**Project 3 Part 3 (full recursive approach O(nlog^2n))**

Name: \_Riya Dev\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_5\_\_\_\_\_\_\_\_\_\_\_

Date: \_11/13/2021\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is your lab name l033?(lowercase L followed by digits 033) \_yes\_\_\_\_\_\_\_\_\_\_

Did you created a class to store a point? \_yes\_\_\_\_\_\_\_\_\_\_

Did you use a vector to store the points you generated? \_yes\_\_\_\_\_\_\_\_\_\_

Did you use at least one iterator to traverse the vector you created (optional)? \_yes\_\_\_\_\_\_\_\_\_\_

Did you sort using the sort method offered by C++? \_no\_\_\_\_\_\_\_\_\_\_

Does your main has the part1 commented out? \_yes\_\_\_\_\_\_\_\_\_\_

Does your main contain only 2 calls of: part2() and part3() (NO part1!!)? \_yes\_\_\_\_\_\_\_\_\_\_

(in main you may also have the part to display results for the 2 methods and them also in the txt file)

Obs: the part1 and part2 may have a return type like the time it took to complete the algorithm, the minimum distance, the points for the minimum distance, or you may create global variables for these.

1. **Paste here a clear picture of the graph that compares the running times of the “initial recursive” algorithm and “full recursive” algorithm versus number of points. (use 2 different colors for the 2 graphs, colors that can be visible even if you print in black and white). Each point on this graph should be an average of several runs for that size:**
2. **Paste here the content of the results.txt when you run your lab on the content of the file points10k.txt and points100k.dat**

**For 10k:**

0.00000000000000005551115 (0.50000000000000099920072 , 0.49999999999999922284388) (0.50000000000000099920072 , 0.49999999999999927835503)

duration: 0.14523900000000000698464 seconds

0.00000000000000005551115 (0.50000000000000099920072 , 0.49999999999999922284388) (0.50000000000000099920072 , 0.49999999999999927835503)

duration: 0.11798599999999999365929 seconds

**For 100k:**

0.00000000000002954596343 (0.49999999999973127051689 , 0.49999999999889993551605)(0.49999999999975941467056 , 0.49999999999890892832255)

duration: 5.75159100000000034214054 seconds

0.00000000000002954596343 (0.49999999999973127051689 , 0.49999999999889993551605)(0.49999999999975941467056 , 0.49999999999890892832255)

duration: 4.39069399999999987471710 seconds