The Shortest Path

You are given a list of cities. Each direct connection between two cities has its transportation cost (an integer bigger than 0).

The goal is to find the paths of minimum cost between pairs of cities. Assume that the cost of each path (which is the sum of costs of all direct connections belonging to this path) is at most 200000.

The name of a city is a string containing characters $a,...,z$ and is at most 10 characters long.

Input Format

- s [the number of tests ≤ 10]

- n [the number of cities ≤ 10000]

- $NAME$ [city name]

- p [the number of neighbours of city $NAME$]

- nr $cost$ [nr - index of a city connected to $NAME$ (the index of the first city is 1)] [$cost$ - the transportation cost]

- r [the number of paths to find ≤ 100]

- $NAME1$ $NAME2$ [$NAME1$ - source, $NAME2$ - destination]

- [empty line separating the tests]

Output Format

$cost$ [the minimum transportation cost from city $NAME1$ to city $NAME2$ (one per line)]

Sample test

input copy
1 4 gdansk 2 2 1 3 3 bydgoszcz 3 1 1 3 1 4 4 torun 3 1 3 2 1 4 1 warszawa 2 2 4 3 1 2 gdansk warszawa bydg⋯ warszawa
output copy
3 2