1. **Problem Description**

Compute the nearest larger number by interchanging its digits updated.Given 2 numbers a and b find the smallest number greater than b by interchanging the digits of a and if not possible print -1.

Input Format
2 numbers a and b, separated by space.
Output Format
A single number greater than b.
If not possible, print -1

Constraints
1 <= a,b <= 10000000

Example 1:

Sample Input:

459 500

Sample Output:
549

Example 2:

Sample Input:

645757 457765

Sample Output:
465577

2. **Problem Description**

Krishna loves candies a lot, so whenever he gets them, he stores them so that he can eat them later whenever he wants to.

He has recently received N boxes of candies each containing Ci candies where Ci represents the total number of candies in the ith box. Krishna wants to store them in a single box. The only constraint is that he can choose any two boxes and store their joint contents in an empty box only. Assume that there are infinite number of empty boxes available.

At a time he can pick up any two boxes for transferring and if both the boxes say contain X and Y number of candies respectively, then it takes him exactly X+Y seconds of time. As he is to

eager to collect all of them he has approached you to tell him the minimum time in which all the candies can be collected.
Input Format:
First line of input is number of test case T
Each test case is comprised of two inputs
First input of a test case is the number of boxes N
Second input is N integers delimited by whitespace denoting number of candies in each box

Output Format:

Print minimum time required, in seconds, for each of the test case. Print each output on a new line.
Constraints:
$1 \leq T \leq 10$
$1 \leq N \leq 10000$
$1 \leq$ [Candies in each box] ≤ 100009

Sample Input and Output

Input
1
4
1 2 3 4
Output
19
Explanation
4 boxes, each containing 1, 2, 3 and 4 candies respectively.
Adding 1 + 2 in a new box takes 3 seconds
Adding 3 + 3 in a new box takes 6 seconds
Adding 4 + 6 in a new box takes 10 seconds
Hence total time taken is 19 seconds. There could be other combinations also, but overall time does not go below 19 seconds.

Input
1
5
1 2 3 4 5
Output
33
Explanation
5 boxes, each containing 1, 2, 3, 4 and 5 candies respectively.
Adding 1 + 2 in a new box takes 3 seconds
Adding 3 + 3 in a new box takes 6 seconds

Adding 4 + 5 in a new box takes 9 seconds
Adding 6 + 9 in a new box takes 15 seconds
Hence total time taken is 33 seconds. There could be other combinations also, but overall time does not go below 33 seconds

3. **Problem Description**

Given an MxN matrix, with a few hurdles arbitrarily placed, calculate the cost of longest possible route from point A to point B within the matrix.
Input Format:
First line contains 2 numbers delimited by whitespace where, first number M is number of rows and second number N is number of columns
Second line contains number of hurdles H followed by H lines, each line will contain one hurdle point in the matrix.
Next line will contain point A, starting point in the matrix.
Next line will contain point B, stop point in the matrix.

Output Format:

Output should display the length of the longest route from point A to point B in the matrix.
Constraints:
The cost from one position to another will be 1 unit.
A location once visited in a particular path cannot be visited again.
A route will only consider adjacent hops. The route cannot consist of diagonal hops.
The position with a hurdle cannot be visited.
The values MxN signifies that the matrix consists of rows ranging from 0 to M-1 and columns ranging from 0 to N-1.
If the destination is not reachable or source/ destination overlap with hurdles, print cost as -1.

Sample Input and Output

Input
3 10
3
1 2
1 5
1 8
0 0
1 7
Output
24
Explanation

Here matrix will be of size 3x10 matrix with a hurdle at (1,2),(1,5) and (1,8) with starting point A(0,0) and stop point B(1,7)

3 10
3 -- (no. of hurdles)
1 2
1 5
1 8
0 0 -- (position of A)
1 7 -- (position of B)

So if you examine matrix below shown in Fig 1, total hops

(->) count is 24. So final answer will be 24. No other route longer than this one is possible in this matrix.

Input
2 2
1
0 0
1 1
0 0
Output
-1
Explanation
No path is possible in this 2*2 matrix so answer is -1