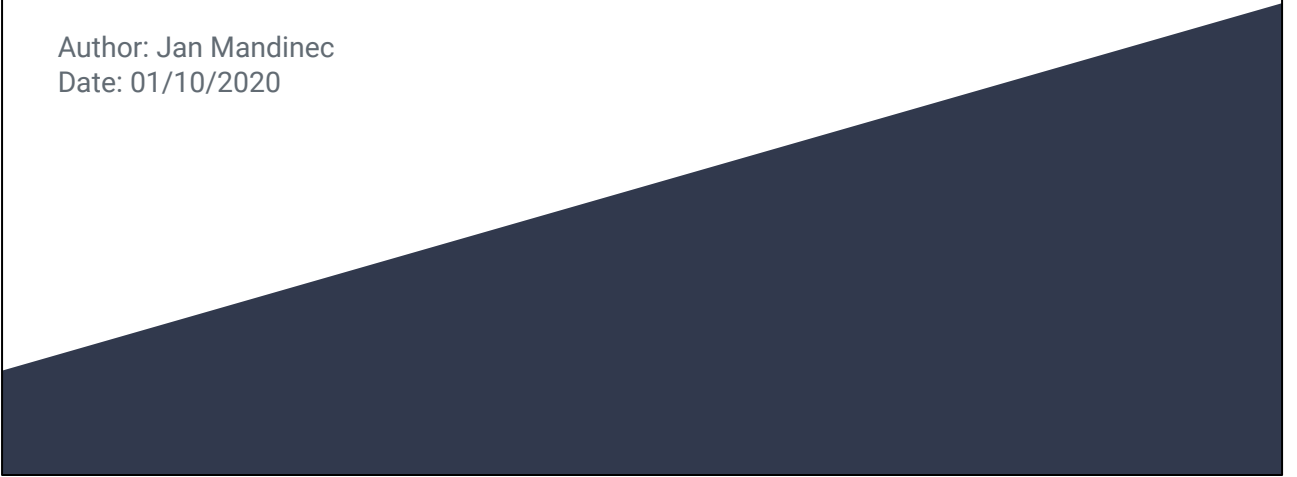# Netflix Stock Visualization – Capstone project

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List of Visualisations + Role

1. **Distribution of Netflix Stock Prices (quarterly)** - violin plot
2. **Earnings Per Share** - scatter plot
3. **Earnings and Revenue Comparison** - bar plot
4. **Netflix to Dowjones Comparison** - side by side plot + normalized comparison

My role:
- Three datasets were provided (netflix_stock, netflix_stock_quarterly, dowjones_stock)
- Data were for year 2017
- Data examination
- Visualisation
- Data properties quantification

My job was to analyse and visualise given data. I had 3 different datasets to work with (Netflix_stock, Dowjones_stock & Netflix_stock_quarterly).

Firstly earliest and the latest date in each datasets was found.

Each dataset consists of data for a year 2017. Netflix_stock and Dowjones_stock data have each 12 rows in total as there were records for each month.
Netflix_stock_quarterly data on the other hand consists of 251 rows indication that there are data for each day of the year excluding weekends and holidays.

Each dataset consists of minimal amount of 7 columns (8 in Netflix_stock_quarterly) such as minimum (Low) and maximum (High) price. For the purposes of upcoming visualizations the Adj Close column was further examined.

Distribution of Netflix Stock Prices (quarterly)

Netflix stocks prices distributions in 2017?
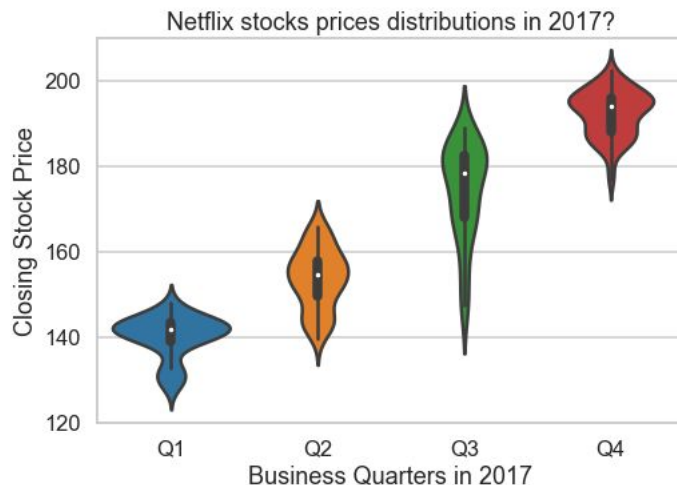
First impressions:

- Prices constantly rising
- Rather huge volatility

Price range in 95 percentile?

- Average range: $25.2
- Biggest range: $41.6

Extremes:

- Lowest price: $127.5
- Highest price: $202.7

Netflix_stock_quarterly dataset was used to create this figure.

Violin plot shows the distributions for each quarter of 2017.

It is clear that the Adj prices are constantly rising throughout the year.

Another thing to notice is that the 95 % confidence interval recorded a huge span indicating rather huge changes in stock price. In fact 95% confidence interval price range was in average $25.2.

Huge span in price changes is especially noticeable in the 3rd quarter where the 95% confidence interval price range was $41.6.

Prices in 95% confidence interval in 2017 went from $127.5 up to $202.7.

Earnings Per Share

Earnings Per Share in Cents
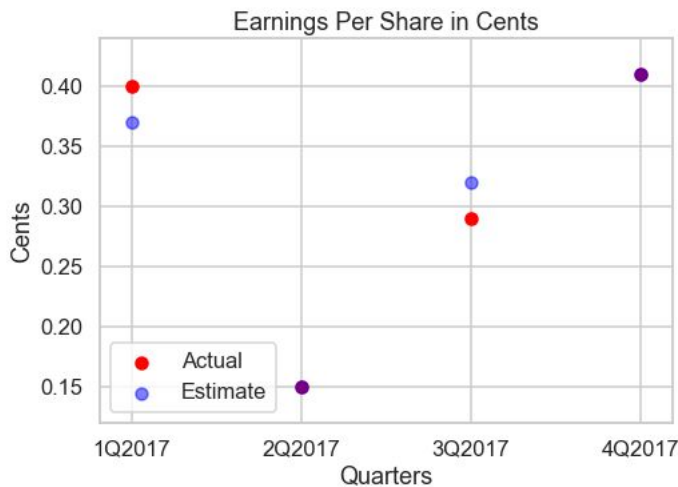
Description:

- Earnings were estimated rather accurately
- In 2nd and 4th quarter, estimation meets the actual value.

Given data earningns_actual and earnings_estimate were compared in a scatter plot.

It can be noticed, that estimated earnings per share were fairly close to actual results. In 2nd and 4th quarter estimated earnings were exactly the same as the actual earnings.

Earnings and Revenue Comparison

Trend Revenue:

- Revenue constantly rising
- Average rate of growth: 9.89 %

Trend Earnings:

- Earnings also rising
- Average rate of growth: 65.7 %

Earnings in Revenue:

- Earnings constitute more and more each quarter
- In average it consist: 5.04 %

Given data revenue_by_quarter and earnings_by_quarter were compared in a bar plot.

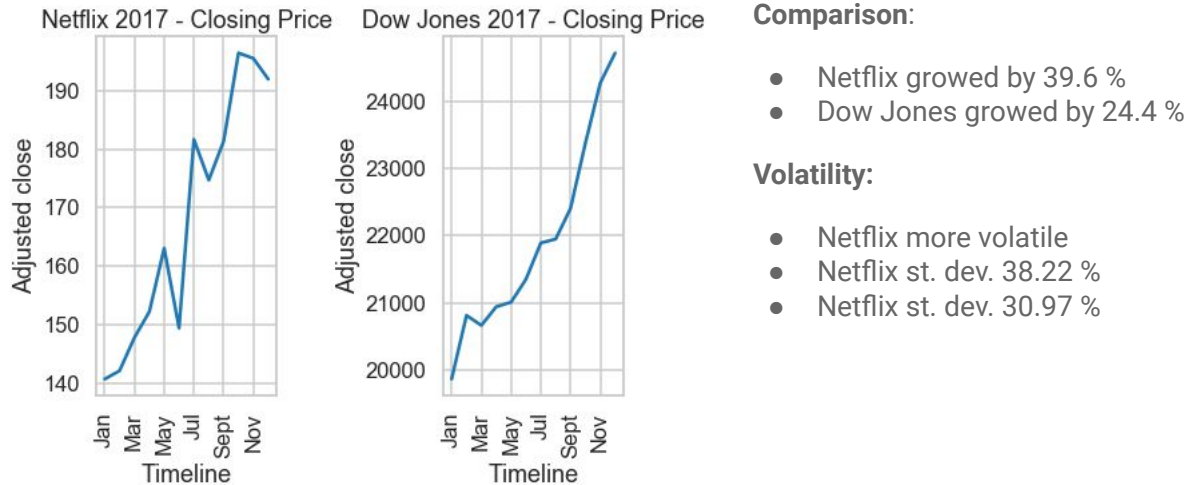Data for 4 consecutive quarters starting 2nd quarter of 2017 were given.

As it can be seen, earnings and revenue are both growing each quarter.

For instance revenue increased from 6.8% between 2nd and 3rd quarter. Between 4th quarter of 2017 and 1st quarter of 2018 it was 12.46%. Average pace of growth was 9.89% per quarter.

Earnings growed compared to revenue even faster. In first examined period (between 2nd and 3rd quarter) it recorded tremendous grow 97.5%. In other quarter the rate of growth slowed, but it still managed to record impressive results 43.1% and 56.3%. This gives 65.7 % rate of growth in average.

Thanks to the fact that earnings grow with much faster pace than revenues then the gap between both quantities constantly decrease each quarter. In average earnings constitute 5.04 % of revenue.

Netflix to Dow Jones Comparison

Netflix 2017 - Closing Price

Dow Jones 2017 - Closing Price

Comparison:

- Netflix growed by 39.6 %
- Dow Jones growed by 24.4 %

Volatility:

- Netflix more volatile
- Netflix st. dev. 38.22 %
- Netflix st. dev. 30.97 %

Adj price column from dowjones_stocks and netflix_stocks was used to to create this plot. Plot compares netflix closing stock prices to industry average.

As seen from the figure, both the netflix and whole industry recorded significant growth in 2017. Netflix growed by 39.6%. The industry grew by 24.4%. Therefore, Netflix grew 15.2% faster than the whole industry.

Throughout examined year netflix adj prices was also more volatile. Standard deviation for the netflix Adj prices was 38.2% which is higher compare to standard deviation of industry 30.9%.

Netflix to Dow Jones Comparison

Normalized prices (Adj Close)
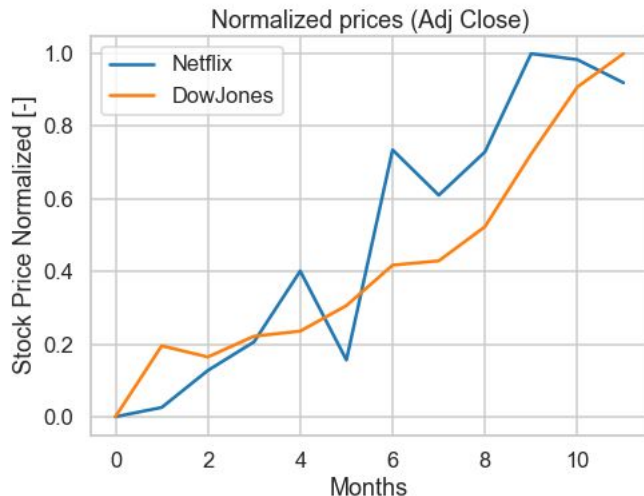
Data for each dataset was normalized to allow comparison.

Price of stocks comparison:

- Netflix growed faster for 6 months

Adj prices in each file is vastly different. In order to make prices comparable, all prices are normalized to be comparable.

For the comparison Netflix stocks grew faster than the industry for 6 months.