DAT-119 – Python 1

**Homework 3**

You need to write these programs *without searching online*. You can use the textbook, the Jupyter notebooks, conversations with your colleagues and me, and the approved resources; that’s all. If you get code from anywhere besides your own brain (*especially* if it comes from any approved outside resource or from reading ahead in the book), you need to cite the source in a comment.

Also, as always, **be sure to follow the style guide**, including turning in a plan with your code. Seriously, **don’t forget to plan before you code!**

1. Some investment advisors say that it’s reasonable to expect a 7% return over the long term in the stock market. Assuming that you begin with $1000 and leave your money invested, calculate and display how much money you’ll have after 10, 20, and 30 years. Use the following formula for determining these amounts:

*a* = *p*(1 + *r*)*n*

where

*p* is the original amount invested (i.e. the principal of $1000)

*r* is the annual rate of return (7%)

*n* is the number of years (10, 20, or 30) and

*a* is the amount on deposit at the end of the nth year.

(Set a variable to each of these values. You can hard-code the values; you don’t have to get them from the user.)

**Expected output:**

If you start with $1000 and invest it at 7% return for the following amounts of time, you can expect to end up with…

Amount after 10 years: $1967.15

Amount after 20 years: $3869.68

Amount after 30 years: $7612.26

1. (Without using any if statements,) Write a script that gets three integers from the user. Output the sum, average, product, smallest, and largest of the numbers.

**Example output:** (possible inputs given in green)

Hello! Please enter three whole numbers, and this program will tell you their sum, their average, their product, which is the smallest, and which is the largest.

Enter first number: 18

Enter second number: 12

Enter third number: 42

Sum: 72

Average: 24.0

Product: 9072

Smallest: 12

Largest: 42

**Testing note:** what happens if the user enters all the same number? Negative numbers? (For now you can assume the user *only* enters numbers.)

1. Read sections 3.1-3.6 and 3.16 of the textbook. **Bring any questions you have about the reading or anything you find interesting about it to class next week.** I’ve put the code files into Blackboard for you.