Author: BoJian Wang, LiKun Li

FileName: ImplementationHw01

Notice: Please import control P5 before running this program.

IMPORT P5 PROCESS:

1. Click on sketch and open the menu, choose Import Library ---> Add Library

2. Search for Control P5, and click on Install

3. Restart the Processing for initializing the Control P5.

Process:

Input A file (filename).in that includes one integer in first line, which shows the amount of points. From the second line to the last line show the coordinates of the points (spereate by one space).

This file should be input in the input box, which next to "Type Filename: "

After the user wrote in the file name and clicked on the Read File button, if the file is available to be read, then the points should be shown on the screen. Otherwise, the program will printout a warning message to the user, and wait for the user to input another filename.

Functions:

Sort:

Find the lowest leftmost point, and label as 0. Then, the point that p0 will see in the counter clockwise direction should be labeled p1. Loop this process until it found the last point of the file. Then, draw the line in the order of the label.

Graham's Scan:

This function is one step of the whole graham's scan. After the user sorted the points, each time user clicks on the graham’ s scan button, the program will check the current point, stack top point and the stack next to top point. If it makes a left turn, this point will be pushed into the stack. If it makes a right turn, then pop the top point of the stack and do this process again until we find three points to make a left turn.

Convex Hull:

The user should click on this button after all steps of Graham’ s Scan are done. When the user clicks on Convex Hull button, all points in the Graham’ s Scan stack should be related to segments, and (filename).out should be created. This file includes X and Y coordinates of the points, and the index from the input file.

Return Button:

Reset everything and restart the whole program again to wait the user write the new input