

# City Infrastructure Optimization

You are responsible for managing a city-wide infrastructure project aimed at connecting all districts of the city with roads. There is an initial design of a road network, with possible connections between districts, where each connection (or road) has a specific construction cost. The government has allocated a limited budget for the project, and the goal is to minimize the overall cost of building roads between districts. Starting from any one district, your role is to expand the road network step by step, selecting the least expensive connections between districts to minimize costs. At each stage, you must ensure that the growing network remains an open system, meaning that the roads you add must not form any loops or closed circuits. The final outcome should be a well-connected, loop-free network that efficiently links all districts with the minimum possible construction cost.

You must ensure that the total cost of building these roads does not exceed the allocated budget. If it turns out that connecting all districts will exceed the budget, you will be notified accordingly.

## Input Format

- The first line contains an integer  $n \in [1, 1000]$ , denoting the number of districts.
- The second line contains an integer  $budget \in [1, 10^5]$ , representing the maximum budget allocated for building roads.
- The third line contains an integer source,  $s \in [1, n]$  representing the starting district.
- The subsequent  $n$  lines contain an adjacency matrix of size  $n \times n$ . If two districts are directly connected by a road, it is denoted by a positive integer in the matrix; otherwise, it is denoted by 9999. The positive integer corresponds to the cost of building the road.
- Following the adjacency matrix, each line contains either the character 'c' to calculate total minimum cost or 'e' to terminate the execution of the program.

## Output Format

For command 'c', print the total minimum cost required to connect all districts space separated with a “yes” or “no” (all small letters) corresponding to whether the budget has exceeded the limit or not.

## Test Cases

### Input 1

```
5
25
1
0 4 9999 9999 5
4 0 3 9999 9999
9999 3 0 6 9999
9999 9999 6 0 2
5 9999 9999 2 0
c
e
```

### Output 1

```
14 no
```

### Input 2

```
4
14
2
0 4 9999 6
4 0 5 8
9999 5 0 7
6 8 7 0
c
e
```

### Output 2

```
15 yes
```