CSCI 4810/6810 (Fall 2019)
Programs 1 and 2 (Line Scan-Conversion) - 30 points

Due Date: September 12, 2019 (Thursday)

1. Write a function to draw a line using the Basic line drawing algorithm.
The following is a function header example:

Basic-alg (int x0, int y0, int x1, int y1)

Use this function to draw N lines (N is provided by the user) at positions (i.e., end coordinates) determined by a random number generator.

(10 points)

2. Write a function to draw a line using the "Bresenham" algorithm.
The following is a header example:

brz (int x0, int y0, int x1, int y1)

Use this function to draw N lines (N is provided by the user) at positions (i.e., end coordinates) determined by a random number generator.

(10 points)

3. Report/Experiments:

Experiment with your code – Time each of the above programs (1 & 2) (the critical parts only) and create a table of timings for each. Write up your concluding remarks based on your experiments. What impact does the length of lines have on performance? How about the number of lines? …

(10 points)

NOTES:
Each of the line functions must handle all types of lines (horizontal, vertical, and all other line orientations); i.e., you need to generalize each of the algorithms that we discussed in class. Your programs must be readable, well engineered, and have relevant comments. During the demonstration, you should be able to convince the Teaching Assistant (TA) that your code handles all types of lines.