Sheet 2 – Basic functions for vectors and matrices

Please write all commands in the MATLAB editor into one single m-file and save it in a folder that you specifically dedicate to this workshop. If you don't know how a command is being used type "help [commandname]" into the command window. Comment each code line briefly to document what it is doing.

Exercise 1

a) Generate a vector with 1000 normally distributed random numbers with an average value of 5 and a standard deviation of 0.01.

b) From the vector in a) generate a new vector that contains its elements rounded to the first digit after the decimal dot.

c) Compare mean and standard deviation from both vectors (rounded and original).

Exercise 2:

Find the projection of vector `a = [3.5355, 3.5355]` onto
`b = [4.9497, -0.7071]`
(Hint: dot product: a · b = |a||b| cosθ)

Exercise 3:

Given the matrix `A = [2 4 1; 6 7 2; 3 5 9]`

a) assign the first row of `A` to a vector called `x1`

b) assign the last two rows of `A` to a matrix called `y`

c) compute the sum over the columns of `A`

d) compute the sum over the rows of `A`

e) compute the standard <u>error</u> of the mean of each column of `A`