Project 2

1. Points =sortPoints(points) (nLogn time)

Hull = solveHull(points)

solveHull(points): #log(n)

if len(points) == 1

return new Node(point)

while points is > 1

rightHull = solveHull(points1/2)

leftHull = solveHull(points2/2)

hull = combine(leftHull, rightHull)

return hull

combine(leftHull, rightHull)# o(1)

findUpperTangeant(leftHull, rightHull)

findLowerTangeant(leftHull, rightHUll)

assign appropriate CW and CCW

return hull

findTangeant(leftHull, rightHull) # O(n) complexity(worst case, due to potentially having to look at each point in left and right hulls to find tangeants.)

while not done

find left node

find right node

if nodes did not change, done

return(newLeftNode, newRightNode)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 10 | 100 | 1000 | 10000 | 100000 | 500000 | 1000000 |
| 1 | 0 | .001 | .014 | .149 | 1.500 | 8.250 | 16.085 |
| 2 | .001 | .003 | .014 | .165 | 1.604 | 7.993 | 15.602 |
| 3 | .001 | .002 | .016 | .147 | 1.498 | 8.161 | 15.178 |
| 4 | .000 | .002 | .014 | .148 | 1.558 | 7.599 | 15.253 |
| 5 | .000 | .002 | .014 | .151 | 1.528 | 8.454 | 14.817 |

X - #points

Y – time(seconds)