Python Programming exercises- Lab1a

1. Please read the lab material on python before going further (especially for those new to Python). Get yourself acquainted with python programming environment in the linux environment (use of terminal window etc). By default, there will be python 2.7 installed on the linux machines. However, we will be working on Python 3.6. We use following steps:

   a) If you are logged in Windows, please restart your system and login to Linux (Centos OS)
   b) Right click on the screen and open a terminal window and type the following:
      module load python/3.6.6
   c) check the version now by typing: python -V
      This should display python 3.6

2. Create a list 'data' comprising of N (say 10) numbers (integers and floating-point numbers). Display all the elements of the list created.
3. Loop demonstration: Compute sum and mean of the elements in the 'data' list without using any in-built function. (use looping mechanism, Eg. for loop)
4. Implement step 3 by defining your own function for computing sum of all elements in the list and mean of the list. [In doubt refer to lecture 2 related to functions]
5. Reverse all the elements in the list 'data' without using the reverse function. Hint: use list slicing and loop.
6. Create a new list 'data2' with N elements of mixed data types (such as integer, floating points, strings). Create a new list 'data3' by appending 'data2' list to 'data'. Further, create another list 'data4' by extending 'data' list with 'data2'. Print the new list and observe the differences.
7. Given a list: scores = [40, 70.9,89,58,90,76,68,82,91,20]. Find a new list which will have elements greater than 70 only. Use list comprehension.
8. Create a new list 'data4' with 10 integer numbers. Find all the even and odd numbers and put them in two separate list: even_list which will have all even numbers and odd_list that will have all odd numbers of the list 'data4'. Use list comprehension.
9. Given two list: names= ['a', 'b', 'c', 'd', 'e', 'f', 'g'] and marks = [90, 80,92,50,49,69,76]. The list 'marks' hold the respective marks of students in 'names' list. From the information provided, create dictionaries to hold records for i) only those names who got distinction (say above 70) ii) and all other records should be stored in another dictionary. Display the contents of two dictionaries using for loop.

NOTE: Please check whether you can access Jupyter notebook and Spyder IDE or not! In case of doubt please feel free to ask any one of us during the lab.

- Accessing Jupyter: Open a terminal window and type – **jupyter notebook**. This should open a browser if jupyter is installed. Please do not forget to activate Python 3.6 as described in [1].
- Opening Spyder IDE: open a terminal and type – **spyder**. This will open the IDE if its installed on the machine.