

COMP163 Homework Assignment 6: Due Wednesday, February 27, 2008

General Information: When describing an algorithm, do not forget to analyse its running time and explain why the algorithm is correct. Although you may discuss these problems in the preliminary stages with others, work submitted should be done individually. If you have any discussions with others (students, friends, TAs, faculty, ...) relative to a homework problem or if you gain information from a written source other than your own notes from lecture, you are expected to identify your collaborator/source.

Problems

1. Monotone Polygons *and* Visualization: Due by 11:30 p.m. on Wed 2/27

- (a) Describe a simple algorithm that, given any set of n points in the plane, creates a polygon that is x -monotone with these n points as vertices. Type up your algorithm into a text README file.
- (b) Code this algorithm and link to LEDA so that a picture is drawn of your solution. Add a section to your README file that gives directions on how to run your code.
- (c) Login to sun.eecs.tufts.edu and submit your README and code files by typing:
provide comp163 monotone filename1 filename2 etc

2. Maximum intersection depth of convex polygons: Due at 3:00 p.m. on Wed 2/27

Given a set of n convex polygons, each with n vertices, the goal is to report a point that is contained by the maximum number of polygons possible. Describe an algorithm to do this, argue its correctness, and analyse its space and time complexity.

[NOTE: this is the problem that we already did out in class last Thursday and whose solution you are now writing up. You should do this independently.]