### \*\*Overview\*\* ###

###### \*\*Stocks Performance Comparison\*\*

1. **Overview of Election Audit:** Explain the purpose of this election audit analysis.

### \*\*Overview\*\* ###

By the request of Colorado Board of Elections an audit for the congressional election of Arapahoe, Denver and Jefferson counties was performed. The audit was performed on the votes collected by the Board of Elections on and before election date and gathered by manual counting, scanner reading and electronic voting machines. The data contained 3 types of information; the unique Ballot ID assigned to every counted vote, the County in which the vote was recorded and the candidate who received credit for the vote. The goal of the inspection was to tabulate the winner candidate of the election by popular vote along with examination on voter turnout by county.

### \*\***Audit methodology**\*\* ###

The data was provided by the Board of Elections. The analysis was performed using the software’s Python 3.6.1 and PyCharm. First the total number of votes was calculated from the data set and all candidates that received votes were identified. Every vote was linked to the respective candidate and the percentage of votes each candidate received was calculated. The winner of the election by popular vote was identified and the analysis result was returned to the Colorado Board of Elections.

From the raw data, we performed the following analysis. A. Calculated the total numbers of votes B. Identified all the candidates that received votes C. Tallied the total number of votes every candidate received D. Calculated the percentage of votes every candidate received. E. After analyzing the data, the winner of the election by popular vote was identified.

1. **Election-Audit Results:** Using a bulleted list, address the following election outcomes. Use images or examples of your code as support where necessary.
   1. How many votes were cast in this congressional election?
   2. Provide a breakdown of the number of votes and the percentage of total votes for each county in the precinct.
   3. Which county had the largest number of votes?
   4. Provide a breakdown of the number of votes and the percentage of the total votes each candidate received.
   5. Which candidate won the election, what was their vote count, and what was their percentage of the total votes?

###\*\*Election and Audit Results\*\* ###

* Total Number of Votes \*\* 369,711\*\* \*\*Percentage\*\*
  + Denver 306,055 82.8%
  + Jefferson 38,855 10.5%
  + Arapahoe 24,801 6.7%
* County with highest participation was \*\*Denver\*\*

[Image - Vote Distribution by County]

* Votes by Congressional Candidate \*\*Percentage\*\*
  + Diana DeGette 272,892 73.8%
  + Charles Casper Stockham 85,213 23.0%
  + Raymon Anthony Doane 11,606 3.1%
* The Winner of the popular vote for the Congressional election was Diana DeGette who received 272,892 total votes from all counties and had 73.8% of the total votes.

[Image – Election Results Charts]

1. **Election-Audit Summary:** In a summary statement, provide a business proposal to the election commission on how this script can be used—with some modifications—for any election. Give at least two examples of how this script can be modified to be used for other elections.

###\*\*Election and Audit Results\*\* ###

The audit of the election was performed by creating a code with the programming language, Python, that will extract the requested information from the voting data and presents it in an easy-to-understand format. There are multiple benefits of using a robust machine analysis but primarily, it provides an accurate and fast assessment of data that could prevent human counting errors or influence.

The parameters that were designed in this code can be modified in order to be used in analysis for other elections. The code is scalable and can process larger amounts of data while maintaining its integrity. It can also be adjusted to process other variables of data, from multiple public officials positions in the same election to breaking down vote’s categories by city. To expand in the scalability options, a timer was inserted in the code ^1 in order to calculate the amount of time it took to process the data. The current analysis parameters were produced in 0.017 seconds. This also presents the prospect to provide frequent election status updates to the public shortly after the data is received.

[image of code run time]

If necessary and desired, the code can also provide other insights from the data set received. By example, with the current data we could identify how many votes every candidate received by county. In addition, if information regarding the number of registered voters by county is received, we could modify the code in order to provide understanding regarding voter participation. Such analysis could provide awareness regarding the voting process by area and be the first path to identifying if there is any unbalanced voting dynamic between counties.

Furthermore, if candidates were aligned with a specific political party, it would be possible to calculate the results with political party affiliation filters. Depending on local and State election laws, that analysis may be necessary in order to assist in post-election decisions.

^1 https://docs.python.org/3/library/profile.html#module-cProfile

import cProfile, pstats, io  
from pstats import SortKey  
pr = cProfile.Profile()  
pr.enable()

#... Analysis Code …

pr.disable()  
s = io.StringIO()  
sortby = SortKey.CUMULATIVE  
ps = pstats.Stats(pr, stream=s).sort\_stats(sortby)  
ps.print\_stats()  
print(s.getvalue())

Could be tweaked to separate candidates by political party

Scalability of the code

Identify how many votes each candidate received by county.

With more data regarding registered voters and voter participation, analysis can be made to provide insight on registered voters participation by county. May provide insight regarding the voting process and be the first path to identifying if there is any unbalanced voting dynamic between counties.

Robust machine analysis can provide tabulation of winners that could prevent human counting errors or influence in a shorter period of time.

Original Readme

# Election\_Analysis

### \*\*Overview\*\* ###

By the request of Colorado Board of Elections an audit for the election of Arapahoe, Denver and Jefferson counties was performed.

From the raw data, we performed the following analysis.

A. Calculated the total numbers of votes

B. Identified all the candidates that received votes

C. Tallied the total number of votes every candidate received

D. Calculated the percentage of votes every candidate received.

E. After analyzing the data, the winner of the election by popular vote was identified.

### \*\*Resources\*\* ###

Data Source: election\_results.cvs - Provided by Colorado Board of Elections

Software: Python 3.6.1, PyCharm - Used for analyzing the data

### \*\*Summary\*\* ###

After reviewing the data and doing the analysis stated previously, the winner of the election was identified as \*\*Diana DeGette\*\* who received 272,892 votes with a 73.8% majority of the votes.

#### \*\* Election Results \*\* ####

##### Total Votes: 369,711 #####

Charles Casper Stockham: 23.0% (85,213)

\*\*Diana DeGette: 73.8% (272,892)\*\*

Raymon Anthony Doane: 3.1 % (11,606)

![Election Results Chart](https://user-images.githubusercontent.com/85839235/125213906-67cc4c00-e282-11eb-91b6-6453868d2f37.png)