Test Case 1:

Enter upper left: 1110
Enter upper right: 0000
Enter lower left: 1100
Enter lower right: 1110
The following rotations work:
Upper left: 2
Upper right: 0 [1, 2, or 3 also work here]
Lower left: 0
Lower right: 1

Test Case 2:

Enter upper left: 0101
Enter upper right: 0110
Enter lower left: 1111
Enter lower right: 0000
There is no solution.

Test Case 3:

Enter upper left: 0011
Enter upper right: 1111
Enter lower left: 1111
Enter lower right: 0110
The following rotations work:
Upper left: 3
Upper right: 0 [1, 2, or 3 also work here.]
Lower left: 0 [1, 2, or 3 also work here.]
Lower right: 2

Second Submission:

Test Case 4:

Enter upper left: 0000
Enter upper right: 0101
Enter lower left: 1011
Enter lower right: 1100
The following rotations work:
Upper left: 0 [1, 2, or 3 also work here.]
Upper right: 1 [3 also works here.]
Lower left: 3
Lower right: 3