The Cooper Union
EID378 Finance
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Practice with Python
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Do the following in Python 3 (please no Python 2!) in a Jupyter Notebook (optional).

1. Create a 6×4 *pandas* dataframe of random integers in the range $\{-3 \leq n \leq 5\}$, with indexes *'u','v','w','x','y','z'* and columns *'A','B','C','D'*.

2. Save the array to a *.csv* file.

3. Read the *.csv* file back directly into a *pandas* dataframe. Make sure you have the indexes and column names restored properly!

4. Create a fifth column labeled *'MAX'* that has the maximum value of each row, and display (*print*) the dataframe. [This should be a permanent change]

5. Remove the *'MAX'* column from the dataframe. [This should be a permanent change.]

6. Plot the columns of the dataframe. The horizontal axis should have ticks labeled as the index names, i.e., *'u','v','w','x','y','z'*. The curves should have different colors, line styles, line widths and marker types. Provide a legend.

7. Find the index that has the maximum number of positive values. If there is a tie, give back just one.

8. Compute the mean of each column, displaying a corresponding *data series* indexed by the column names.

9. Extract the sub-dataframe corresponding to those indexes where the entries in the *'A'* column are positive.

10. Extract the sub-dataframe corresponding to those columns where the entries in the row indexed by *'u'* are positive.

11. Create a dataframe that contains the squares of the values.