CENG 570
Computational Geometry
Assignment #2
Programming Assignment on Randomized Algorithms

Due Date: April 9, 2017 23:55 (via ODTU-CLASS)

In this assignment, your goal is to implement a randomized algorithm and analyze its running time for the Smallest Enclosing Disc problem.

You will be given a set of *N* points as a text file (there may be duplicate points in the file, which will not effect the correctness of the algorithm). The first line will contain the number of points and the following *N* lines will contain the tab-separated *x* and *y* coordinates of the *N* points, one point per line. The coordinates will be integer coordinates in the range [-1,000,000:1,000,000]. Your goal is to write a program to find the smallest disc that encloses all of the input points and report the disc's center along with its radius (rounded to 4 digits after the decimal point, e.g. 0.1234)

In this assignment, you are going to implement the randomized solution provided in the book with an expected linear running time complexity. After implementing the solution in any language you want, you are going to report the running time performance of the solution on the 10 input datasets provided at the following link:

http://www.ceng.metu.edu.tr/~tcan/ceng570_s1617/Schedule/hw2_datasets.tar.gz

You should report the time required for each individual test dataset.

Provide a short, one-paragraph analysis of your results along with the table showing the times.

Submit your report along with the source code of your solution via ODTU-CLASS before the deadline.

Notes: You are free to use any programming language of your choice. You are free to use any resource including source codes you find on the Internet provided that you cite them properly in your report and in your code.

Late submission policy: Late submission is allowed with 20 points penalty per day.