NIAGARA UNIVERSITY

DATA ANALYSIS OF TESLA MOTORS USING PYTHON SCRIPT

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Introduction

Throughout this past year, I have been able to combined my background as an accounting student with my interest in data analytics to conduct introductory research with Dr. Tong. To begin the year, Dr. Tong and I reviewed the Python curriculum from the spring 2020 semester that would be critical and applicable to my research. I then found data relevant to the accounting field that I could work with and manipulate using Python. I decided to study Tesla's financial statements to obtain and model a deeper understanding of their profitability in order to make strong and reasonable conclusions.

This current semester we focused on making future predictions based on the data from Tesla's financial statements. We studied different scripts and codes in order to build upon my studies from the fall.

Goals

Python was extremely helpful to use throughout this study and broadened my horizons regarding data interpretation. Although these calculations could be done using a different platform, such as Excel, Python made it significantly easier to efficiently generate multiple calculations, charts, and graphs.
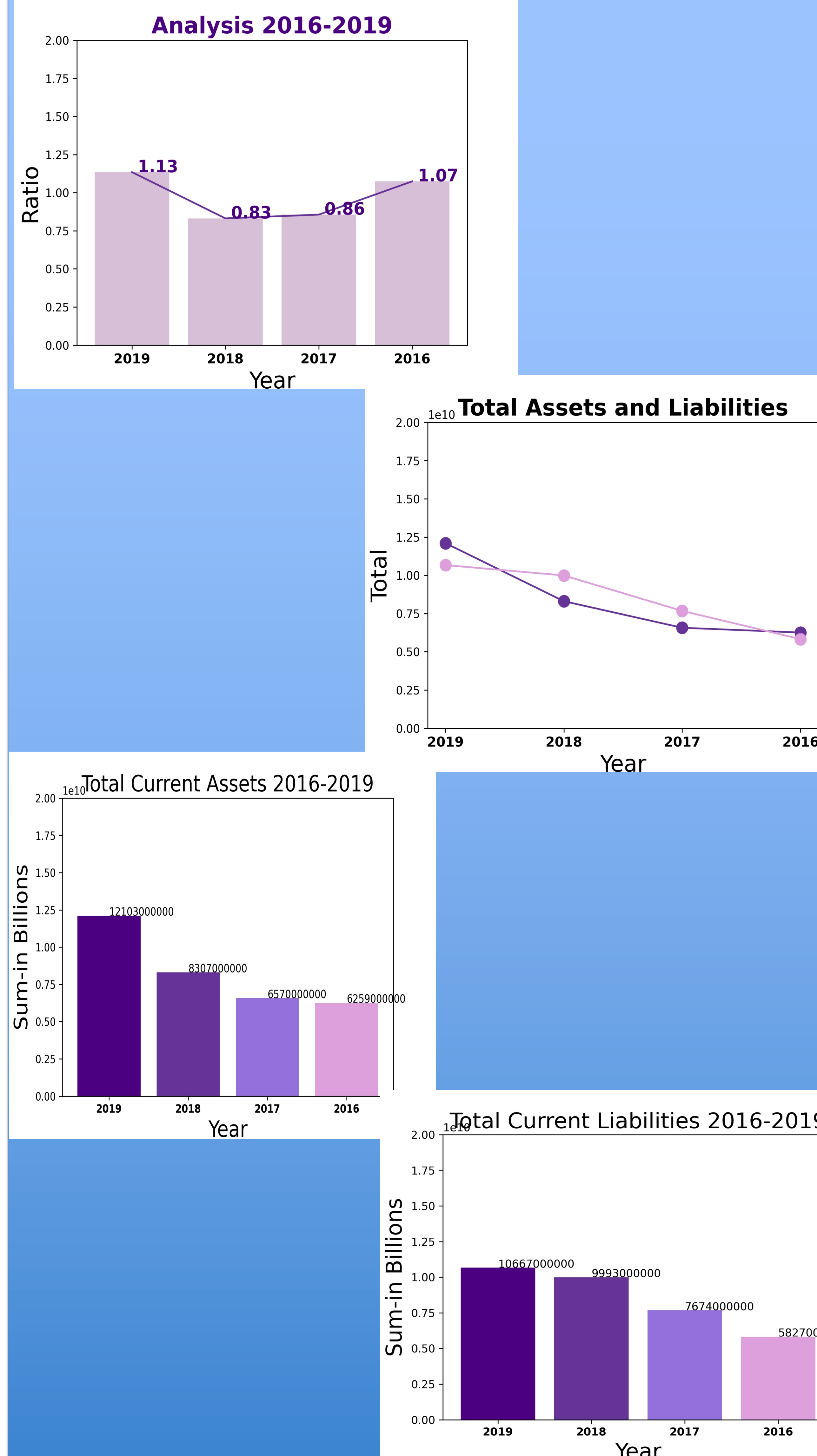
Learning how to use Python to complete these calculations have strengthen my ability to interpret and analyze the financial statements in businesses.

The accounting world is constantly changing especially with the word becoming increasingly more digital. The goal of this research was to become more data-minded when it comes to analyzing financial statements and complying financial information. Learning this led to drawing effective and financially literate conclusions.

Problem → Application → Solution

Analysis 2016-2019

Total Assets and Liabilities

Total Current Assets 2016-2019

Total Current Liabilities 2016-2019

Design and Development

My Codes:

CURRENT RATIO- *Current Assets*

```
#display "Current Assets"
current_assets =df.loc[df['AccountType']=='Current Assets',
['Value2019','Value2018','Value2017','Value2016']]
print("\n**** Current Assets *****")
print(current_assets)
print(current_assets.sum())
print(current_assets.count())
print(current_assets.mean())
print(current_assets['Value2019'])
```

```
**** Current Assets *****
     Value2019      Value2018      Value2017      Value2016
0  6.268000e+09   3.686000e+09   3.368000e+09   3.393000e+09
1  2.460000e+08   1.930000e+08   1.550000e+08   1.060000e+08
2  1.324000e+09   9.490000e+08   5.150000e+08   4.990000e+08
3  3.552000e+09   3.113000e+09   2.264000e+09   2.067000e+09
4  7.130000e+08   3.660000e+08   2.680000e+08   1.940000e+08
Value2019    1.210300e+10
Value2018    8.307000e+09
Value2017    6.570000e+09
Value2016    6.259000e+09
```

Future Work

With the data analytics minor at Niagara University being so new and the demand for accountants and business students with a data analytic background becoming so high, I believe the work I have done with Dr. Tong and Professor Agnello can be used as a steppingstone for future business students. Dr. Tong and I have discussed future collaboration on a final project at the end of his class- Contemporary Issues In Accounting: Python (ACC314). This would provide business students with the opportunity to see how Python can be directly applied to their field of business study to make reasonable and valuable conclusions.

We have also discussed streamlining Python code for some common ratios, predictions, and other commonly used equations used to evaluate the strength and probability of a company or business.

Creative Thinking   **Creative Learning**