Homework 3 – Model 1

(Using Vectorized Code whenever is possible)

Problem1

Write a function that computes the dot product of two vectors. If the two vectors have different size, your function should return -1. The dot product of two vectors a [a1 a2 a3] and b [b1 b2 b3], is calculated as follow: DotProduct= a1*b1 + a2*b2 + a3*b3.

Problem2

Write a function that takes as an input an array A and returns the number of positive, negative, and zero elements in three variables p, n, and z respectively.

Problem3

The most commonly encountered vector norm (often simply called "the norm" of a vector, or sometimes the magnitude of a vector) is the L2-norm, given by

$$L2Norm = \sqrt{\sum_{1}^{n} x^2}$$

For example: v=[1, 2, 3] L2Norm=$\sqrt{1+4+9}$

Suppose we have a matrix A where each column presents a vector. Write a matlab command to calculate the L2-norm of each vector.