

Lab Rats

Program Name: `Rats.java`

Input File: `rats.dat`

A set of laboratory rats is being trained to escape a maze. The maze is made up of cells, and each cell is connected to some other cells. However, there are obstacles in the passage between cells and therefore there is a time penalty to get through the passage. Also, some passages allow rats to go one-way, but not the other way round. Suppose that all rats are now trained and, when placed in an arbitrary cell in the maze, take a path that leads them to the exit cell in minimum time. We are going to conduct the following experiment: a rat is placed in each cell of the maze and a count-down timer is started. When the timer stops we count the number of rats out of the maze. Write a program that, given a description of the maze and the time limit, predicts the number of rats that will exit the maze. Assume that there are no bottlenecks in the maze, i.e. that all cells have room for an arbitrary number of rats.

Out There



Input

The input begins with a single positive integer on a line by itself indicating the number of the cases following, each of them as described below. This line is followed by a blank line, and there is also a blank line between two consecutive inputs. The maze cells are numbered $1, 2, \dots, N$, where N is the total number of cells. You can assume that $N \leq 100$. The first three input lines contain N , the number of cells in the maze, E , the number of the exit cell, and the starting value T for the count-down timer (in some arbitrary time unit). The fourth line contains the number M of connections in the maze, and is followed by M lines, each specifying a connection with three integer numbers: two cell numbers a and b (in the range $1, \dots, N$) and the number of time units it takes to travel from a to b . Notice that each connection is one-way, i.e., the rats can't travel from b to a unless there is another line specifying that passage. Notice also that the time required to travel in each direction might be different.

Output

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line. The output consists of a single line with the number of rats that reached the exit cell E in at most T time units.

Sample Input

```
1

4
2
1
8
1 2 1
1 3 1
2 1 1
2 4 1
3 1 1
3 4 1
4 2 1
4 3 1
```

Sample Output

```
3
```

