

## Assignment 0: Python Tutorials

(a) Count the number of words in a text file.

Steps:

- 1) Load the required Libraries
- 2) Read the text file as input
- 3) Run a loop with counter  $i$  for each sentence in the file.
- 4) Increment the counter variable for each word detected.
- 5) At Last, print the final value of count once the final line of text file is parsed. (EOF)
- 6) Output: Total no. of words = count.

(b) Elementwise Matrix-Vector Multiplication and Calculation of Mean, Standard Deviation and Histogram of resultant vector.

Steps:

- 1) Load the required Libraries
- 2) Take input for dimensions of matrix  $Z$  (say  $x \times y$ )
- 3) Create matrix  $Z$  and initialize it with random values
- 4) Create vector  $V$  of dimension  $y \times 1$  with normal distribution using,  $\mu=2$  and standard deviation,  $\sigma=0.01$ .
- 5) Calculate element wise product for each row of matrix  $Z$  wrt vector  $V$  and store the value in corresponding row of vector  $C$  (Resultant vector).
- 6) Calculate the mean and standard deviation of vector (using inbuilt functions).
- 7) 
$$\text{Mean} = \sum_{i=1}^n C[i]/n \text{ where } n = \text{len}(C)$$
  

$$\text{standard deviation} = \sqrt{\frac{\sum (C_i - \text{mean})^2}{n}}$$
- 8) Plot the histogram for vector  $C$  with bin value=5.