

ConvexHull.java

```

1  import java.util.Vector;
2
3  class ConvexHull {
4      Vector<Point> doGraham(Vector<Point> p) {
5          int i, j, min, M;
6          Point t;
7          min = 0;
8
9          // search for minimum:
10 2      for (i = 1; i < p.size(); ++i) {
11 2          if (p.get(i).y < p.get(min).y) {
12              min = i;
13          }
14      }
15
16      // continue along the values with the same y component
17 2      for (i = 0; i < p.size(); ++i) {
18 3          if ((p.get(i).y == p.get(min).y) && (p.get(i).x > p.get(min).x)) {
19              min = i;
20          }
21      }
22
23 1      return p; // Placeholder return; actual return might vary
24  }
25  }

```

Mutations

- 10 1. changed conditional boundary → KILLED
- 2. negated conditional → SURVIVED
- 11 1. negated conditional → SURVIVED
- 2. changed conditional boundary → SURVIVED
- 17 1. changed conditional boundary → KILLED
- 2. negated conditional → SURVIVED
- 1. negated conditional → SURVIVED
- 18 2. changed conditional boundary → SURVIVED
- 3. negated conditional → SURVIVED
- 23 1. replaced return value with null for ConvexHull::doGraham → KILLED

Active mutators

- CONDITIONALS_BOUNDARY
- EMPTY_RETURNS
- FALSE_RETURNS
- INCREMENTS
- INVERT_NEGS
- MATH
- NEGATE_CONDITIONALS

- NULL_RETURNS
- PRIMITIVE_RETURNS
- TRUE_RETURNS
- VOID_METHOD_CALLS

Tests examined

- ConvexHullTest.[engine:junit-jupiter]/[class:ConvexHullTest]/[method:testDoGraham_ConditionCoverage_YEqualAndXLargerThanMinX()] (1 ms)
- ConvexHullTest.[engine:junit-jupiter]/[class:ConvexHullTest]/[method:testDoGraham_BranchCoverage_SameYValues()] (2 ms)
- ConvexHullTest.[engine:junit-jupiter]/[class:ConvexHullTest]/[method:testDoGraham_StatementCoverage()] (3 ms)
- ConvexHullTest.[engine:junit-jupiter]/[class:ConvexHullTest]/[method:testDoGraham_ConditionCoverage_YSmallerThanMinY()] (5 ms)
- ConvexHullTest.[engine:junit-jupiter]/[class:ConvexHullTest]/[method:testDoGraham_BranchCoverage_DifferentYValues()] (104 ms)

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