Experiment Code Documentation

Introduction

This document captures the experiment implementation details.

Code Details

File Name : support2.js

File Description : The code contains 10 functions following is a brief description of the files.

1. Function : update

Function Description :

1.It resets the value of the all the global variables and gets the required fields updated by the user.

2.It clears the canvas and the information printing area.

3. It checks for the wrong inputs given by the User.

4.It setups the multiplication factor for making the size of the box to be printed in the grid.

2. Function : initial

Function Description :

1. Linked with the Start Experiment button in exp2.html
2. Calls the update() function to check for any unacceptable inputs
3. If it is not there then it will convert the coordinates from a string to an array named coordinates
4. Copies the coordinates to polygonPath array upto the sides entered by the user.
5. Calls drawPolygon() function
6. Calls drawGrid() function

3.Function : nextIteration

Function Description :

Linked with next iteration button in exp2.html

Contains if else ladder

Calls scanPolygon() function for filling the polygon until scanline<height

When scanline is equal to height it will give final information

Then it disables the button next iteration on page

4.Function : previousIteration

Function Description :

1. Clears Printing area
2. Decreases scanline value by one
3. Clears the grids current scanline

5.Function : scanPolygon

Function Description :

1. Prints the Scanline
2. Finds the Intersection and adds it to the active edges
3. Sort the edges from xmin to xmax
4. Then accordingly it prints the boxes in the canvas
5. And also prints the Information of the coordinates

6. Function : findIntersection

Function Description :

Finds the Intersection point between two lines then returns it and if not returns -1

7. Function : sort

Function Description :

Takes an edge table and sorts it using bubble sort algorithm

8. Function : drawPolygon

Function Description :

Takes polygon edge Coordinates and Prints the Polygon in the canvas.

9. Function : drawGrid

Function Description :

Prints the Grid in the canvas.

10. Function : fillbox

Function Description :

Takes a point coordinate (x,y) and a colour

Prints the box with position (x,y) in the Grid with that particular colour

Other Details:

I. The Code is designed so as to follow scanline algorithm for polygon filling.

II. Basic algorithm:

For y = ymin to ymax

1) intersect scanline y with each edge

2) sort intersections by increasing x [p0,p1,p2,p3]

3) fill pairwise (p0 –> p1, p2–> p3, ...

However, we need to handle some special

cases and improve the performance

If Intersection is an edge end point

For ex- (p0, p1, p2) are three continuous points of the Polygon then if p1 is also an intersection point. If p0 and p2 are both on the same side of scanline then p1 is considered twice. If all three are same then p1 is not considered at all and if they lie on opposite sides it is considered as one point only.

File Name : support2.css

File Description : This File Contains the designing and formatting as seen in the html page.