

# Polynomial\_Stock\_Historical\_Data

September 29, 2021

## 1 Polynomial Stock of Historical Data

```
[1]: import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from numpy.polynomial.chebyshev import chebfit, chebval
import pandas as pd

import warnings
warnings.filterwarnings("ignore")

# yfinance is used to fetch data
import yfinance as yf
yf.pdr_override()
```

```
[2]: # input
symbol = 'AMD'
start = '2017-01-01'
end = '2019-01-01'

# Read data
dataset = yf.download(symbol, start, end)

# View Columns
dataset.head()
```

[\*\*\*\*\*100%\*\*\*\*\*] 1 of 1 completed

```
[2]:
```

	Adj Close	Close	High	Low	Open	Volume
Date						
2017-01-03	11.43	11.43	11.65	11.02	11.42	55182000
2017-01-04	11.43	11.43	11.52	11.24	11.45	40781200
2017-01-05	11.24	11.24	11.69	11.23	11.43	38855200
2017-01-06	11.32	11.32	11.49	11.11	11.29	34453500
2017-01-09	11.49	11.49	11.64	11.31	11.37	37304800

```
[3]: dataset.tail()
```

```
[3]:
```

	Adj Close	Close	High	Low	Open	Volume
Date						
2018-12-24	16.650000	16.650000	17.219999	16.370001	16.520000	62933100
2018-12-26	17.900000	17.900000	17.910000	16.030001	16.879999	108811800
2018-12-27	17.490000	17.490000	17.740000	16.440001	17.430000	111373000
2018-12-28	17.820000	17.820000	18.309999	17.139999	17.530001	109214400
2018-12-31	18.459999	18.459999	18.510000	17.850000	18.150000	84732200

```
[4]: y = np.array(dataset['Adj Close'])
```

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[5]: len(y)
```

```
[5]: 502
```

```
[6]: x = np.arange(len(y))
     c = chebfit(x, y, 30)
```

```
[7]: p = []
     for i in np.arange(len(y)):
         p.append(chebval(i, c))
```

```
[8]: df = pd.DataFrame(data={'x': x, 'y': y, 'p': p})
     df['diff'] = df['y'] - df['p']
```

```
[9]: sns.set(rc={'figure.figsize':(14,10)})
     sns.pointplot(x = 'x', y = 'y', data=df, color='green')
     sns.pointplot(x = 'x', y = 'p', data=df, color='red')
     sns.pointplot(x = 'x', y = 'diff', data=df, color='blue')
```

```
[9]: <matplotlib.axes._subplots.AxesSubplot at 0x2b8c8796208>
```

