

Solution 1Solution 2Solution 3

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 import java.util.*;
4
5 class Program {
6     // O(n^2) time | O(n) space - where n is the number of coordinates
7     public static int rectangleMania(Point[] coords) {
8         Set<String> coordsTable = getCoordsTable(coords);
9         return getRectangleCount(coords, coordsTable);
10    }
11
12    public static Set<String> getCoordsTable(Point[] coords) {
13        Set<String> coordsTable = new HashSet<String>();
14        for (Point coord : coords) {
15            String coordString = coordToString(coord);
16            coordsTable.add(coordString);
17        }
18        return coordsTable;
19    }
20
21    public static int getRectangleCount(Point[] coords, Set<String> coordsTable) {
22        int rectangleCount = 0;
23        for (Point coord1 : coords) {
24            for (Point coord2 : coords) {
25                if (!isInUpperRight(coord1, coord2)) continue;
26                String upperCoordString = coordToString(new Point(coord1.x, coord2.y));
27                String rightCoordString = coordToString(new Point(coord2.x, coord1.y));
28                if (coordsTable.contains(upperCoordString) && coordsTable.contains(rightCoordString))
29                    rectangleCount++;
30            }
31        }
32        return rectangleCount;
33    }
34
35    public static boolean isInUpperRight(Point coord1, Point coord2) {
36        return coord2.x > coord1.x && coord2.y > coord1.y;
37    }
38
39    public static String coordToString(Point coord) {
40        return Integer.toString(coord.x) + "-" + Integer.toString(coord.y);
41    }
42
43    static class Point {
44        public int x;
45        public int y;
46
47        public Point(int x, int y) {
48            this.x = x;
49            this.y = y;
50        }
51    }
52 }
53
```

