Lab Assignment - 7

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Problem Statement -1:

Given: n 2D points and two orthogonal polygons.

Problem: Find the set of points lie inside the overlapping region (rectangular) of the two given orthogonal polygons.

Write a program in Java to solve the above problem applying k-d tree data structure.

DATA STRUCTURES USED:

Trees K-D trees Arrays

ALGORITHMS USED:

Recursive functions
Partitioning algorithms

```
Radhika@Dell:~/radhika$ java q1
Enter the number of points
Enter the x and y coordinates of the points separated by a space
4.3 4.1
5 5.8
5.2 3
7.7 2.2
6.8 4.4
8.1 3.6
7.5 6.6
Enter details for first polygon
Number of sides : 4
Points:
3.5 5.1
6.5 8.4
Enter details for second polygon
Number of sides : 6
Points:
4.1 2.2
6.7 2.2
 .7 4.3
```

Problem Statement -2:

Given n values in an array and two index values, find the result of the following queries

- 1. minimum value
- 2. maximum value
- 3. sum
- 4. update by adding 4 with each element, within the given index range using Segment tree. Also implement the brute-force method and compare the execution time of both the methods.

DATA STRUCTURES USED:

Segment Trees Arrays

ALGORITHMS USED:

Various recursive algorithms for segment tree Brute force algorithms to compare the efficient algo

```
Radhika@Dell:~/radhika$ java q2
Enter the numbers of elements frontend IMGSched infosec_cont
Enter the numbers
2 5 1 4 9 3
EntervOne of These Options to getwoome results: qa_gu
1. Find Min value inp a range
2.Find Max value inp a range
3.Find The Sum
4.Add 4 with each element
Enter indices
0 3
Enter One of These Options to get some results:
1. Find Min value inp a range
2.Find Max value inp a range
3.Find The Sum
4.Add 4 with each element
Enter indices
2 4
Enter One of These Options to get some results:
1. Find Min value inp a range
2.Find Max value inp a range
3.Find The Sum
4.Add 4 with each element
Enter indices
1 3
10
```