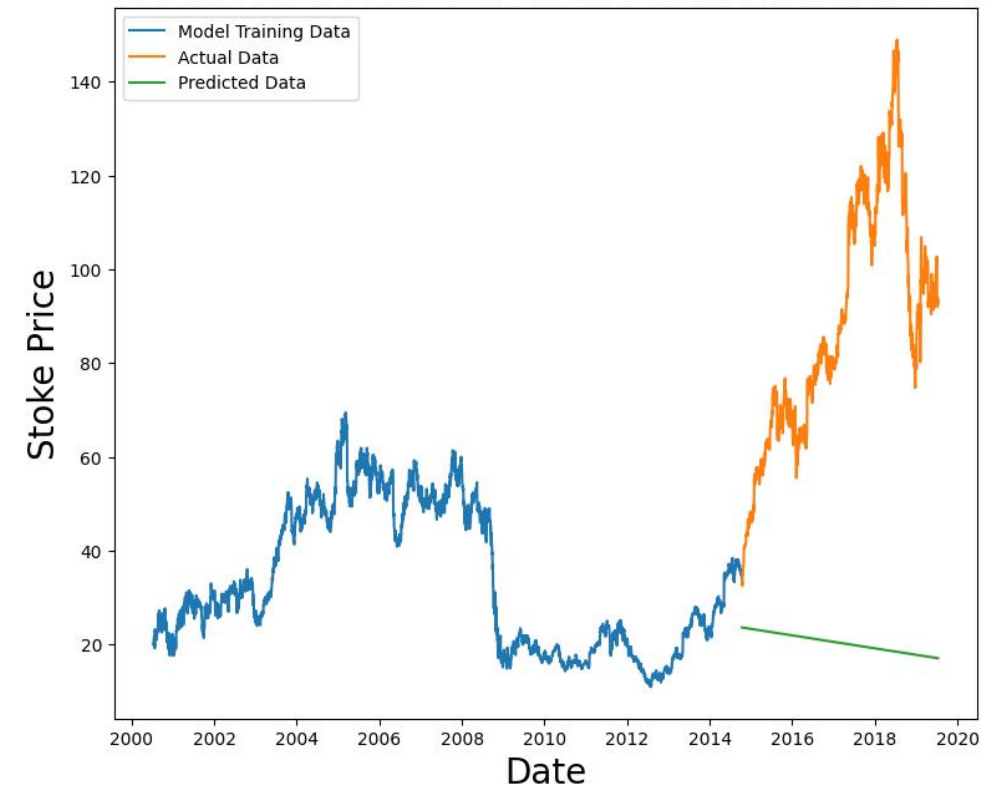
PART THREE

➤ Simple Linear Regression (EA)

Stock Price of EA over the years



STOCK PRICE PREDICTION BY LINEAR REGRESSION

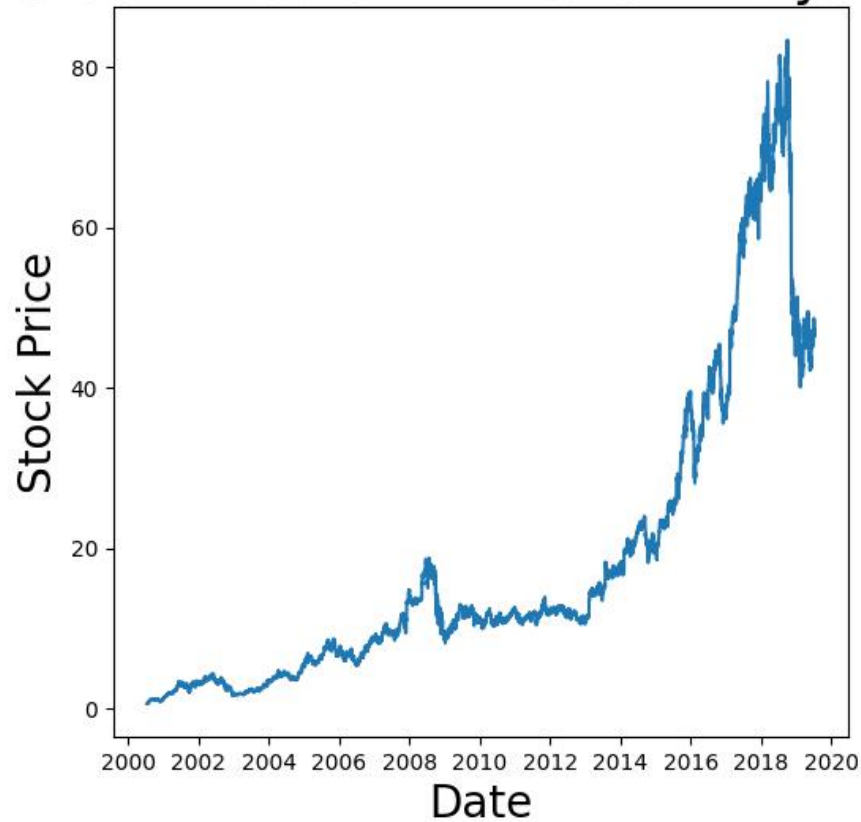


Forecast Models in Python-Basic Regression

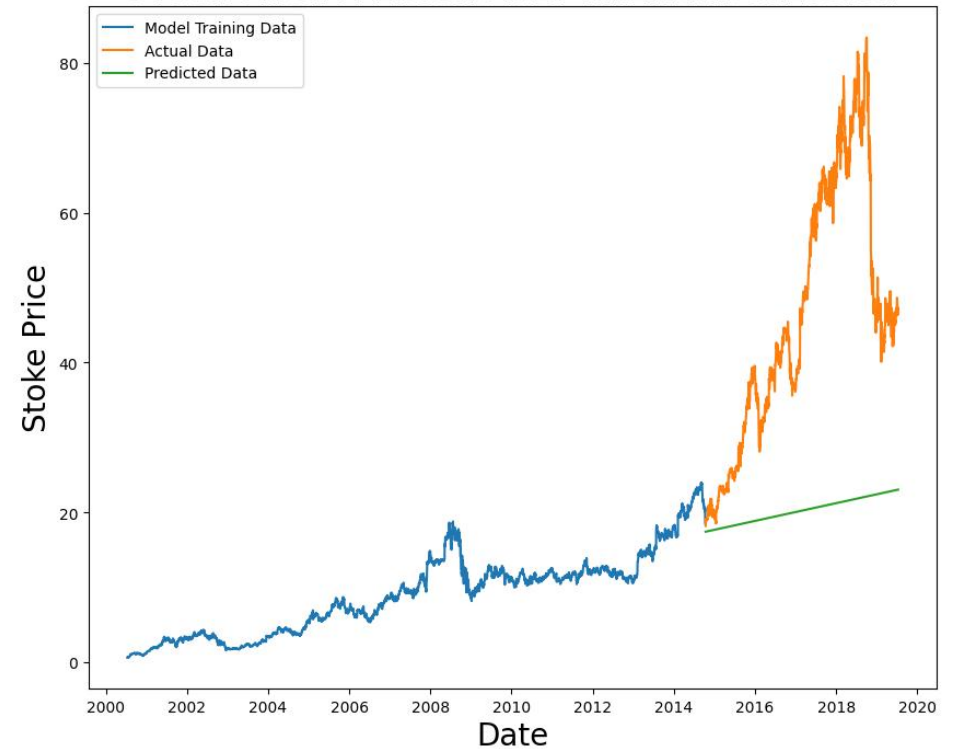
PART THREE

➤ Simple Linear Regression (ATVI)

Stock Price of ATVI over the years



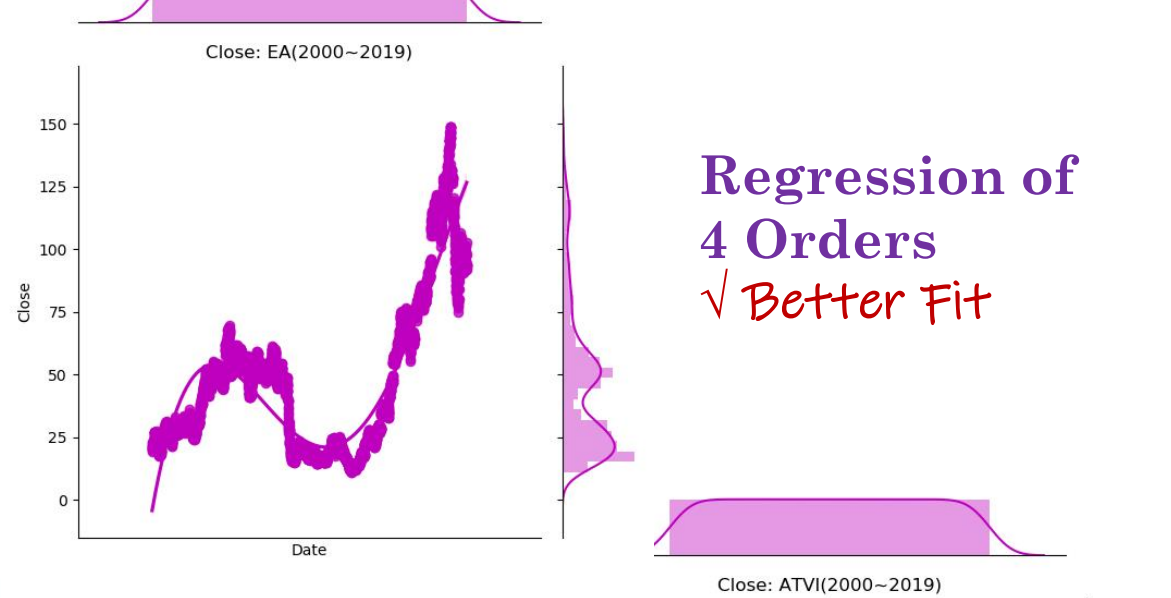
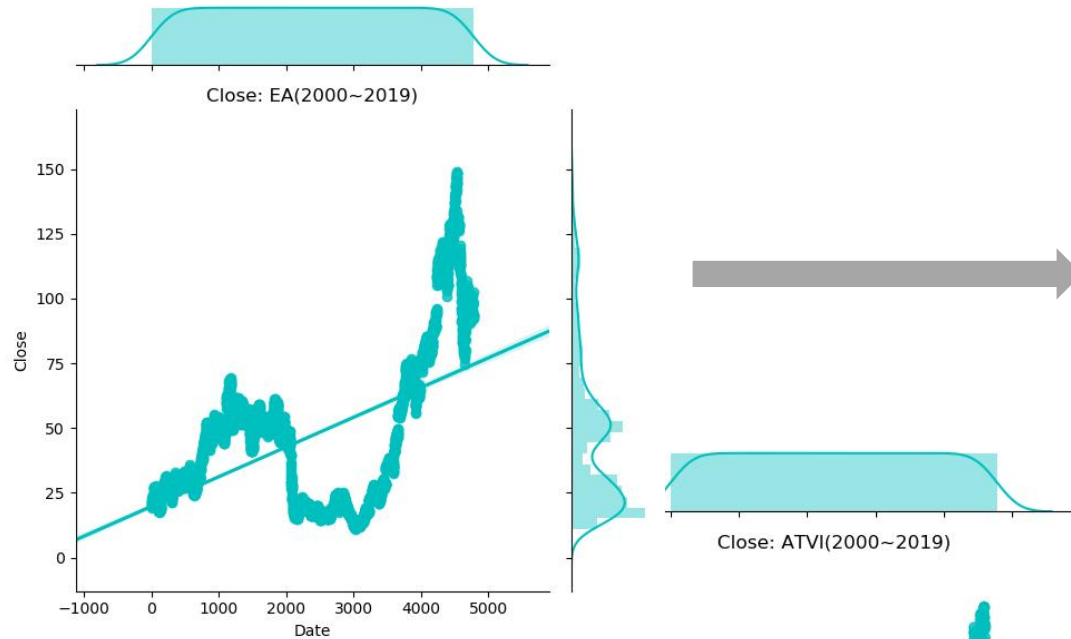
STOCK PRICE PREDICTION BY LINEAR REGRESSION



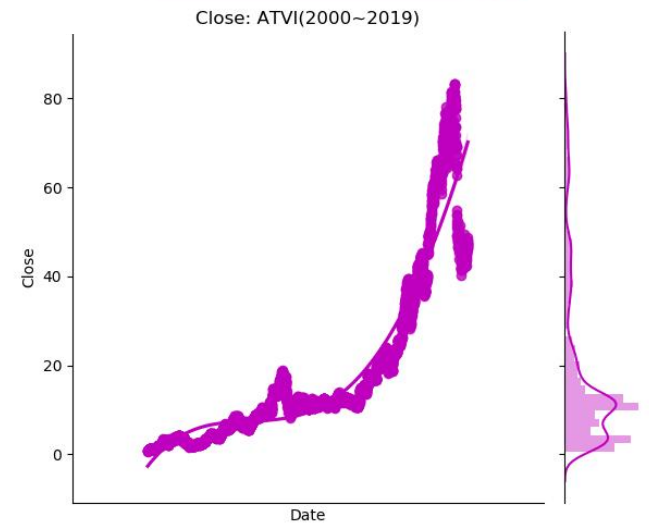
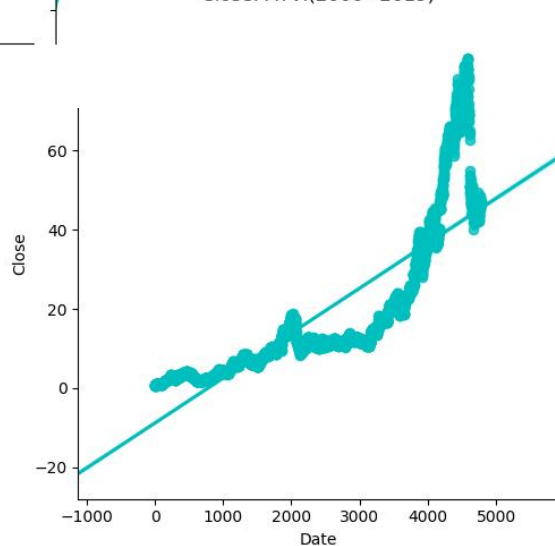
Forecast Models in Python-Basic Regression

PART THREE

Regression for Close(2000-2019)



Linear
Regression
✓ General Growing
Trend

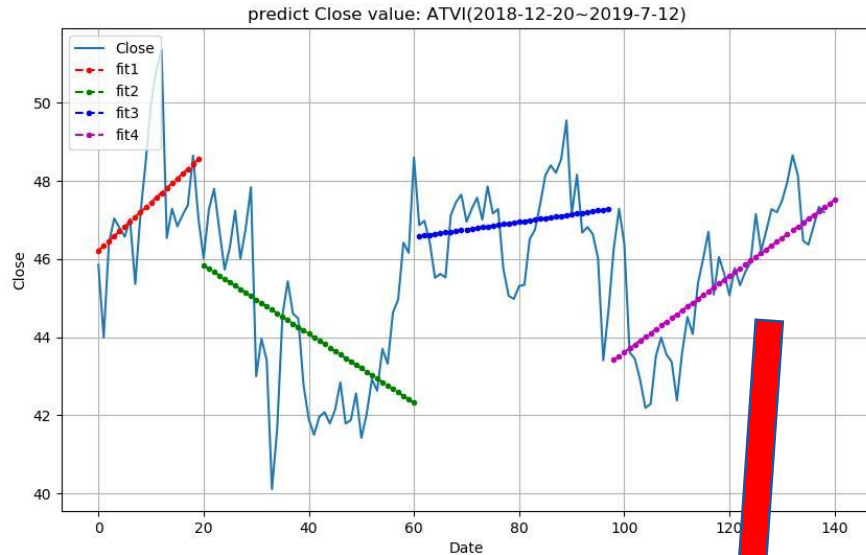


Forecast Models in Python-Basic Regression

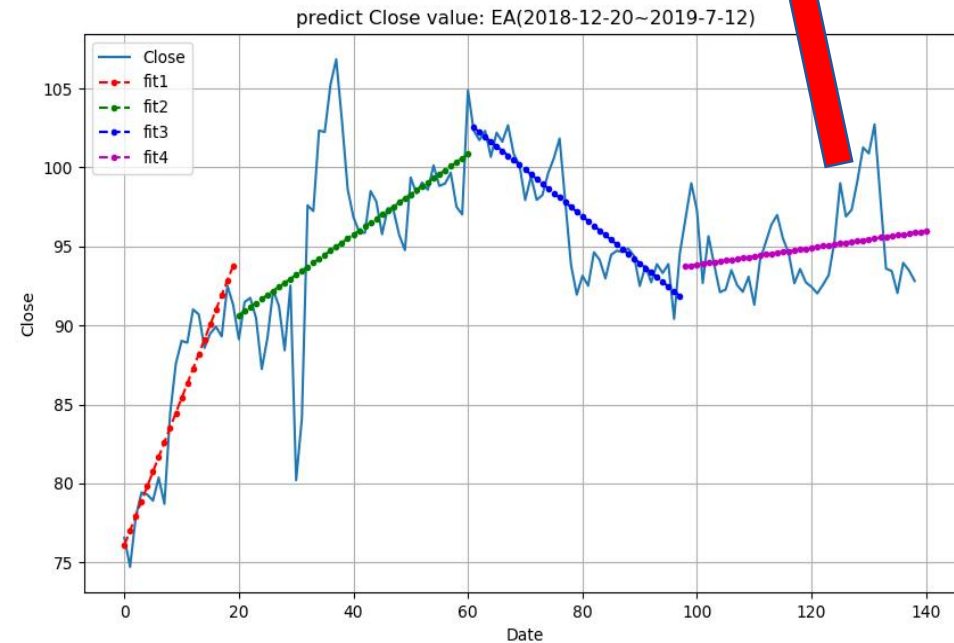
PART THREE

Linear Regression for Close (2018.12-2019.7)

$$\text{EA: Close} = 0.0546 * \text{Date} + 88.492$$



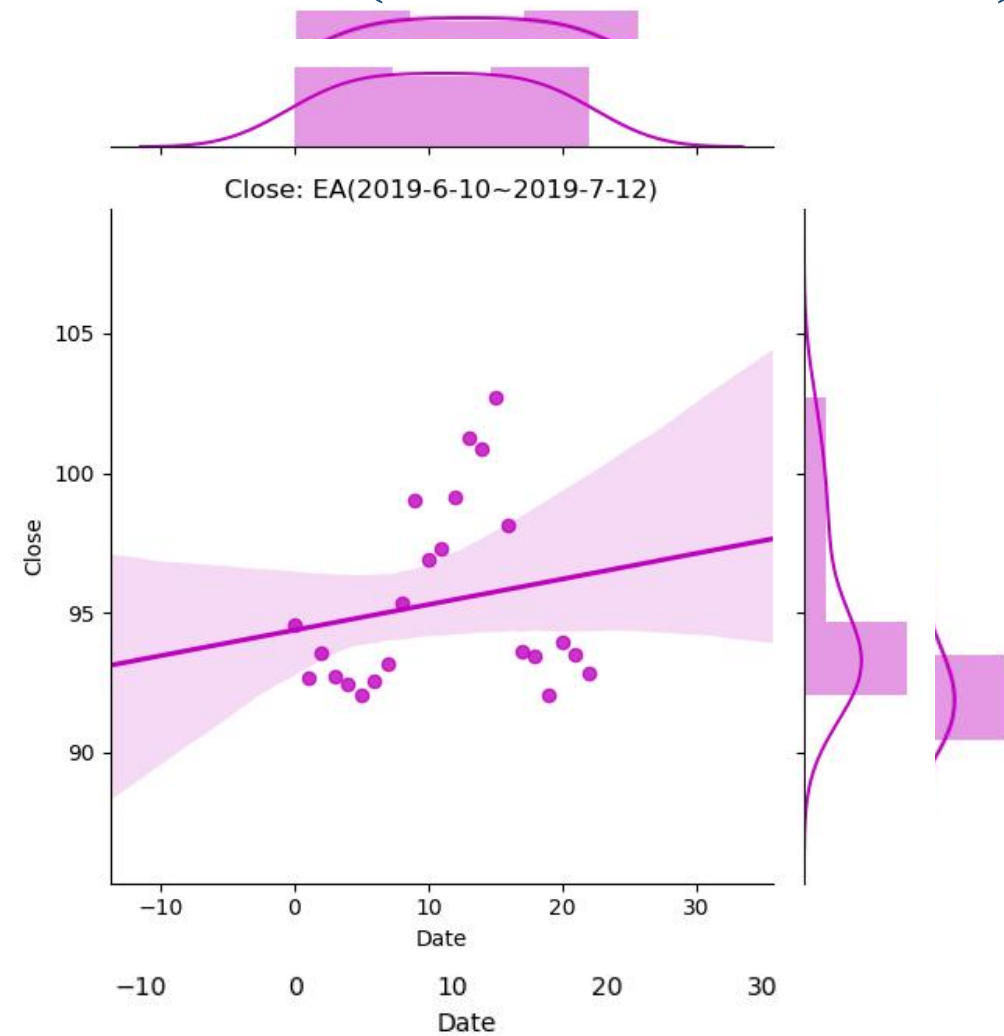
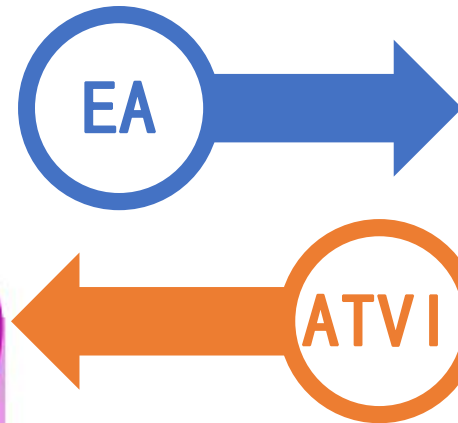
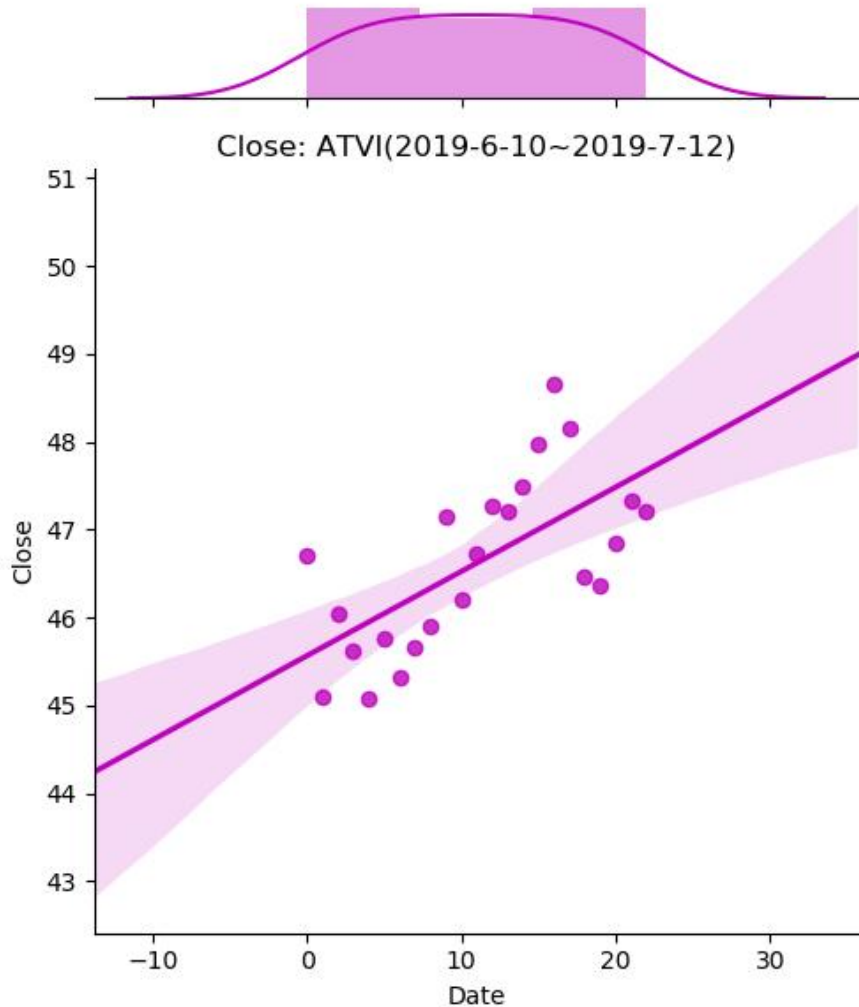
$$\text{ATVI: Close} = 0.975 * \text{Date} + 33.862$$



Forecast Models in Python-Basic Regression

PART THREE

- Regression for Close(most recent month)



Forecast Models in Python-Advanced Prediction

PART THREE

➤ Moving Average Method

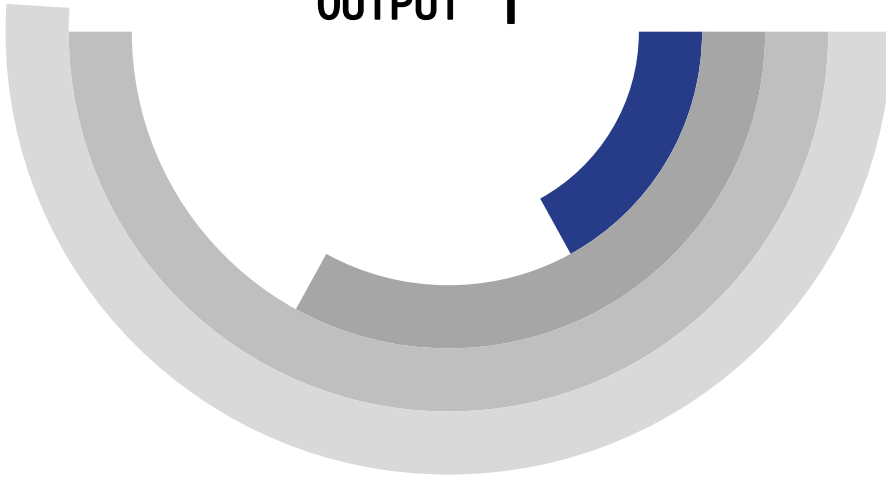
---Stock Price Prediction by Movin Average---

Shape of Training Set: (3585, 1)

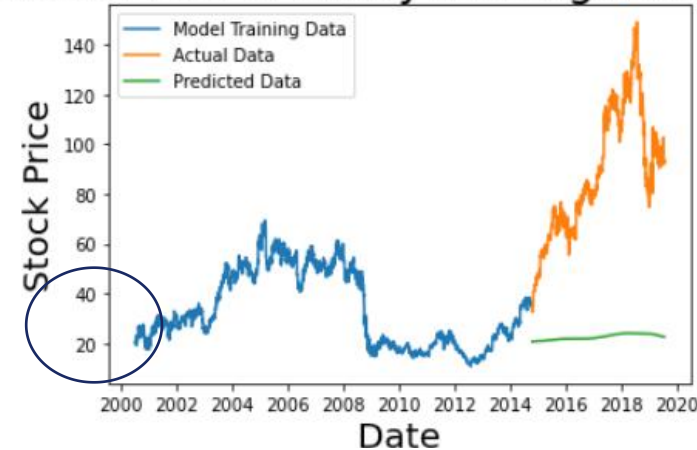
Shape of Validation Set: (1194, 1)

RMSE value on validation set: 70.01838324969164

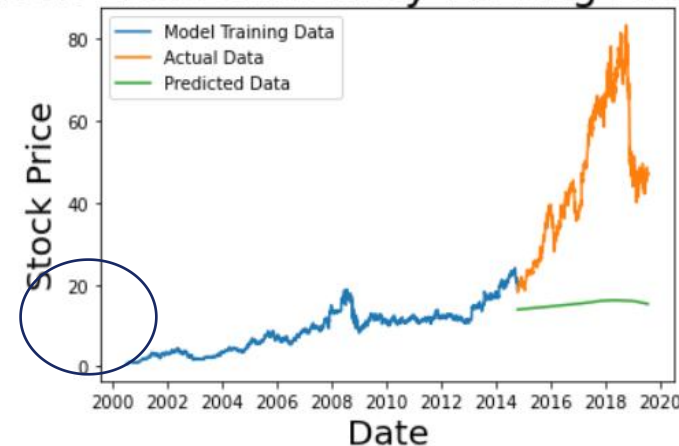
OUTPUT ↑



Stock Price of EA by Moving Averages



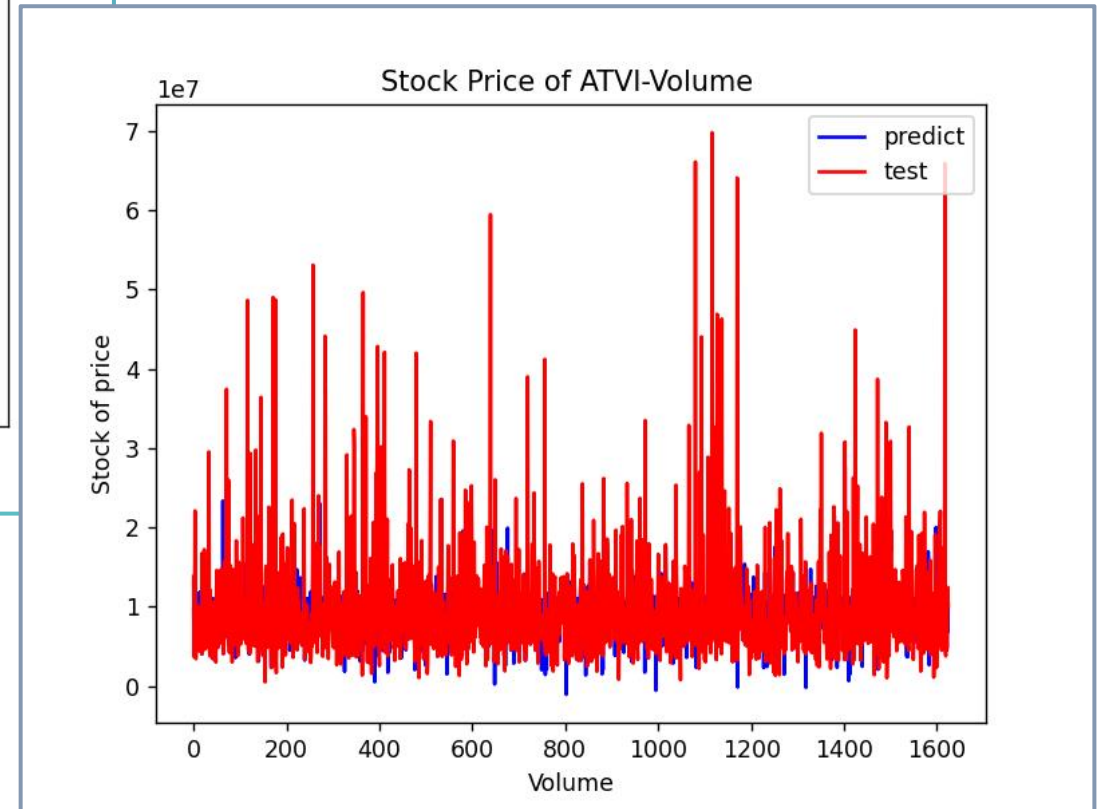
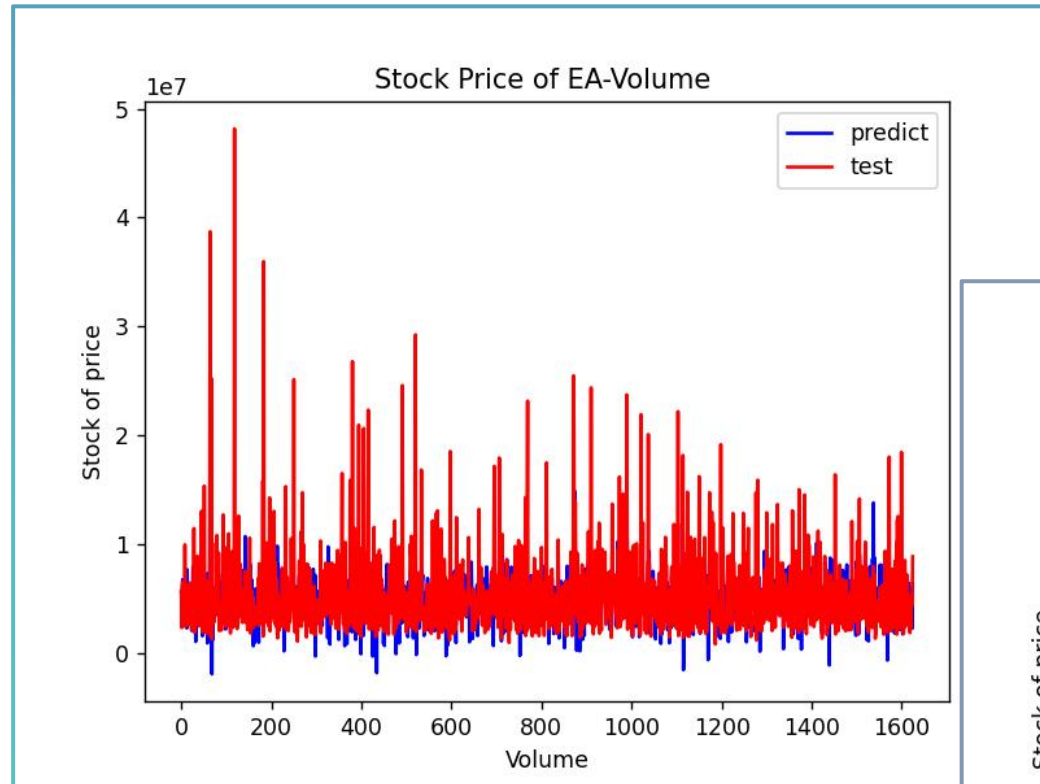
Stock Price of ATVI by Moving Averages



Forecast Models in Python-Advanced Prediction

PART THREE

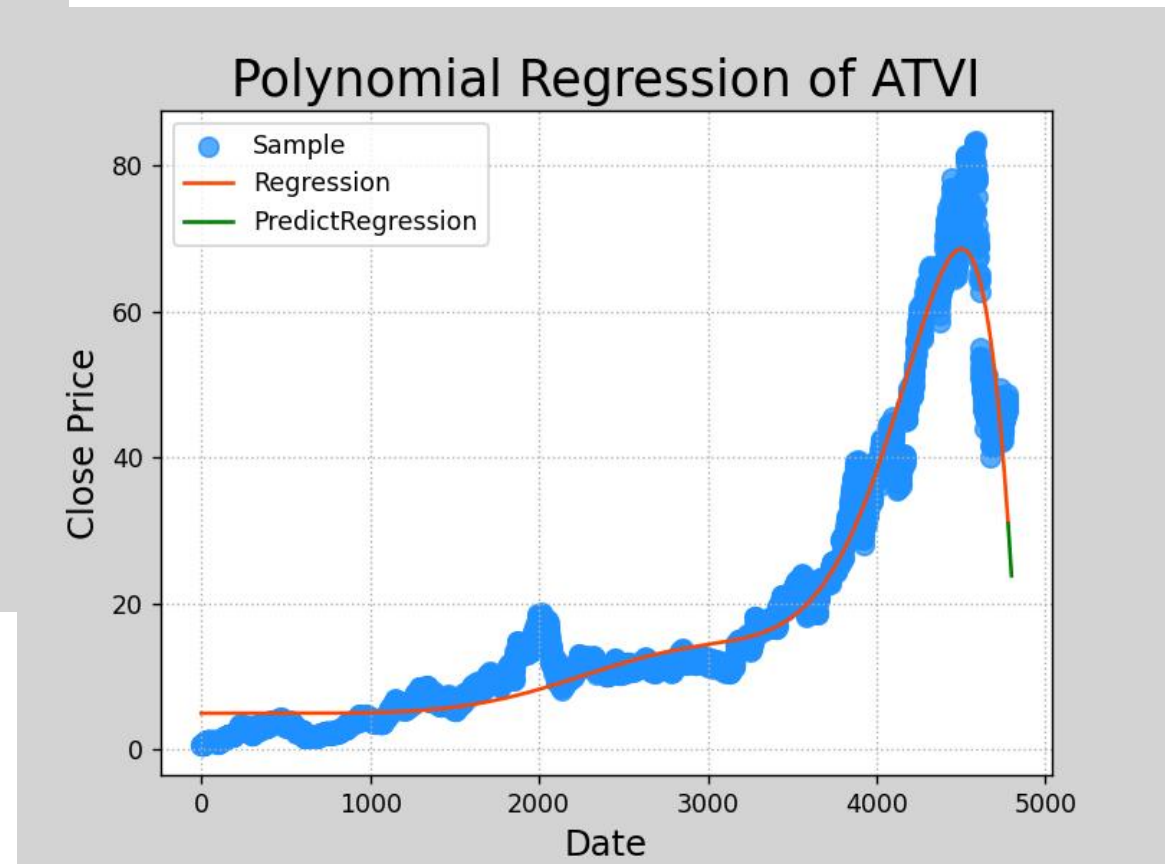
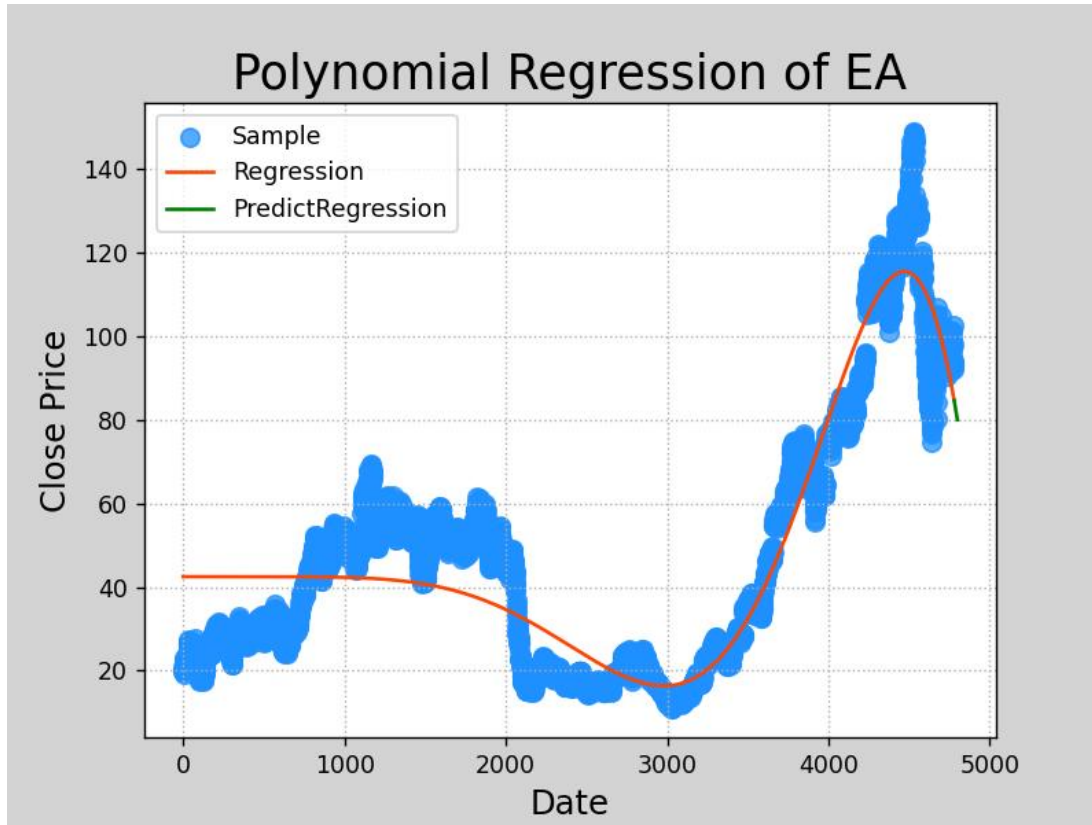
Multiple Regression



Forecast Models in Python-Advanced Prediction

PART THREE

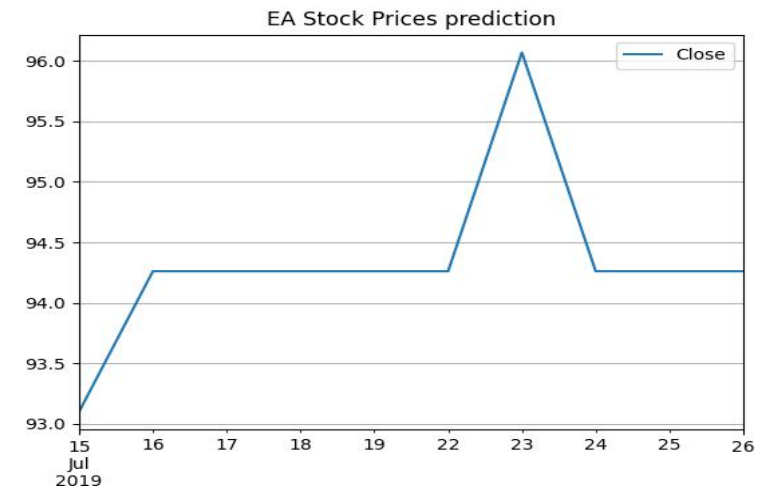
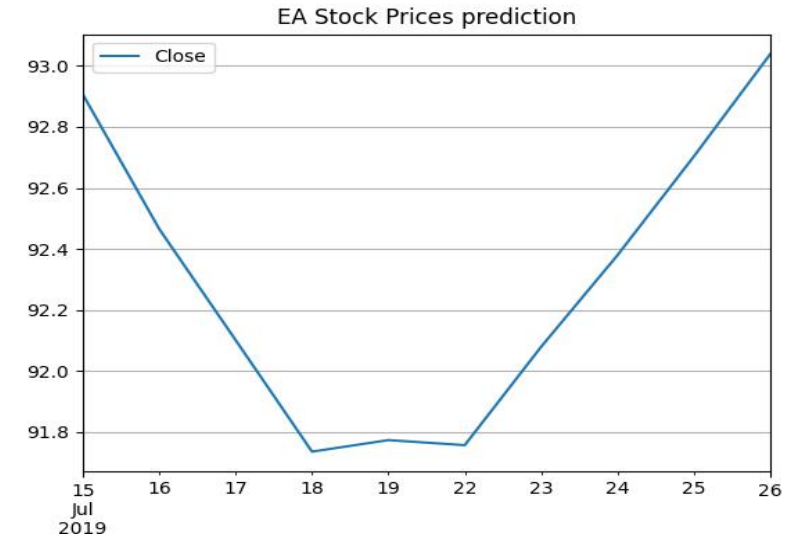
Polynomial Regression



Forecast Models in Python-Advanced Prediction

PART THREE

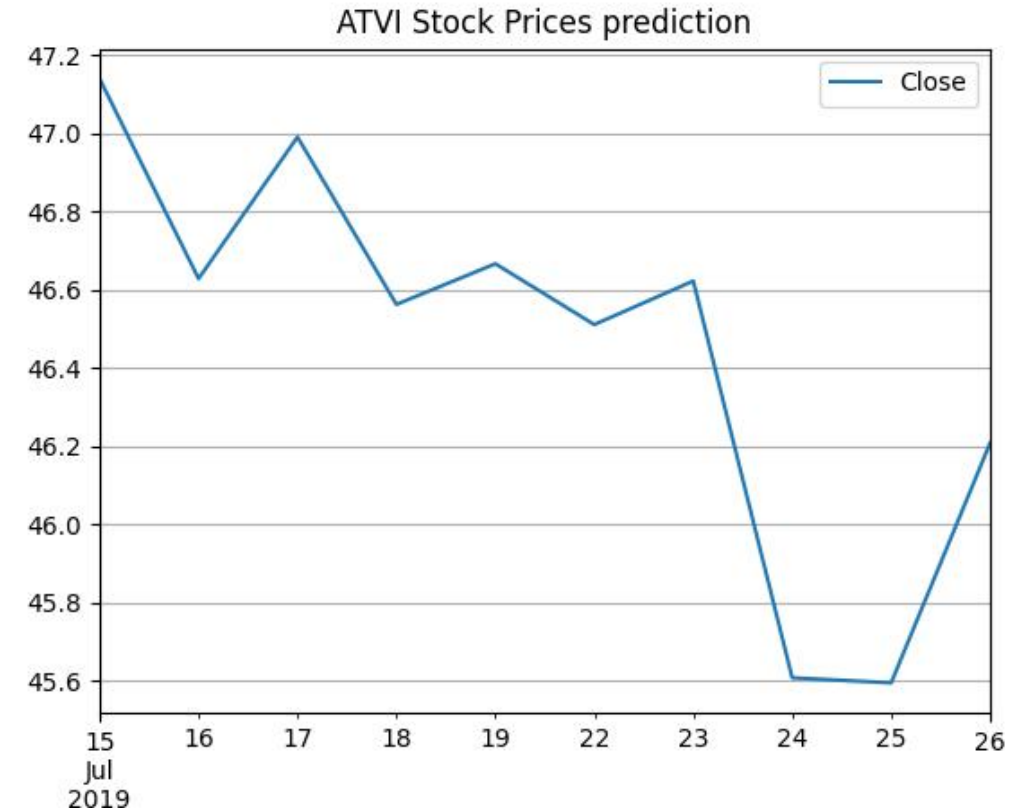
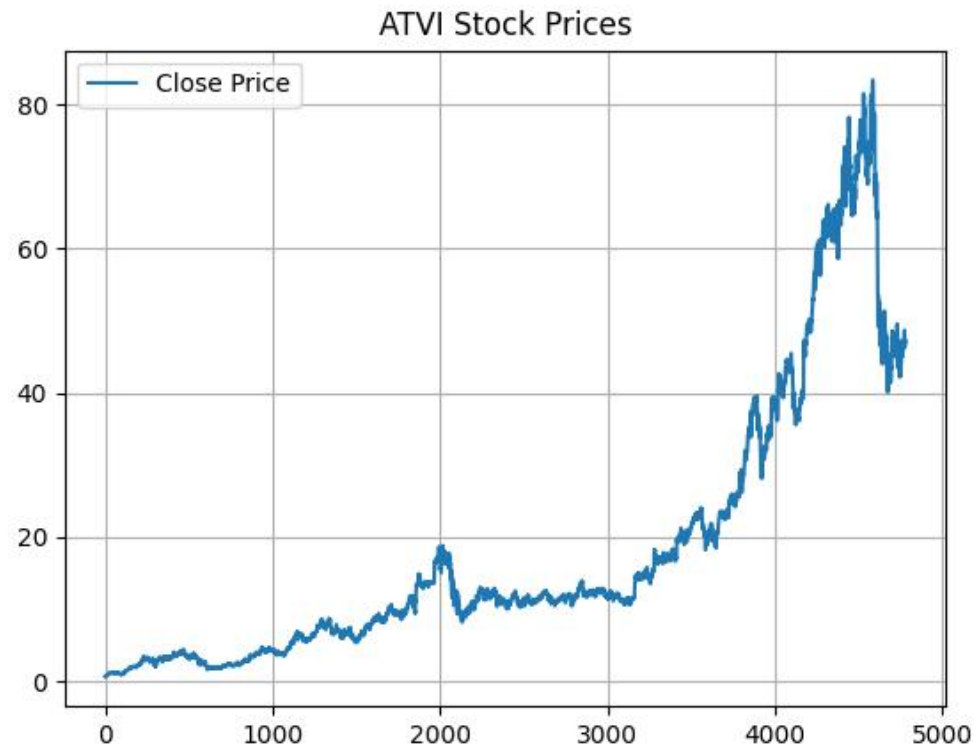
➤ AutoTS Prediction(EA)



Forecast Models in Python-Advanced Prediction

PART THREE

➤ AutoTS Prediction(ATVI)

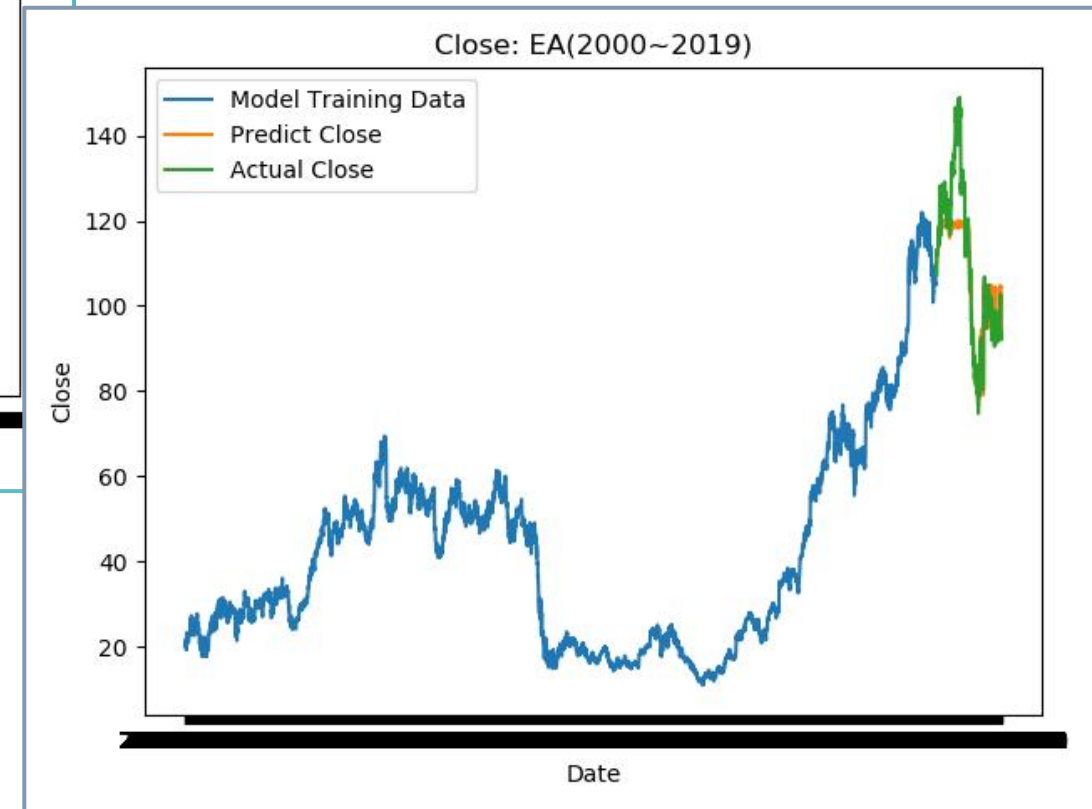
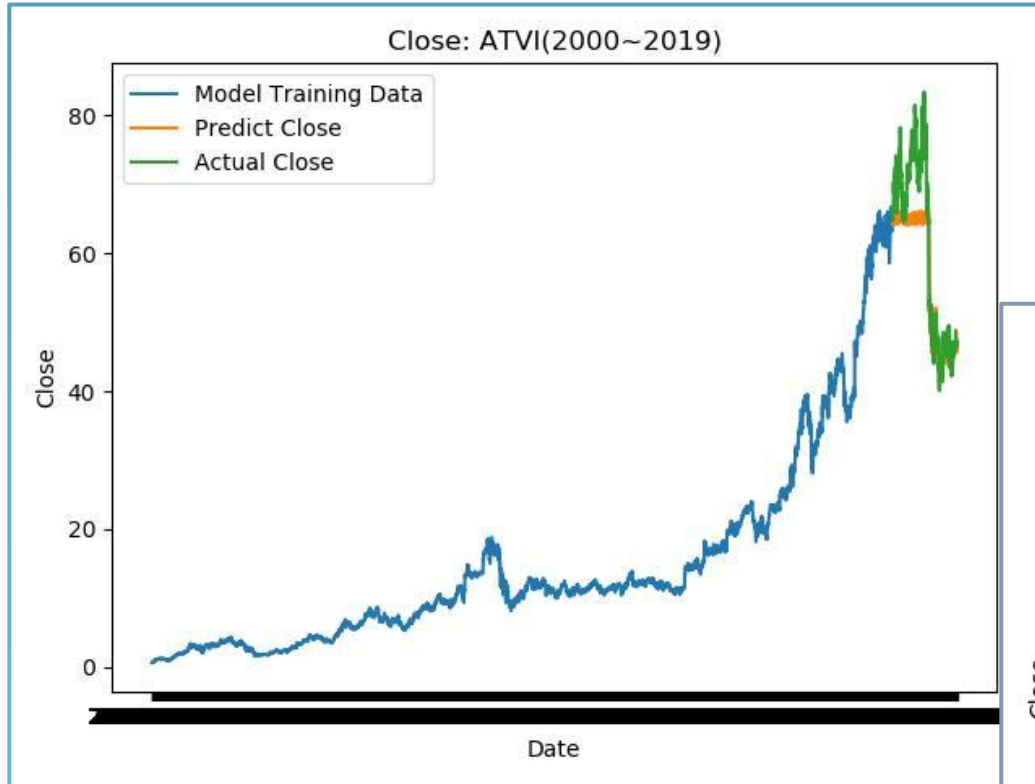


Forecast Models in Python-Advanced Prediction

PART THREE

LightGBM

```
model=lgb.LGBMRegressor(max_depth=8,  
                          num_leaves=20,  
                          n_estimators=500,  
                          learning_rate=0.1)  
  
model.fit(x_train,y_train)
```

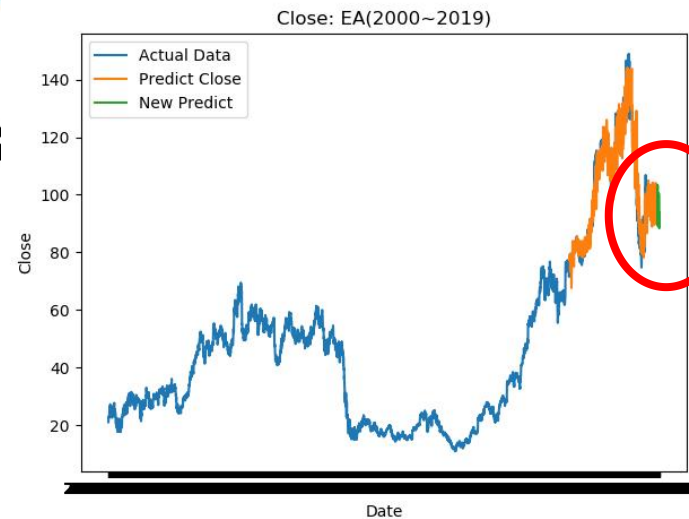
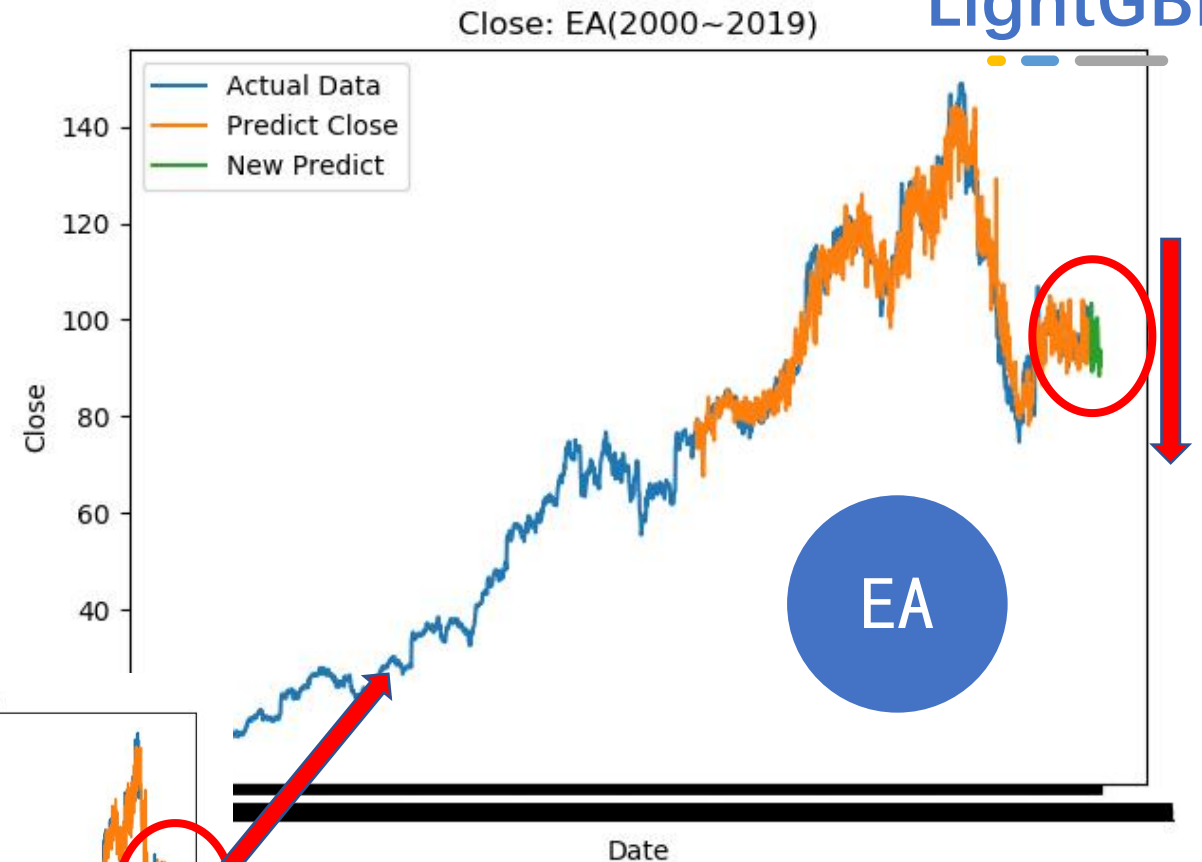
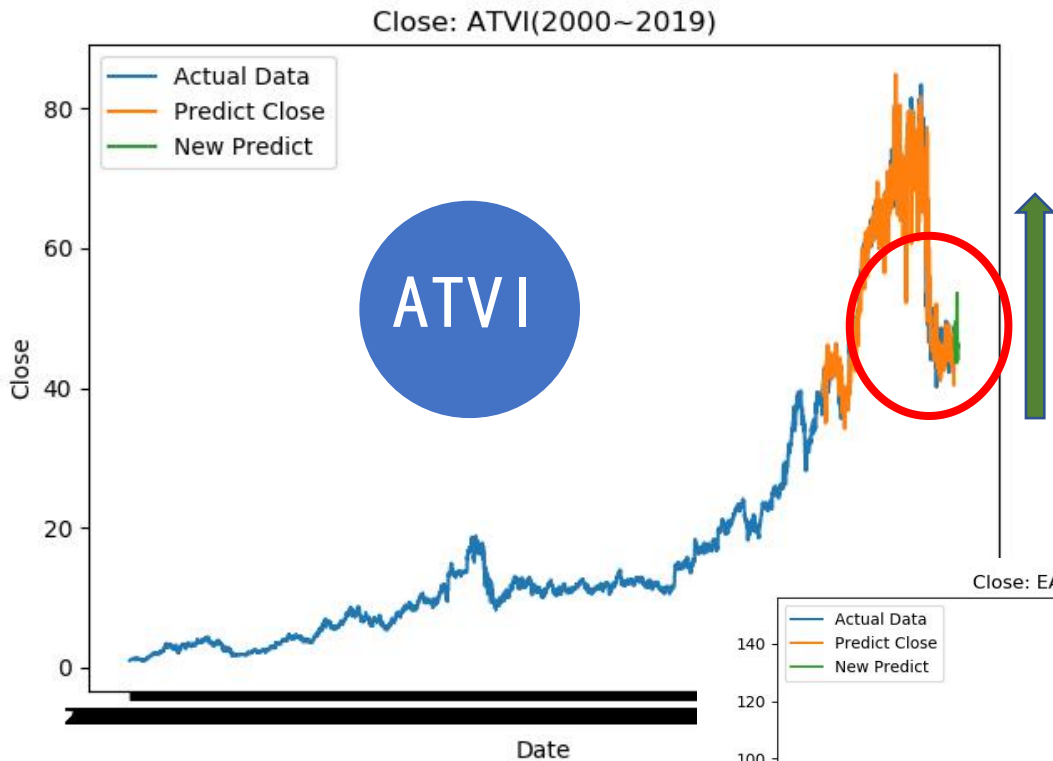


LightGBM: $MSE=0.21$
✓Outstanding Accuracy!

Forecast Models in Python-Advanced Prediction

PART THREE

LightGBM



Forecast Models in Python

PART THREE

Predict-Close

Basic
Regression

Linear
Regression

4-Orders
Regression

Moving
Average
Methods

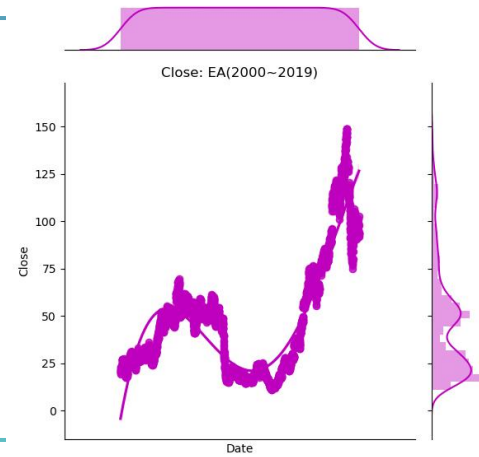
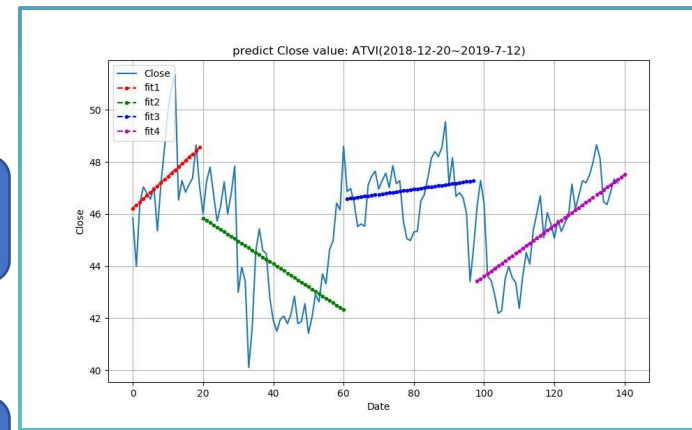
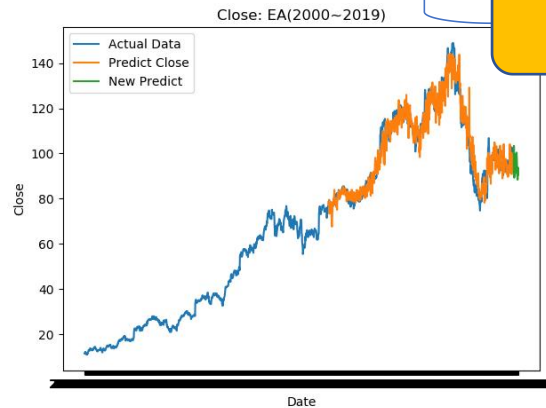
Multiple
Regression

Polynomial
Regression

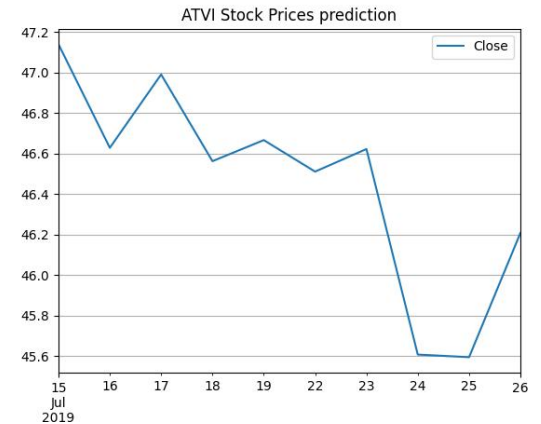
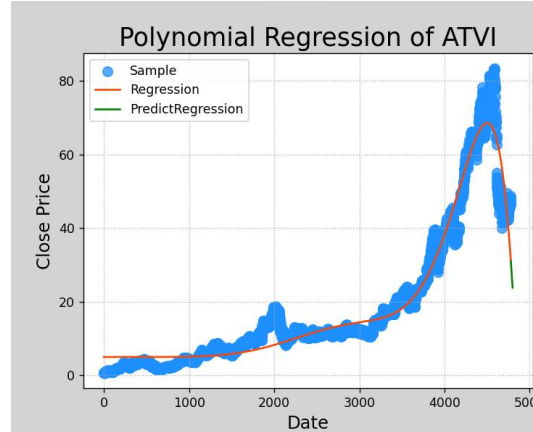
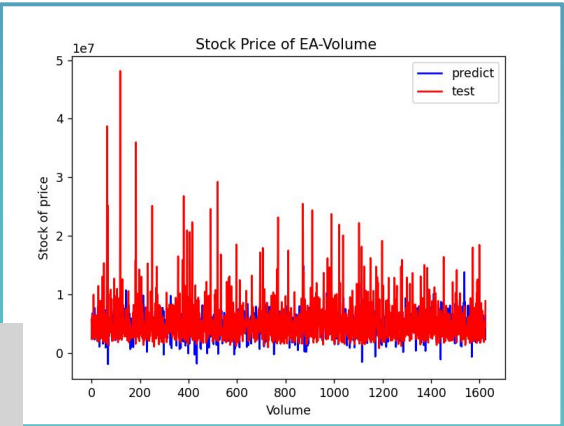
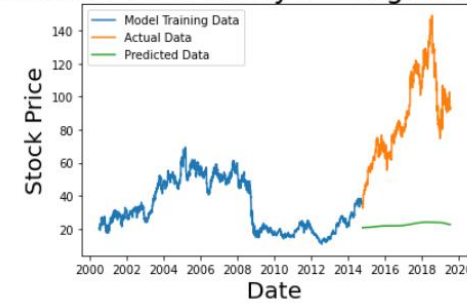
Auto TS

LightGBM

Further
Prediction

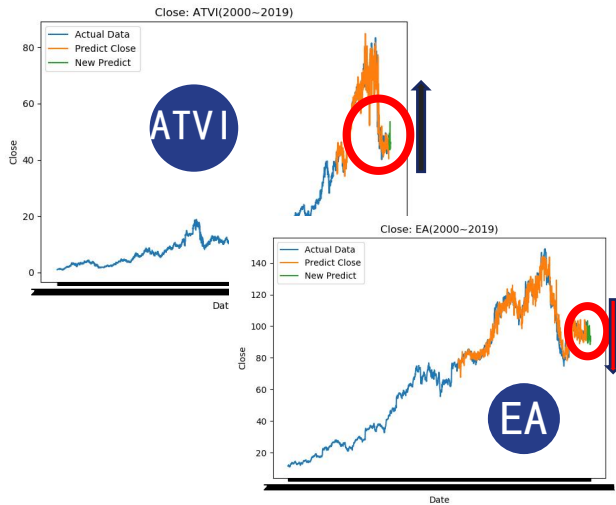


Stock Price of EA by Moving Averages



Conclusion

PART Four



Short Term

ATVI has an upward trend
EA has an down trend



Long Term

Both have an upward trend.
But ATVI will go up more.



Accuracy

ATVI has a more accurate outcome.
EA is more complex to predict.



ATVI: $\text{Close} = 0.975 * \text{Date} + 33.862$
EA: $\text{Close} = 0.0546 * \text{Date} + 88.492$
 \Rightarrow ATVI has a higher slope

---Stock Price of ATVI Prediction by Movin Average----

Shape of Training Set: (3585, 1)

Shape of Validation Set: (1194, 1)

RMSE value on validation set: 35.07548406433045

---Stock Price of EA Prediction by Movin Average----

Shape of Training Set: (3585, 1)

Shape of Validation Set: (1194, 1)

RMSE value on validation set: 70.01838324969164



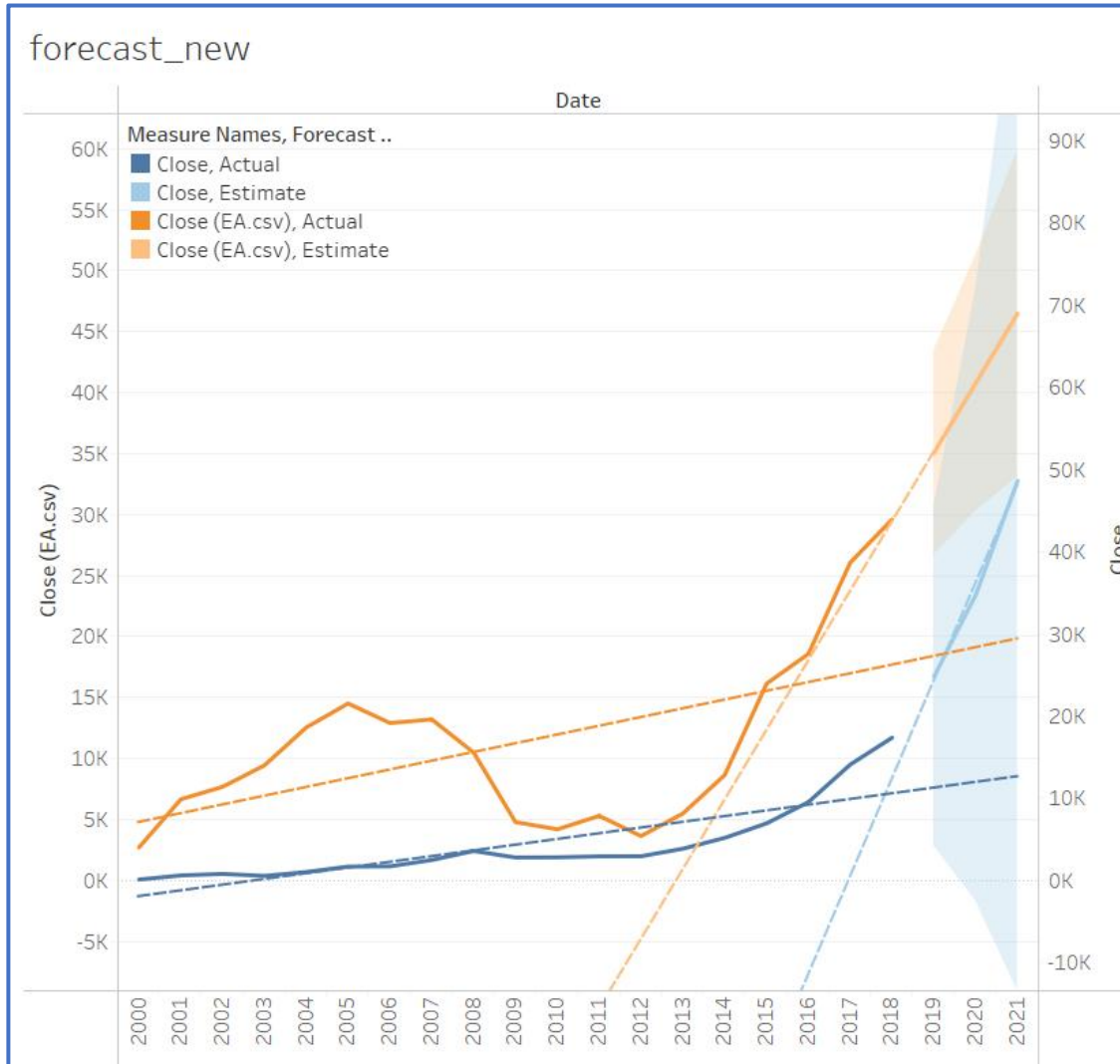
WE Recommend:

ATVI

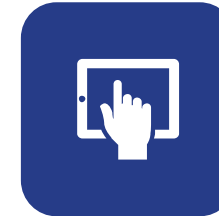


Conclusion

PART Four



Forecast in Tableau



Tableau

- Focus more on descriptive analysis;
- Very simple but inaccurate;

- more accurate conclusion
- have various choices of packages and models
- evaluation index



Pycharm

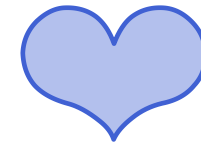


Tableau is more suitable for data visualization

PyCharm is a better choice for complex data analysis and fulfill the high desire of precision



THANK YOU!



Group I