

CS 3113 - Problem Set 1

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January 29, 2023

1 Data Structures

In Problem Set 1 our goal was to iterate through the vectors of a Matrix in order to calculate *run1* and *run2* methods. For the vectors I used an Array, and for the Matrix I used a 2-Dimensional Array, and the values we returned in the *run1*, *run2*, and *getAverage* methods were Scalars and to store it I used a double.

The *getAverage* method iterates along a column vector, summing each double up and dividing by the length of the array. The *run1* method iterates along a single column vector subtracting each value of the column by the average of the column vector and squares it and sums it all together. The *run2* method iterates along every column vector in the Matrix, using the *run1* method on each and taking the square root of the value returned.

2 Math Notation

Without calling functions $run2(x)$ is:

$$run2(x) = \sum_{j=1}^p \sqrt{\sum_{i=0}^n [x_j^{(i)} - (\frac{\sum_{i=0}^n x_i}{n})]^2}$$