# Module 3 Challenge - [PYTHON-CHALLENGE](https://github.com/MichaelELeonard/python-challenge)

GOAL

For the Module #3 Challenge we were tasked with creating Python code to handle two potential real-world situations involving a Banking Institution and a Small Rural Town modernizing its election processes.

PyBank Project

For the PyBank project we needed the read in data from a .csv file and create code that will determine:

* The total number of months included in the dataset
* The net total amount of "Profit/Losses" over the entire period
* The changes in "Profit/Losses" over the entire period, and then the average of those changes
* The greatest increase in profits (date and amount) over the entire period
* The greatest decrease in profits (date and amount) over the entire period

The output results should display:

Financial Analysis

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Total Months: 86

Total: $22564198

Average Change: $-8311.11

Greatest Increase in Profits: Aug-16 ($1862002)

Greatest Decrease in Profits: Feb-14 ($-1825558)

THE CODE

For this project I imported the os & csv libraries and initialized my initial variables. I then set up the file path so the code would be able to read in the provided .csv file. A FOR loop was utilized to read through the data in the file, storing the total number of months to be examined in Total\_Months and the Net Total Profit/Losses in Total\_Net. A challenging component of this project was to calculate the Profit/Loss interval amounts that then tabulate the average of that change. The Total\_Sum\_Change\_Amount was calculated by taking the current months Profit/Loss amount (Change \_Amount) and then subtracting it from the previous months Profit/Loss change amount (Previous\_Change\_Amout). An exception needed to handle the first month of data as there was not (Previous\_Change\_Amout) data to compare it to, and one month needed to be removed in the Average\_Change calculation to compensate for the loss of this first month. Greatest\_Increase, Greatest\_Increase\_Date, Greatest\_Decrease, Greatest\_Decrease\_Date was also tracked while looping through the data as they were required variables for this project. Finally, the results were printed out to the Visual Studio Terminal and a Text file (Bank\_Results.txt) as outlined in the project rubric.

RESULTS

The results of the code were able to replicate the desired output laid out in the project rubric. These results showed 86 months of data examined and a net total amount of Profit/Losses to of $22,564,198. The average change between months was $-8311.11. The greatest increase in profits occurred on August 16th with an increase of $1,862,002 and the greatest decrease in profits occurred on February 14th with a decrease of $-1,825,558. The code executes efficiently, producing results in approximately 2.13 seconds.