Assignment 6

- Please write your code in a Jupyter Notebook file (.ipynb) and submit it on Blackboard
- Make sure to label your answer of each question clearly and add comments to make it readable.
- You are allowed to discuss with other students (up to three) or the instructor. Please put all the names of students that you discussed with. However individual students must write their own solutions.
- Copying a program, or letting someone else copy your program, is a form of academic dishonesty
- Maximally leverage Piazza to benefit other students by your questions and answers.
- Try to be updated by checking notifications in both Piazza and the class webpage.

Q1: Numpy array (20 pts)

1. Write a Python program to create a 5x5 array with random values and find the minimum and maximum values.
2. Write a Python program to create a random 10x4 array and extract the first five rows of the array and store them into a variable.
3. Write a Python program to create a random vector of size 10 and sort it.
4. Write a Python program to find the most frequent value in an one-dimensional array.

Q2. Linear Algebra (40 pts)

Bob invested $10,000 on two mutual funds one year ago. After one year, the overall yield rates for these two mutual funds are +2% and +4%. His yearend account showed $10,250. How much did he initially put onto two mutual funds?

Q3. K-means Clustering (40 pts)

Load the data from attached file “Assignment_table.csv”.

- Create a histogram for the first and second column respectively
- Conduct a clustering algorithm on these two columns. Try out 3,4,5 clusters respectively. What do you think is the right number of clusters for this dataset?