Homework #6 – Statistics in Fortran
CSCI 450

Preparation
You will need to finish a program using the programming language Fortran.
Check Course Information on Bb for the link of the Online Fortran Compiler.

Problem Statement
In statistics, the **mean** is simply the average of the data and the **standard deviation** is a measure of the amount of variation of the values about the mean.

Write a program that prompts the user to enter some test scores, and displays the mean and standard deviation of these scores using the formula below:

$$\text{mean} = \frac{\sum_{i=1}^{n} x_i}{n} = \frac{x_1 + x_2 + \cdots + x_n}{n} \quad \text{deviation} = \sqrt{\frac{\sum_{i=1}^{n} x_i^2 - \frac{\left(\sum_{i=1}^{n} x_i\right)^2}{n}}{n-1}}$$

Check sample output on next page.

<u>Requirements & Considerations</u>

1. Name your program **statistics_yourLastName.f90**

2. Include ***header*** comments (at the beginning of your program, I used Java comments below, what is the comment symbol for Fortran?) formatted as shown below, using your name and student ID, etc. instead. Be sure to include the Honor Code statement and program description. Your electronic submission of the program file will represent your endorsement of the Honor Code Statement.

```
/* Course: CSCI 450, Section 1
   Student Name: Jane Doe
   Student ID: 12345678
   Homework #6
   Due Date:

   In keeping with the Honor Code of UM, I have neither given nor received any
   Inappropriate assistance from anyone other than the TA or the instructor.

   Program Description: ……
*/
```

3. Before each significant step, provide a comment explaining the step (do not comment every line of code).

4. Submit your finished program (**statistics_yourLastName.f90**) on Blackboard using the **<u>Homework #6</u>** link under Homework Assignments button.

Check Sample Output on next page →

Sample Output

```
Enter a score (enter -1 to exit):
66
Enter a score (enter -1 to exit):
77
Enter a score (enter -1 to exit):
88
Enter a score (enter -1 to exit):
99
Enter a score (enter -1 to exit):
54
Enter a score (enter -1 to exit):
-1

The mean is   76.8000031
The standard deviation is    17.7115841
```