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 ($1 \le n \le 1000$) — amount of employees in the company. The following line contains n space-separated numbers q_j ($0 \le q_j \le 10^6$)— the employees' qualifications. The following line contains number m ($0 \le m \le 10000$) — 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 ($1 \le a_i, b_i \le n$, $0 \le c_i \le 10^6$). 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 $q_{a_i} > q_{b_i}$.

Output

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

Examples

input
4 7 2 3 1 4 1 2 5 2 4 1 3 4 1 1 3 5

output
11

input
3 1 2 3 2 3 1 2 3 1 3

output
-1

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`.