Problem 1401: Circle and Rectangle Overlapping

Problem Information

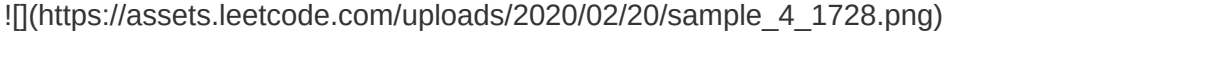
Difficulty: Medium
Acceptance Rate: 49.36%
Paid Only: No
Tags: Math, Geometry

Problem Description

You are given a circle represented as `(radius, xCenter, yCenter)` and an axis-aligned rectangle represented as `(x1, y1, x2, y2)`, where `(x1, y1)` are the coordinates of the bottom-left corner, and `(x2, y2)` are the coordinates of the top-right corner of the rectangle.

Return `true` _if the circle and rectangle are overlapped otherwise return_`false`. In other words, check if there is **any** point `(xi, yi)` that belongs to the circle and the rectangle at the same time.

Example 1:

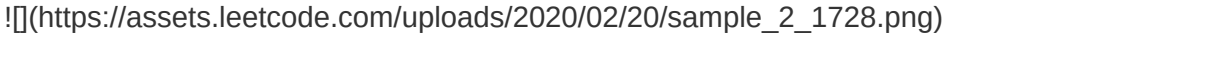


Input: radius = 1, xCenter = 0, yCenter = 0, x1 = 1, y1 = -1, x2 = 3, y2 = 1 **Output:** true **Explanation:** Circle and rectangle share the point (1,0).

Example 2:

Input: radius = 1, xCenter = 1, yCenter = 1, x1 = 1, y1 = -3, x2 = 2, y2 = -1 **Output:** false

Example 3:



Input: radius = 1, xCenter = 0, yCenter = 0, x1 = -1, y1 = 0, x2 = 0, y2 = 1 **Output:** true

Constraints:

* `1 <= radius <= 2000` * `-104 <= xCenter, yCenter <= 104` * `-104 <= x1 < x2 <= 104` * `-104 <= y1 < y2 <= 104`

Code Snippets

C++:

```
class Solution {
public:
bool checkOverlap(int radius, int xCenter, int yCenter, int x1, int y1, int
x2, int y2) {

}
};
```

Java:

```
class Solution {
public boolean checkOverlap(int radius, int xCenter, int yCenter, int x1, int
y1, int x2, int y2) {

}
}
```

Python3:

```
class Solution:
def checkOverlap(self, radius: int, xCenter: int, yCenter: int, x1: int, y1:
int, x2: int, y2: int) -> bool:
```