Cryptocurrency Price Prediction with BNB

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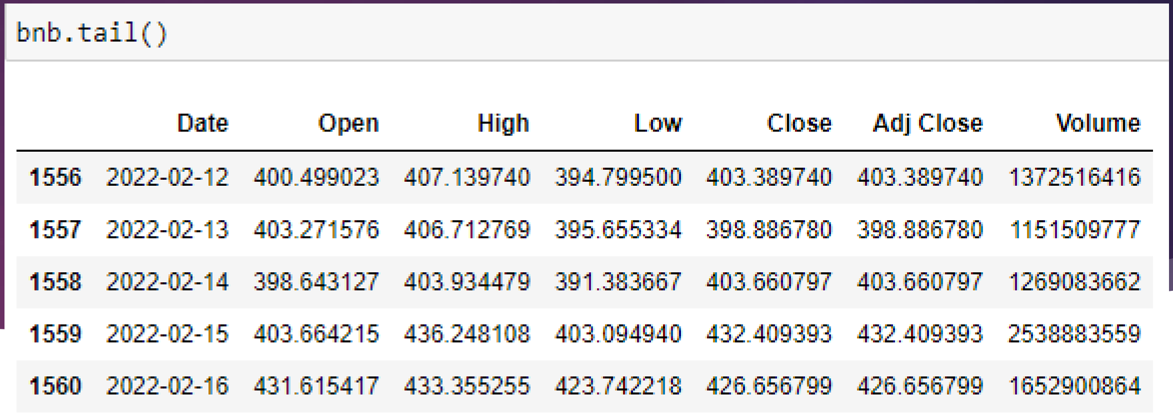
Data Overview

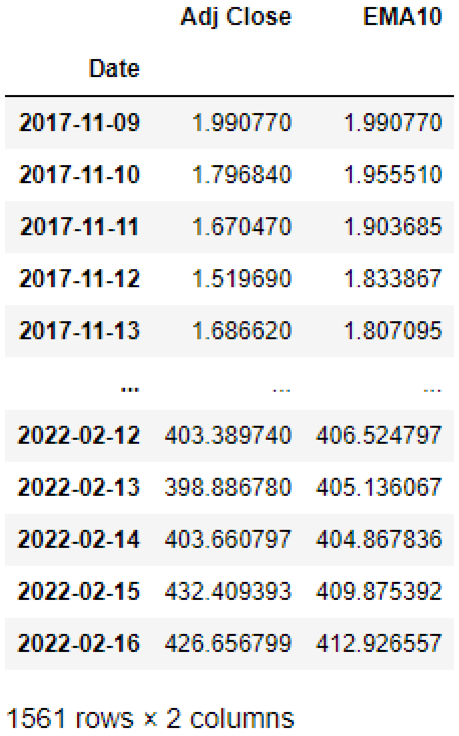


```
bnb.tail()
```

	Date	Open	High	Low	Close	Adj Close	Volume
1556	2022-02-12	400.499023	407.139740	394.799500	403.389740	403.389740	1372516416
1557	2022-02-13	403.271576	406.712769	395.655334	398.886780	398.886780	1151509777
1558	2022-02-14	398.643127	403.934479	391.383667	403.660797	403.660797	1269083662
1559	2022-02-15	403.664215	436.248108	403.094940	432.409393	432.409393	2538883559
1560	2022-02-16	431.615417	433.355255	423.742218	426.656799	426.656799	1652900864

- Dataset source:

  https://www.kaggle.com/varpit94/binancecoin-data
- Original dataset has 1561 rows & 7 columns
  - Consists of BNB coin's Open, High, Low, Close, Adj Close, and Volume
  - From 9 Nov 2017 to 16 Feb 2022
- The dataset was very neat and had no missing values
  - Little to no data cleaning was done
- Cut down dataset to just 3 columns
  - Date as index, Adj Close price and Exponential Moving Average

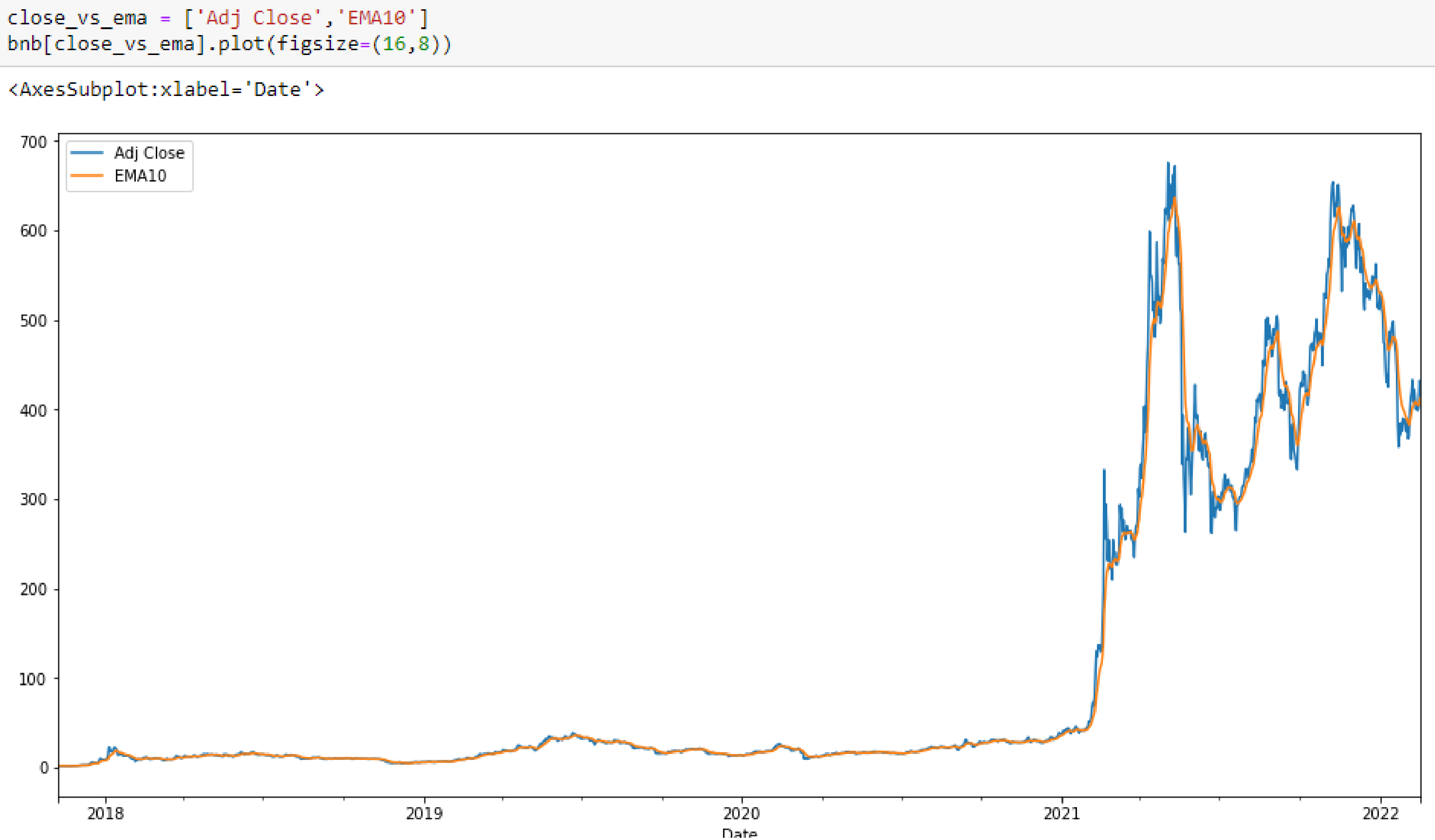


	Adj Close	EMA10
Date		
2017-11-09	1.990770	1.990770
2017-11-10	1.796840	1.955510
2017-11-11	1.670470	1.903685
2017-11-12	1.519690	1.833867
2017-11-13	1.686620	1.807095
...	...	...
2022-02-12	403.389740	406.524797
2022-02-13	398.886780	405.136067
2022-02-14	403.660797	404.867836
2022-02-15	432.409393	409.875392
2022-02-16	426.656799	412.926557

1561 rows × 2 columns

Demographics

- Plot our graph using Adj Close & EMA values over date period in dataset

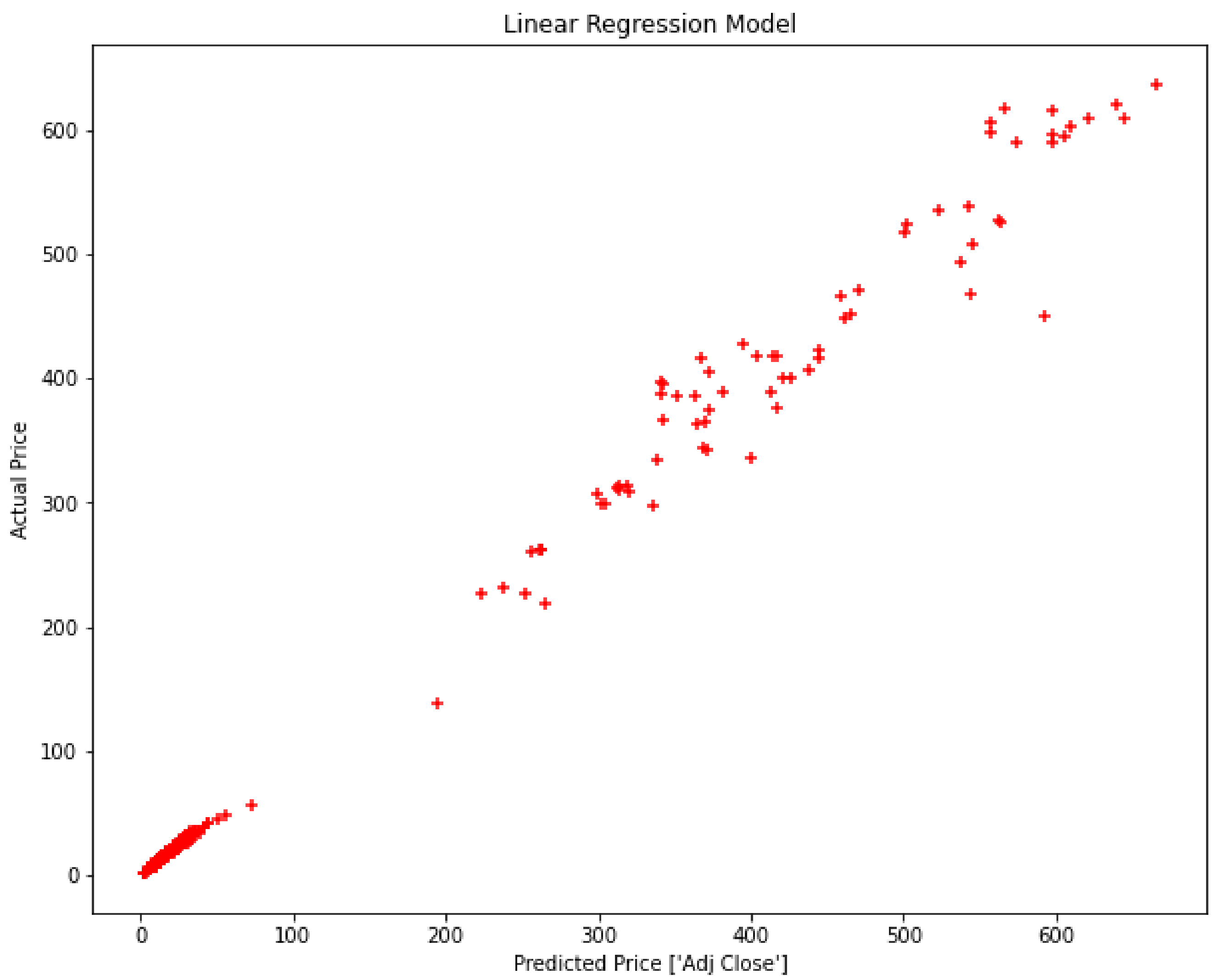


```
close_vs_ema = ['Adj Close','EMA10']
bnb[close_vs_ema].plot(figsize=(16,8))
```

```
<AxesSubplot:xlabel='Date'>
```

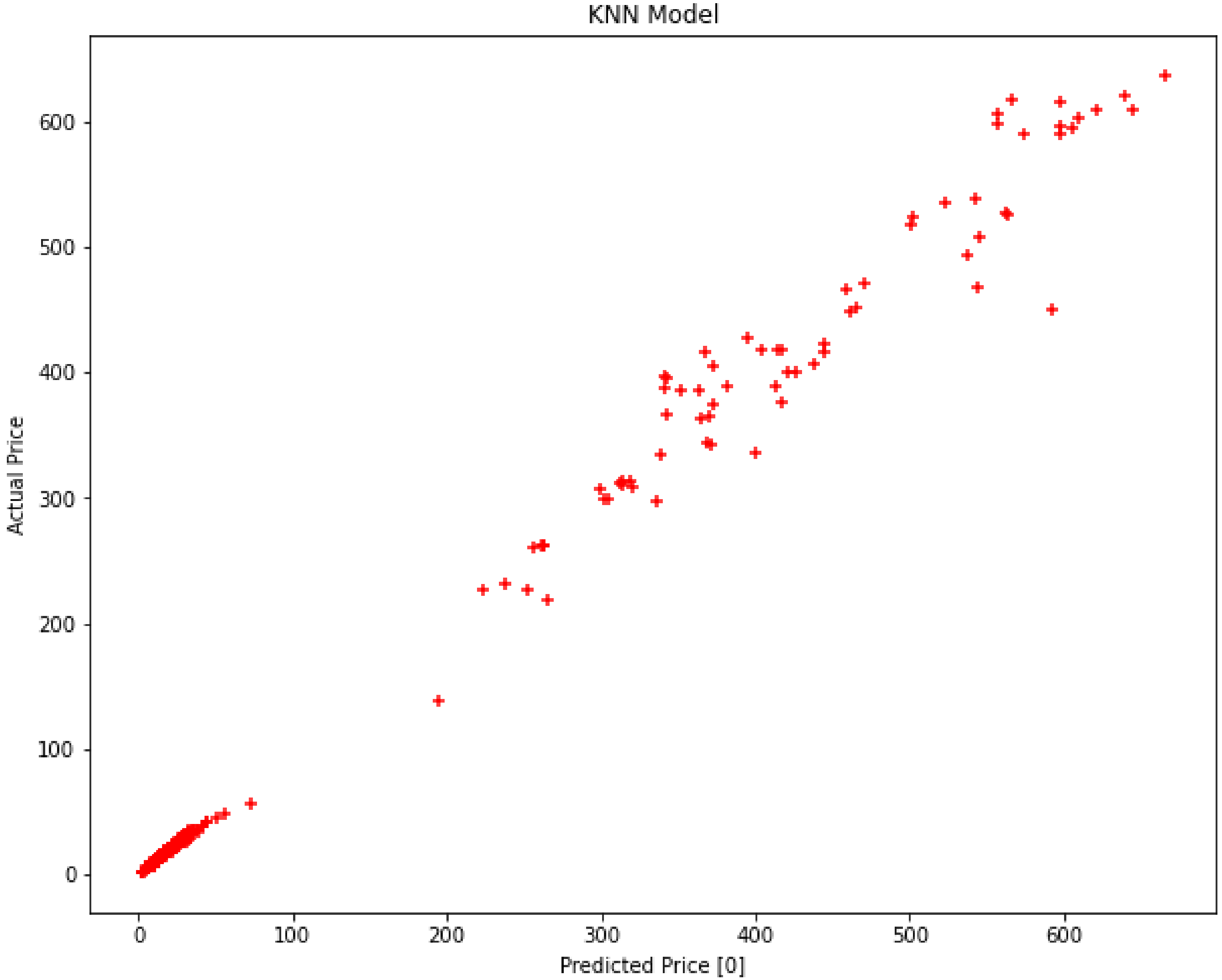
Predictive Models

- Linear Regression
  - RootMSE: 15.8368
  - MSE: 250.803
  - R-Squared(r2): 0.99210
  - Adjusted r2: 0.99207
  - Coefficients: 0.98948
  - Intercept: 0.35736



Predictive Models

- KNearestNeighbors
  - RootMSE: 17.2305
  - MSE: 296.892
  - R-Squared(r2): 0.99065



Optimize Predictive models

- Used GridSearchCV to identify best params to use.
- KNN, n_neighbors = 6, as our new param ,
  - RootMSE: 17.2305
  - MSE: 296.892
  - R-squared(r2): 0.99065

  - Values were same as KNN model without using new params

Comparison

Model/Accuracy	Linear Regression	KNearest Neighbors
RMSE	15.8368	17.2305
MSE	250.803	296.892
R-squared	0.99210	0.99065

As we can see from the table that the Linear Regression Model has better accuracy than the KNN model for predicting our Cryptocurrency price.