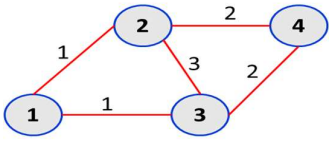
Problem 5: Bandit Country

Time limit: 1 seconds

You must cross a dangerous country full of bandits. A map is provided to you at the border using which you must plan your route. You are low on fuel and would like to take the shortest path. However, there are bandits with insiders at the point of entry who inform their accomplices of your planned exit point from the country. The country's cities are relatively safe, but the highways are notoriously dangerous. Knowing your entry and exit points, the bandits make a head start and set traps on your potential route where they may try to target you. With insider information on your fuel levels, they know that you may take the shortest route and target those highways. There is only one direct highway between any two cities. Hence, you must try to avoid those highways while finding an alternate shortest route.

If you're not able to find an alternate route, you will need police escort which is very expensive to hire, and you would rather avoid it if you can find an alternate route. Your solution should provide the total length of your route and the cities you'll be touching or, in case there is no such path, indicate that police escort will be needed. The following figure corresponds to the input/output given below.



(a) (b)

Figure 1: Map corresponding to a country with four (04) cities which are represented as nodes. The edges correspond to the length of the highway between any two cities.

Input

The first line in the input file is the number of test cases, ***N (1 ≤ N ≤ 100)***. Each of the *N* subsequent lines represent a test case. Each subsequent line has a few entries. The first integer is a number ***M*** representing the number of cities in the country, the second integer is the start point, ***S***, and the third integer is the exit point, ***E*** with ***1 ≤ S, E ≤ 100***. This is followed by the list of ***M*** × ***M*** entries representing the length of the highway between cities. The values are read in a row-wise fashion and a value of 0 indicates that no highway exists. All input entries are space separated.

Output

Your output should have as many lines as the number of test cases. Each line indicates the length of your chosen path followed by the path, i.e., sequence of cities from the entry to the exit point. All values in a line should be space separated. In case no alternate path is found, it should output "***-1***".

There are two test cases corresponding to figure 1(a) and 1(b), respectively. Both test cases have 4 cities, you enter at city #1 and exit at city #4. In the first test case, the length of your route is 3 and the path chosen is city #1 to city #2 and then to city#4. For the second case, no such route is possible.

Sample Input	Sample Output
2 4 1 4 0 1 1 0 1 0 3 2 1 3 0 2 0 2 2 0 4 1 4 0 1 0 0 1 0 3 2 0 3 0 2 0 2 2 0	3 1 2 4 -1

Note:

- *In case of equal distances when calculating paths, use the path that uses the lesser number of cities.*
- *In case of the same number of cities, go to the next higher index (e.g., in the case you can go from 1 to 2 or 3, choose 3).*