Due: 10/01 COP 3014 – Fall 2022 Assignment 3
Points: 100 points

Submit a single source file with your name and assignment number to Canvas

Objective: FILES, storage, read and analysis on a file

Create a program that generates a file that consisting of randomly generated values of type int and saves to that file the average and standard deviation of those numbers.

Refer to lecture 06, pages 5 -6 for parts a and b:

a) First, generate a random number, N, that can be any number between (100 < N < 1000).

b) Next, write a program that can generate N random numbers of type int and store them in a file. The random numbers should be capped to 1000 (<=1000).

c) Now compute the average of all the numbers that are stored in the file. Display that average and save that average value at the end of the file.

d) Also figure out the standard deviation (STD) of those numbers. STD of a list of numbers `n1`, `n2`, `n3`, and so forth is defined as the square root of the average of the following numbers:

$(n1 - a)^2$, $(n2 - a)^2$, $(n3 - a)^2$ …

The number `a` is the average of the numbers `n1`, `n2`, `n3`, and so forth. Display the STD and store that value in the file.

Note1: You only need one file for doing all of this.
Note2: Name your file YourName_Rand.txt and submit it along with your source code.

Each part is worth 25 points for a total of 100 points.