Traffic Network

The city traffic network consists of nn nodes numbered from 11 to nn and mm one-way roads connecting pairs of nodes. In order to reduce the length of the shortest path between two different critical nodes ss and tt, a list of kk two-way roads are proposed as candidates to be constructed. Your task is to write a program to choose one two-way road from the proposed list in order to minimize the resulting shortest path between ss and tt.

Input Format

The input file consists of several data sets. The first line of the input file contains the number of data sets which is a positive integer and is not bigger than 2020. The following lines describe the data sets.

For each data set:

- The first line contains five positive integers nn (n≤10000)(n≤10000), mm (m≤100000)(m≤100000), kk (k<300)(k<300), ss (1≤s≤n)(1≤s≤n), tt (1≤t≤n)(1≤t≤n) separated by space.
- The ithith line of the following mm lines contains three integers di,ci,lidi,ci,li separated by space, representing the length lili (0<li≤1000)(0<li≤1000) of the ithith one-way road connecting node didi to cici.
- The jthjth line of the next kk lines contains three positive integers ujuj, vjvj and qjqj (qj≤1000)(qj≤1000) separated by space, representing the jthjth proposed two-way road of length qjqj connecting node ujuj to vjvj.

Output Format

For each data set, write on one line the smallest possible length of the shortest path after building the chosen one two-way road from the proposed list. In case, there does not exist a path from ss to tt, write -1.

Sample test

inputcopy
1 4 5 3 1 4 1 2 13 2 3 19 3 1 25 3 4 17 4 1 18 1 3 23 2 3 5 2 4 25
outputcopy
35