

# *Capstone Project: Netflix Data*

Visualize Netflix Data using Python

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# INTRODUCTION

# *Netflix Stock Profile*

- In this project, we will act as a data visualization developer at Yahoo Finance and will be helping the "Netflix Stock Profile" team visualize the Netflix stock data. In finance, a *stock profile* is a series of studies, visualizations, and analyses that dive into different aspects a publicly traded company's data. We will create visuals to show...
  - The distribution of the stock prices for the past year (2017)
  - Netflix's earnings and revenue in the last four quarters (2017)
  - The Actual vs. Estimated earnings per share for the four quarters in 2017
  - A comparison of the Netflix Stock price vs the Dow Jones Industrial Average price in 2017

# FORMAT

## VISUALIZATION

- Visualization of the data into different charts.
- These are presented in tandem with the findings.

## FINDINGS

- Draw conclusions from the visualizations and data that was been given to us.
- These are presented in tandem with the visualizations.

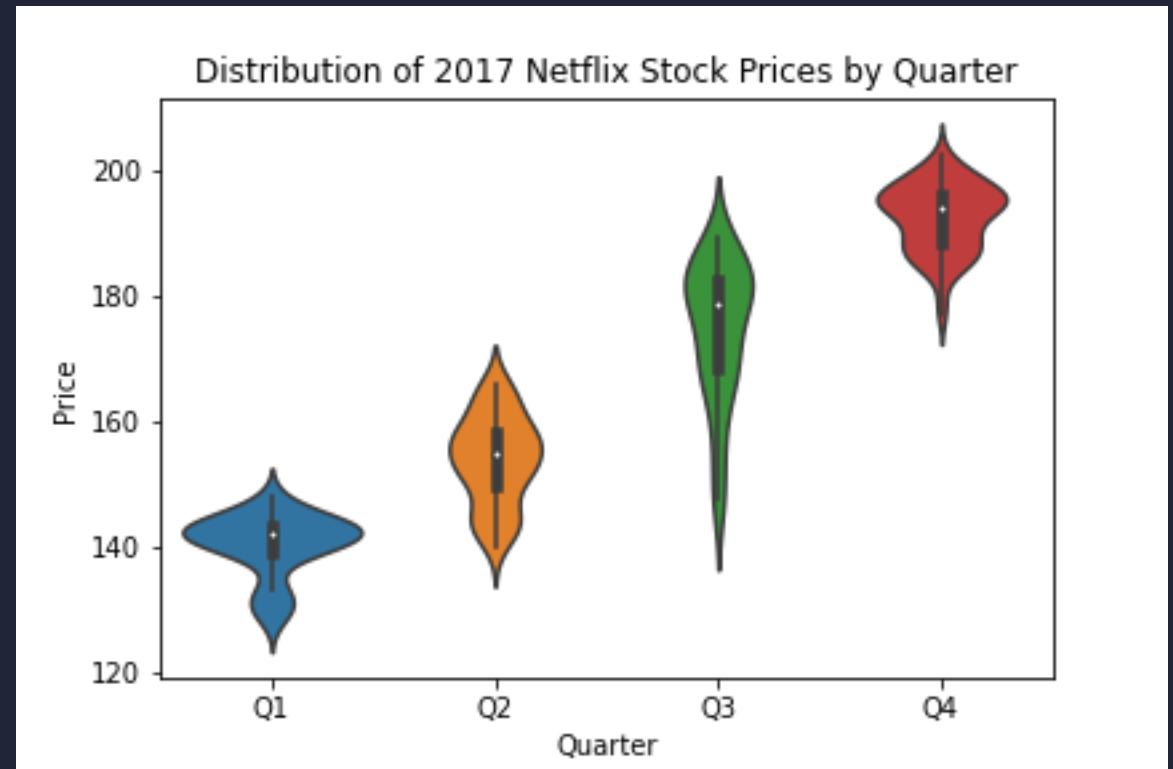
## CODE REVIEW

- This section would not be included when given to a company to determine financial health but for the purpose of this presentation, we will include it for the purpose of fact checking.

# STOCK PROFILE

# *Stock Health*

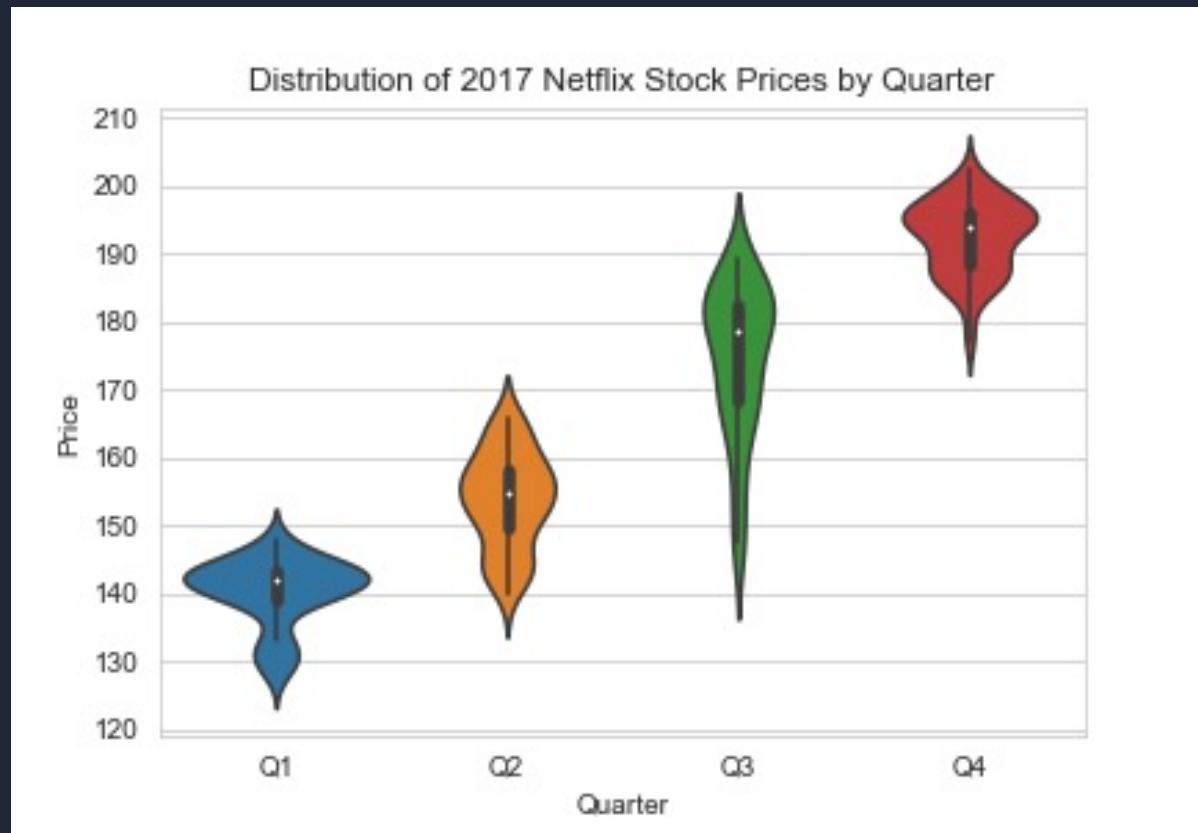
- The Netflix stock saw a steady increase throughout the entire year.
  - Each Quarter occupying a higher and higher position (relative to the CSP)
- Stock's closing price saw between \$130 - \$200 for most of the year.
  - Low - \$124.31
  - High - \$204.38
- While most Quarters were relatively steady (ranging between \$30 or so), Quarter 3 saw the most volatility indicated by Wide Ranging Distribution.



# Stock Health : Code Review

- We chose a violin plot to show the distribution of Stock Price by Quarter.
- Main changes were to upping the number of y ticks for more clarity and creating the background of the “whitegrid” to add more depth to the graph.

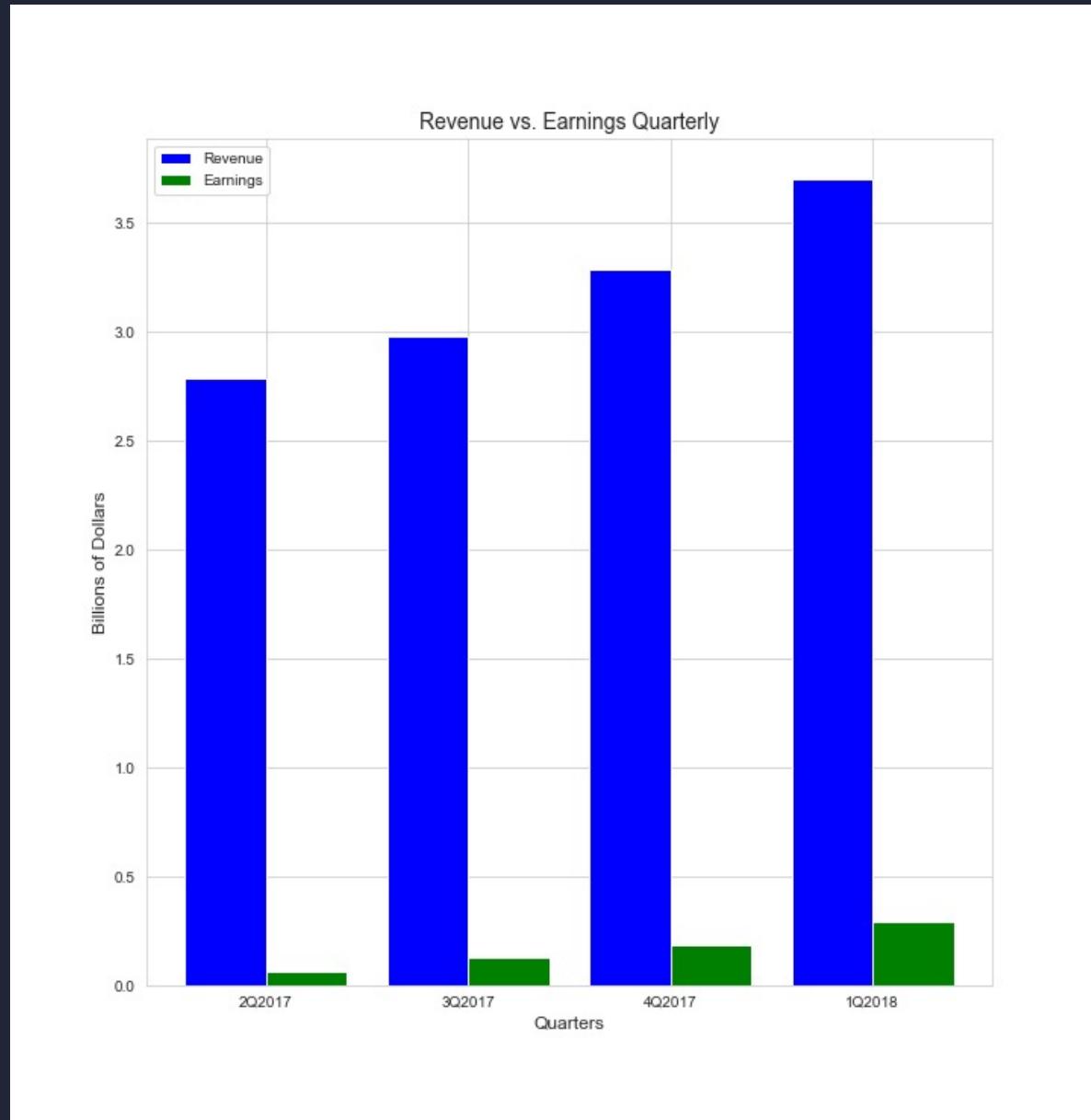
```
sns.set_style("whitegrid")  
ax = sns.violinplot()  
sns.violinplot(data = netflix_stocks_quarterly,  
x = "Quarter", y = "Price")  
ax.set_title('Distribution of 2017 Netflix \\  
Stock Prices by Quarter')  
ax.set_xlabel('Quarter')  
ax.set_ylabel('Price')  
ax.set_yticks(range(120,220,10))  
plt.savefig('Distribution of 2017 Netflix \\  
Stock Prices by Quarter.png')  
  
plt.show()
```



# EARNINGS VS. REVENUE

# *Earnings vs. Revenue*

- Each Quarter has seen great growth into the next quarter for both Earnings and Revenue. Based on the numbers below Netflix has not only gained great traction in growing Revenue but also became leaner in increasing profits.
- The ratio for Earnings against Revenue is...
  - Q1 - 2.35%
  - Q2 - 4.35%
  - Q3 - 5.63%
  - Q4 - 7.84%
- Revenue (in Billions) by Quarters...
  - Q1: 2.79 - Q2: 2.98 - Q3: 3.29 - Q4: 3.7
- Earnings (in Billions) by Quarters...
  - Q1: 0.0656 - Q2: 0.1296 - Q3: 0.1855 - Q4: 0.2901



# Earnings vs. Revenue - Code Review

- Main changes that were made...
  - Retained the "whitegrid" look from previous graph.
  - Changed color for earnings bar to green to represent profits.

```
# The metrics below are in billions of dollars
revenue_by_quarter = [2.79, 2.98, 3.29, 3.7]
earnings_by_quarter = [.0656, .12959, .18552, .29012]
quarter_labels = ["2Q2017", "3Q2017", "4Q2017", "1Q2018"]

middle_x = [ (a + b) / 2.0 for a, b in zip(bars1_x, bars2_x)]
labels = ["Revenue", "Earnings"]

plt.figure(figsize=(10,10))
ax = plt.subplot()
plt.bar(bars1_x, revenue_by_quarter, color='b')
plt.bar(bars2_x, earnings_by_quarter, color='g')
ax.set_title("Revenue vs. Earnings Quarterly", fontsize=14)
ax.set_xlabel("Quarters", fontsize = 12)
ax.set_ylabel("Billions of Dollars", fontsize = 12)
plt.xticks(middle_x, quarter_labels)
plt.legend(labels)

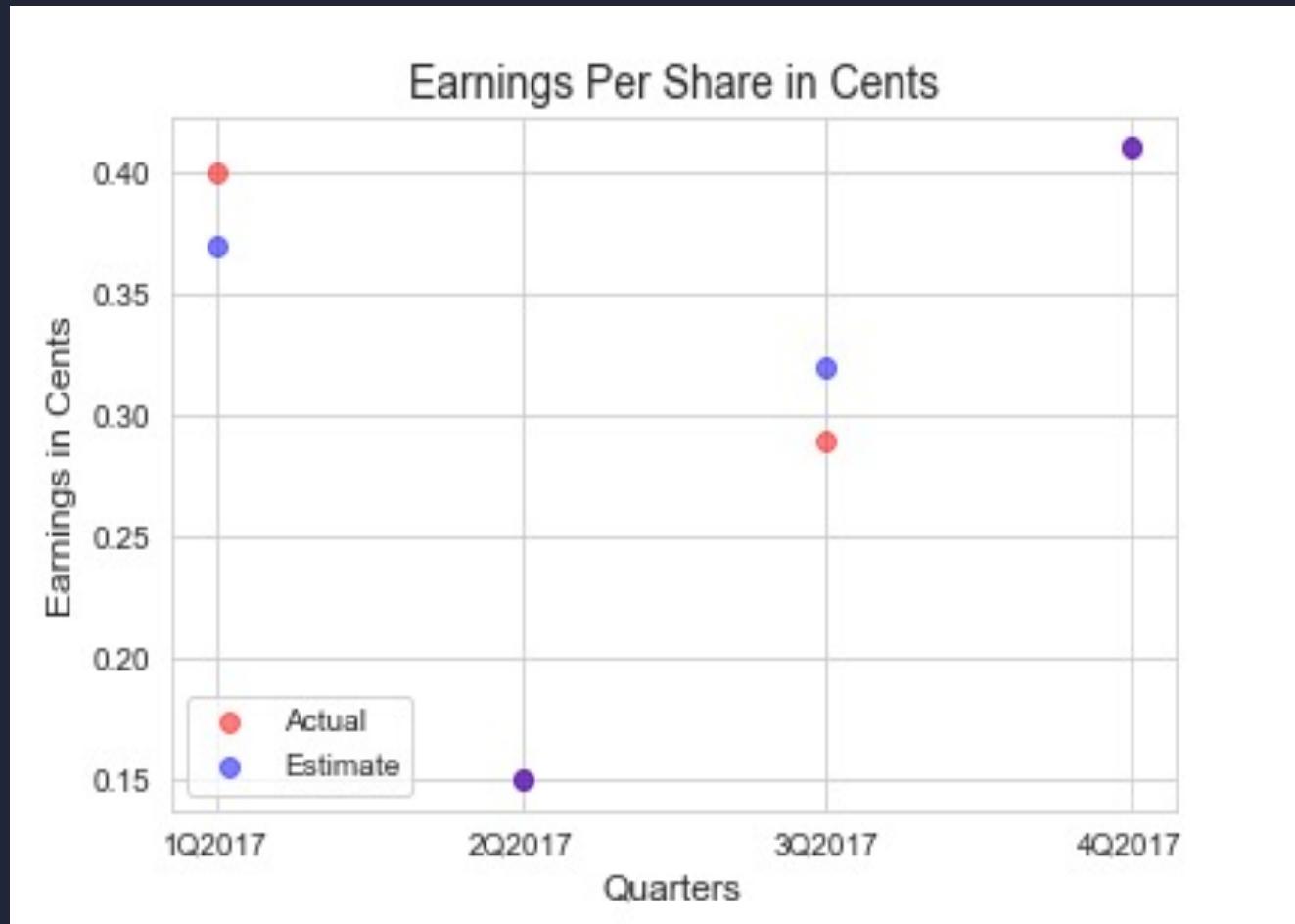
plt.savefig('Revenue vs Earnings Quarterly.png')
plt.show()
```

```
ratios = []
for i in range(len(revenue_by_quarter)):
    ratios.append(earnings_by_quarter[i] / revenue_by_quarter[i] * 100)
print(ratios)
print("{:.2f}%".format(sum(ratios) / len(ratios)))
```

# EPS REVIEW

# EPS REVIEW

- Yahoo was accurate in estimating EPS for Netflix hitting on 2/4 Quarters plotted to the right (purple dots)
  - Q2
  - Q4
- Netflix outperformed the estimate in Q1 but underperformed in Q3.



# Earnings vs. Revenue - Code Review

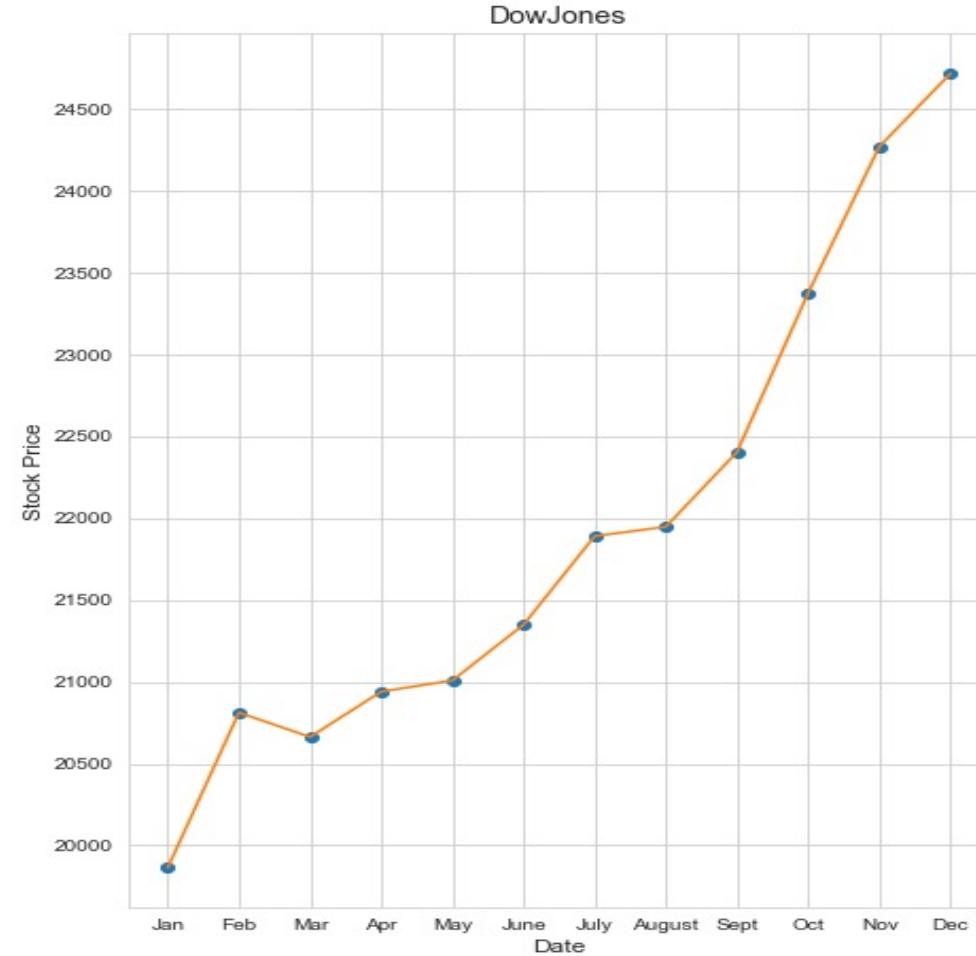
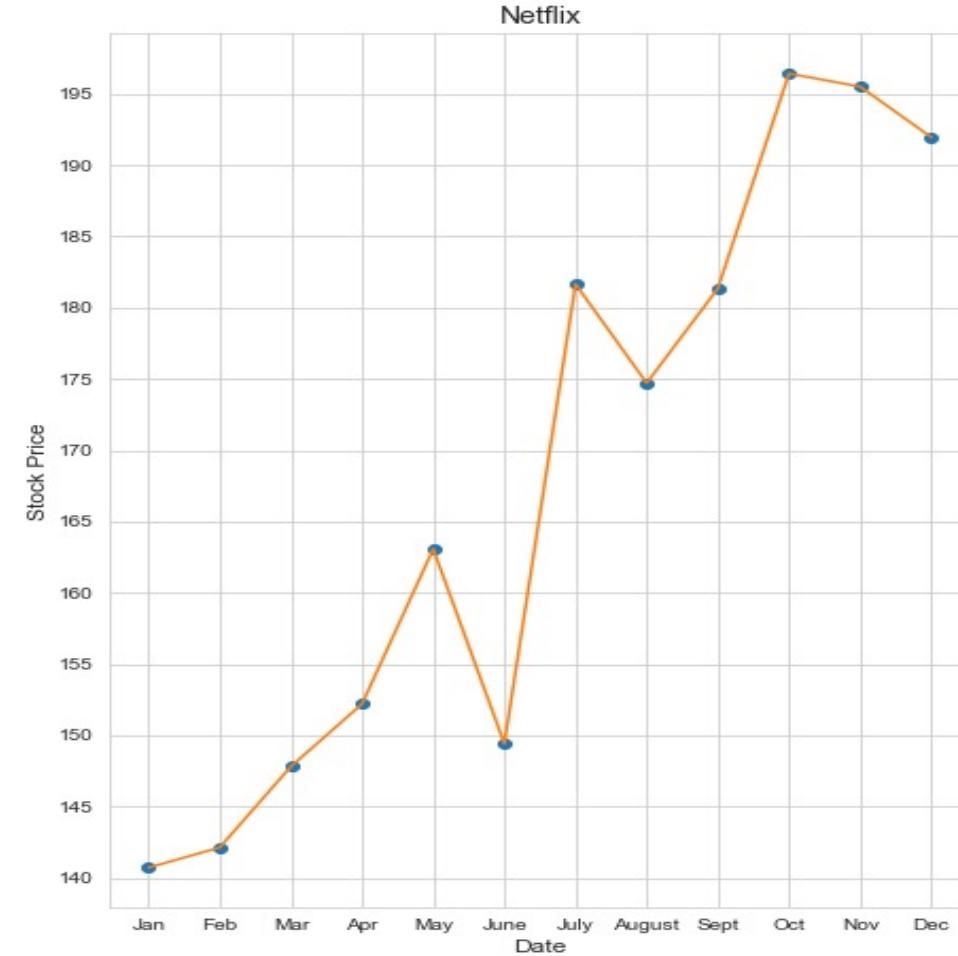
- Main changes that were made...
  - Retained the "whitegrid" look from previous graph.
  - Changed color and transparency for actual earnings and earnings estimate in case there was overlap.

```
x_positions = [1, 2, 3, 4]
chart_labels = ["1Q2017", "2Q2017", "3Q2017", "4Q2017"]
earnings_actual =[.4, .15,.29,.41]
earnings_estimate = [.37,.15,.32,.41]

plt.scatter(x_positions, earnings_actual,
            color= 'red', alpha = 0.5)
plt.scatter(x_positions, earnings_estimate,
            color= 'blue', alpha = 0.5)
plt.legend(["Actual", "Estimate"])
plt.xticks(x_positions, chart_labels)
plt.xlabel("Quarters", fontsize = 12)
plt.ylabel("Earnings in Cents", fontsize = 12)
plt.title("Earnings Per Share in Cents",
           fontsize = 14)
plt.savefig('Earnings Per Share in Cents.png')
plt.show()
```

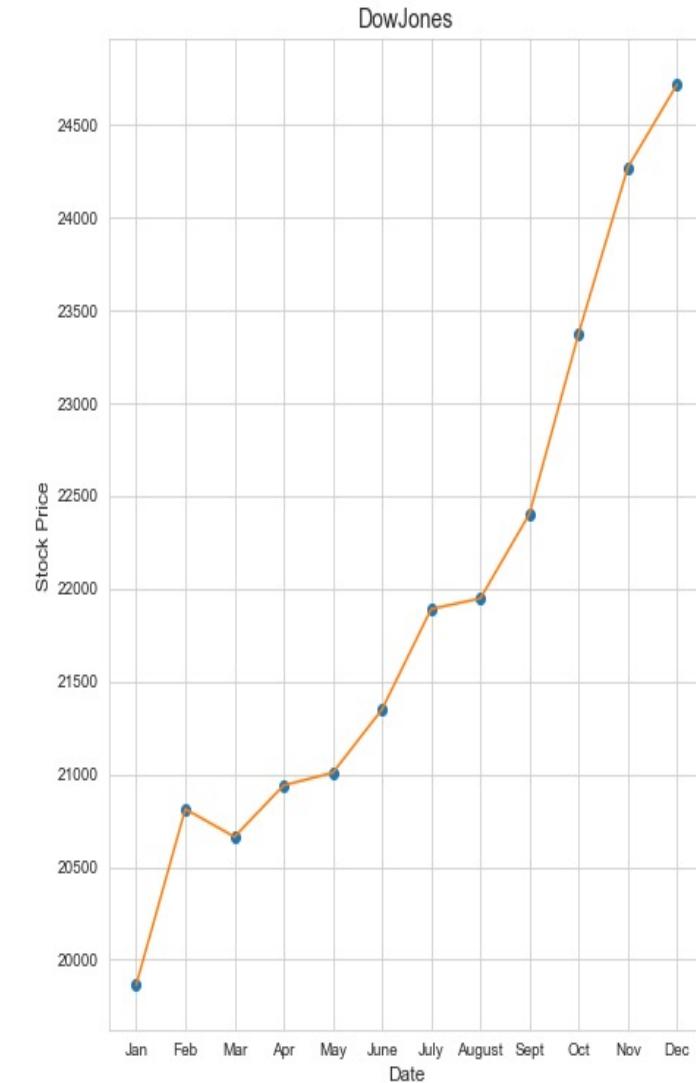
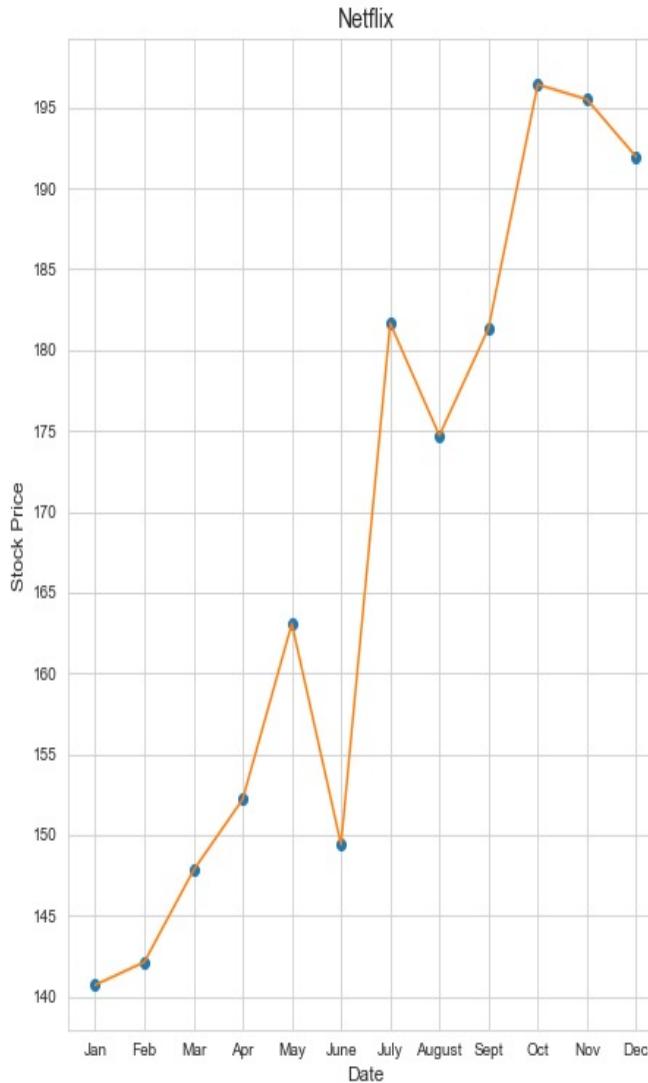
# EPS REVIEW

# *NFLX vs. DJI*



# *NFLX vs. DJI*

- Netflix and Dow Jones both saw significant increases in Stock Price over the year 2017.
- Netflix saw a lot more volatility in stock price compared to that of Dow Jones.
- The percent increase from January to December are...
  - Netflix – 42.53% increase
  - Dow Jones – 23.60% increase



# NFLX vs. DJI – Code Review

- Main changes that were made...
  - Retained the "whitegrid" look from previous graph.
  - Created more y-tick marks to show more of a range.
  - Created a list of months to create the x-tick marks.

```
position = [0,1,2,3,4,5,6,7,8,9,10,11]
months = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'June',
'July', 'August', 'Sept', 'Oct', 'Nov', 'Dec']

plt.figure(figsize=(16,10))

# Left plot Netflix
plt.subplot(1,2,1)
plt.plot(netflix_stocks['Date'], netflix_stocks['Price'],
'o', netflix_stocks['Date'], netflix_stocks['Price'], '-')
plt.xlabel("Date", fontsize = 12)
plt.ylabel("Stock Price", fontsize = 12)
plt.yticks(range(140,200,5))
plt.xticks(position, months)
plt.title("Netflix", fontsize = 14)

# Right plot Dow Jones
plt.subplot(1,2,2)
plt.plot(dowjones_stocks['Date'], dowjones_stocks['Price'],
'o', dowjones_stocks['Date'], dowjones_stocks['Price'], '-')
plt.title("DowJones", fontsize = 14)
plt.xlabel("Date", fontsize = 12)
plt.ylabel("Stock Price", fontsize = 12)
plt.yticks(range(20000,25000,500))
plt.xticks(position, months)

plt.savefig('Netflix & DowJones 2017.png')

plt.show()
```