

MTRE 2610 Engineering Algorithms and visualization

Test 02-Fall 2020 Meiling Sha

This test is open notes, open book, open computer, and open Internet. However, you may not communicate with another human in any way during the test. Upload a single file named Test02Lastname.py to D2L containing the solutions to all three problems.

1. Write a program to request the user enter a desired number of values. Create a loop to load the desired number of user-specified values into a list. Create two lists with the same values but generated in different ways. One list will be originally initialized to have the desired length before entering the loop and values placed at the appropriate index position each time through the loop. The other list will begin empty and values appended for every iteration of the loop. Output from the program should appear as follows:

How many values do you want? 5

Enter val #1: 5

Enter val #2: 4

Enter val #3: 3

Enter val #4: 2

Enter val #5: 1

The first list is [5.0, 4.0, 3.0, 2.0, 1.0]

The second list is [5.0, 4.0, 3.0, 2.0, 1.0]

2. Load the text file test02.txt containing a 2D array of integer values. Display the sum and the maximum value in the array and the row column indexes where the maximum value appears in the array as shown below:

Do not hardcode the solution by manually inspecting the array.

test 02 Problem 2

Sum of elements is 2294.0.

maximum is 20.0.

Maximum occurs in

row col

1 1

1 12

2 1

3 15

5 6

6 5

7 11

7 16

8 0

8 3

9 0

9 1

3. Load the stinkbug.png grayscale image and increase its contrast by adding 0.2 to any pixel value greater than 0.6 and subtracting 0.2 from any pixel value less than 0.4. Display the modified image.

