**Name: Session:**

**Programming I**

**Lab Exercise 9.23.2024**

Using Python, solve the following problems. Submit your documented source code. Your source code should have at minimum the following documentation:

#Name of program (i.e. Lab Exercise 9.22.2022 Problem 1)

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#Brief description of program

1. Write a program that generates a list of 1000 elements that contain random integers in the range of 1 and 10000.
2. Calculate the following descriptive statistics of the list you just generated. Use functions for each of these and pass the list to the function (**This means your program should have 5 functions**). The function should return the appropriate value.
3. Mean
4. Median
5. Maximum value
6. Minimum value
7. Range

Hint: to find the median, sort the list and take the average of the two middle values.

1. A high school has 1000 lockers and 1000 students. All lockers are initially shut. The students are then lined up outside the school. The first student in the line goes into the school and changes the state of every locker, the second student then changes the state of every second locker, the third student changes the state of every third locker and so forth. Changing the state means that if the locker is shut, open it and if it is opened, shut it. I recommend the integer 0 represent a shut locker and the integer 1 represent an open locker. When you are done, print the list and you should see an interesting pattern.