

Part 1(50 points):

Do the following exercises on your **ipython** notebooks that were installed using Anaconda in class. Save the ipython notebooks as **yourname.ipynb**.

Numpy:

1)

- a. **Initialize** a 2X2 numpy array with random values. Name this array as 'x'
- b. Display the **contents** of the x
- c. Display the **type** of the x
- d. Display the **size** of the x
- e. Display the **data type** of the array elements in x
- f. Force the data in the x to be converted to **float** type and display the elements
- g. Create a new array 'y' and store the **transpose** of the above created 2X2 array(i.e. transpose of x)
- h. Do a **matrix addition** "x+y" and store it as a new array "a" and display the contents of a
- i. Do a **matrix multiplication** "x*y" and store it as a new array "b" and display the contents of b

Part 2(50 points):

Matplotlib:

2)

- a. Use **subplot** function to plot the following functions:
 - $y = \sin(x)$
 - $y = \cos(x)$
 - $y = \tan(x)$
 - $y = x$
- b. Plot the graphs for the above mentioned functions on the same figure using **hold** function. Assign different **colour**, **thickness** and **linewidth** for the different functions.
- c. Download the **monthly_temp_data.csv** sheet attached with the homework.
 - Import the above csv file using **csv.reader**
 - Read the file as a list
 - Store the values for temperature column and day in separate lists(remember to remove the headers)
 - Plot the graph for **Date vs.Temperature** with title for the plot as "Day vs.Temperature", xlabel as **Date** and ylabel as **Temperature**

Submission Guidelines: Your submission should have the following **files**:

- 1) A word doc with the **snapshots**
- 2) Your **yourname.ipynb** ipython notebooks