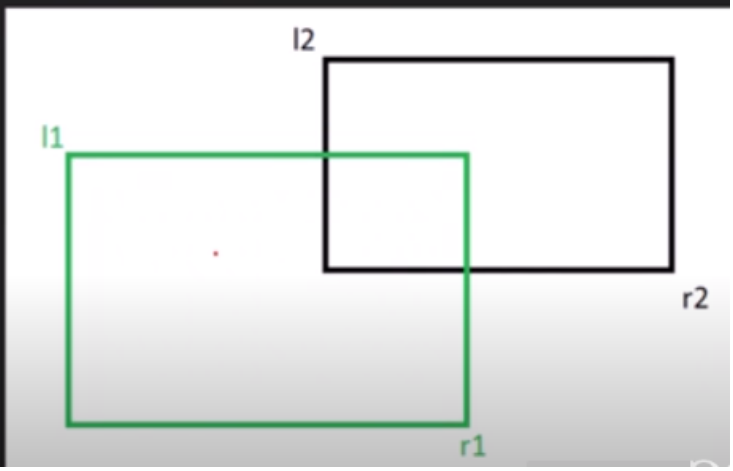
Find if two rectangles overlap

Given two rectangles, find if the given two rectangles overlap or not.



Rectangle can be represented by two coordinates, top left and bottom right

l1: Top Left coordinate of first rectangle.
r1: Bottom Right coordinate of first rectangle.
l2: Top Left coordinate of second rectangle.
r2: Bottom Right coordinate of second rectangle.

We will write a function called doOverlap() with parameters of coordinates... also, this function must return true if the rectangles overlap each other.

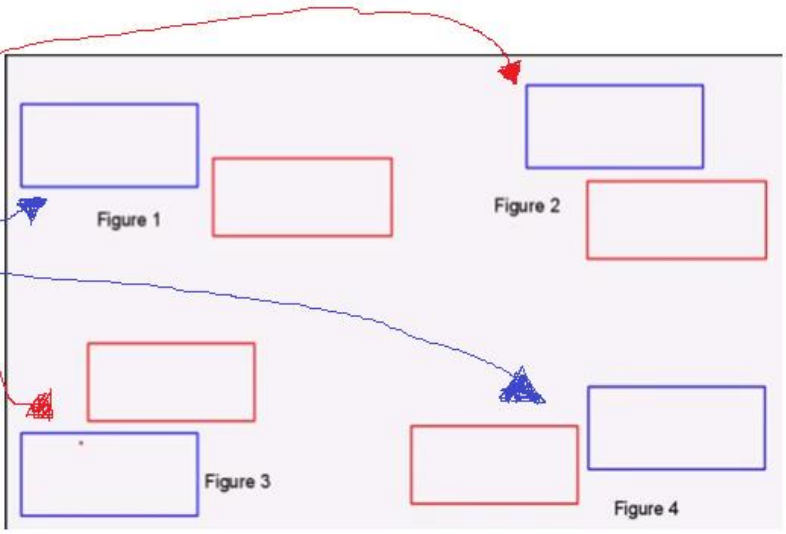
Solution

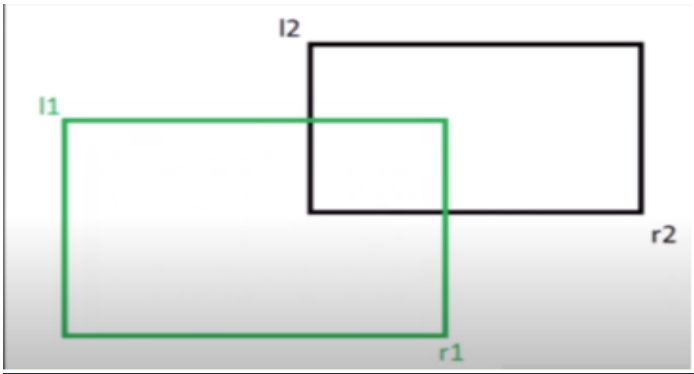
One solution is to one by one pick all points of one rectangle and see if the point lies inside the other rectangle or not.

Two rectangles **do not** overlap if one of the following conditions is true.

1) One rectangle is above top edge of other rectangle.

2) One rectangle is on left side of left edge of other rectangle






```java
// Java program to check if rectangles overlap
class GFG {

    static class Point {

        int x, y;
    }

// Returns true if two rectangles (l1, r1) and (l2, r2) overlap
 static  boolean doOverlap(Point l1, Point r1, Point l2, Point r2) {
        // If one rectangle is on left side of other
        if (l1.x >= r2.x || l2.x >= r1.x) {
            return false;
        }

        // If one rectangle is above other
        if (l1.y <= r2.y || l2.y <= r1.y) {
            return false;
        }

        return true;
    }

    /* Driver program to test above function */
    public static void main(String[] args) {
        Point l1 = new Point(),r1 = new Point(),
                l2 = new Point(),r2 = new Point();
        l1.x=0;l1.y=10; r1.x=10;r1.y=0;
         l2.x=5;l2.y=5; r2.x=15;r2.y=0;

        if (doOverlap(l1, r1, l2, r2)) {
            System.out.println("Rectangles Overlap");
        } else {
            System.out.println("Rectangles Don't Overlap");
        }
    }
}
```