

7368 Airports

An airline company offers flights out of n airports, conveniently labeled from 1 to n . The flight time t_{ij} from airport i to airport j is known for every i and j . It may be the case that $t_{ij} \neq t_{ji}$, due to things like wind or geography. Upon landing at a given airport, a plane must be inspected before it can be flown again. This inspection time p_i is dependent only on the airport at which the inspection is taking place and not where the previous flight may have originated.



Given a set of m flights that the airline company must provide, determine the minimum number of planes that the company needs to purchase. The airline may add unscheduled flights to move the airplanes around if that would reduce the total number of planes needed.

Input

The input file contains several test cases, each of them as described below.

The first line of input contains two space-separated integers n and m ($1 \leq n, m \leq 500$). The next line contains n space-separated integers p_1, \dots, p_n ($0 \leq p_i \leq 10^6$).

Each of the next n lines contains n space-separated integers. The j -th integer in line $i + 2$ is t_{ij} ($0 \leq t_{ij} \leq 10^6$). It is guaranteed that $t_{ii} = 0$ for all i . However, it may be the case that $t_{ij} \neq t_{ji}$ when $i \neq j$.

Each of the next m lines contains three space-separated integers, s_i , f_i , and t_i ($1 \leq s_i, f_i \leq n$, $s_i \neq f_i$, $1 \leq t_i \leq 10^6$), indicating that the airline company must provide a flight that flies out from airport s_i at exactly time t_i , heading directly to airport f_i .

Output

For each test case, print, on a single line, a single integer indicating the minimum number of planes the airline company must purchase in order to provide the m requested flights.

Sample Input

```
2 2
1 1
0 1
1 0
1 2 1
2 1 1
2 2
1 1
0 1
1 0
1 2 1
2 1 3
5 5
72 54 71 94 23
0 443 912 226 714
18 0 776 347 810
```

```
707 60 0 48 923
933 373 881 0 329
39 511 151 364 0
4 2 174
2 1 583
4 3 151
1 4 841
4 3 993
```

Sample Output

```
2
1
3
```