CISC 5352 Financial Data Analytics Quiz (1) [1]

[1] Please turn in your workable codes and corresponding running results.

Python warm-up (30 points)

1. **Write a python program to**
   1. Generate a 10x10 random matrix
   2. Compute its eigenvalues
   3. Create its corresponding dataframe and label each column as column 1, 2, ...10
   4. Write the dataframe into a csv file
   5. Compute its singular values by using numpy.linalg.svd
2. **Write a python program to calculate the following values**
   - $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n}(\frac{6}{7})^n$
   - $\lim_{n\to\infty}(1-\frac{1}{n})^{2n}$
   - by using three ways
     1. list
     2. ndarray
     3. symbolic module: sympy