

B. Hierarchy

time limit per test: 2 seconds

memory limit per test: 64 megabytes

input: standard input

output: standard output

Nick's company employed n people. Now Nick needs to build a tree hierarchy of «supervisor-surbodinate» relations in the company (this is to say that each employee, except one, has exactly one supervisor). There are m applications written in the following form: «employee a_i is ready to become a supervisor of employee b_i at extra cost c_i ». The qualification q_j of each employee is known, and for each application the following is true:

$$q_{a_i} > q_{b_i}$$

Would you help Nick calculate the minimum cost of such a hierarchy, or find out that it is impossible to build it.

Input

The first input line contains integer n ($1 \leq n \leq 1000$) — amount of employees in the company. The following line contains n space-separated numbers q_j ($0 \leq q_j \leq 10^6$) — the employees' qualifications. The following line contains number m ($0 \leq m \leq 10000$) — amount of received applications. The following m lines contain the applications themselves, each of them in the form of three space-separated numbers: a_i , b_i and c_i ($1 \leq a_i, b_i \leq n$, $0 \leq c_i \leq 10^6$). Different applications can be similar, i.e. they can come from one and the same employee who offered to become a supervisor of the same person but at a different cost. For each application

Output

Output the only line — the minimum cost of building such a hierarchy, or -1 if it is impossible to build it.

Examples

input	Copy
<pre>4 7 2 3 1 4 1 2 5 2 4 1 3 4 1 1 3 5</pre>	
output	Copy
<pre>11</pre>	
input	Copy
<pre>3 1 2 3 2 3 1 2 3 1 3</pre>	
output	Copy
<pre>-1</pre>	

Note

In the first sample one of the possible ways for building a hierarchy is to take applications with indexes 1, 2 and 4, which give 11 as the minimum total cost. In the second sample it is impossible to build the required hierarchy, so the answer is -1 .