

Correctness test for Task1:

program P1-1 test1 test2 test3

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A4      700 20      38 6  
A5      700 20 38 6  
A6      700 20 38 6  
A10     700 19 X37 X6  
A17     700 12 X14 X6  
A21     700 20 38 6  
A25     700 20 38 6  
A26     700 20 38 6  
A27     700 20 40 X5 X  
A28     700 20 39 X8 X  
A29     700 19 X37 X6  
A30     700 18 X38 6  
A31     700 20 42 X10 X  
A32     700 20 41 X8 X  
A34     700 SEGV 38 SEGV  
A40     700 20 38 6  
A46     700 20 42 X10 X  
A55     700 20 38 6  
A62     700 20 38 6
```

*A34 will SEGV for some special permutation of the same input data.

Performance test for Task 1:

program P1-2 P1-3

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A4 9s 20s  
A5 3m45s 6m02s  
A6 19s 40s  
A10 11s >16hr  
A17 2m04s 32s  
A21 9m55s 22m30s
```

A25 18s 2m29s
 A26 18s 2m40s
 A27 1m33s 2m38s
 A28 21m07s 1m05s
 A29 SEGV SEGV
 A30 12s >10hr
 A31 10s >17hr
 A32 10s >12hr
 A34 18s 5m32s
 A40 9h26m 1m18s
 A46 >10hr SEGV
 A55 18m32s 16m30s
 A62 58m09s 3m43s

According to the above result, we select the following program for further evaluation:

A4 A5 A6 A21 A25 A26 A55 A62

Correctness test for Task 2

*Number of correct polygon:

program P1-1 test1 test2 test3

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A4	700	20	38	6
A5	609 X	14 X	17 X	1 X
A6	700	20	38	6
A21	699 X	20	38	6
A25	700	20	38	6
A26	626 X	18 X	33 X	5 X
A55	700	7	X	23 X
A62	91 X	8	X	23 X

*For P1-1, Other programs with correct output is A17, A27, A29, A40

*In fact, A5's result is almost correct.

Just for a single rectangle, its output swaps x and y coordinators.

Final evaluation for A4, A5*, A6, A25:

Other performance tests: Task2 of P1-2, P1-3, Test4, Test5

program P1-2 Test4 Memory Test5 Memory

A4 12s 1h20m

A5* 3m49s 6m50s 5m35s 100M

A6 20s Out_of_Mem >4G Out_of_Mem >4G

A21 10m7s 25m48s

Data-structures and Algorithms:

A4: Quad array: A quad-list quad-tree based data-structure.

Disjoint-set datastructure.

A5: Scan-line algorithm with interval trees.

A6: Modified quad-list quad-tree.

A21: Divide-and-conquer.