I

SUPER BALL

Input	Standard Input
Output	Standard Output
Time Limit per test case Memory limit per test case	2 seconds 256 megabytes

In the distance future, there exist a company that makes ball. Technically they make spherical object regardless of use, but let's just call it a ball. Their ball consist of many layers wrapped around each other. Maybe the first layer is made of metal, second made of rubber, third made of carbon nanotubes, the forth layer maybe a single-atom-thick graphene. Think of it like an onion. These layers are so advance that each type of layer have their own factory. Logistic becomes a headache because during the production of the ball, the ball needs to be transferred from one factory to another factory in order of their type of layer. For example, a ball's core (the first layer) is made in the metal factory, and then it is transferred to the rubber factory and then it is transferred to the carbon nanotubes factory and then to the graphene factory.

Fortunately, some factory can make more than one type of layer, so in that case, the ball may not need to be transferred to another factory. Plus, there can be more than one factory that can make a particular type of layer, so if its cheaper to use that factory, the company can. Unfortunately, because this is the future, absolutely everything must be recycle. And because the ball are so advance, each layer of the ball can only be recycled by the factory that can make that layer.

Because this is a company that wants to make money, they need to know how much a ball will cost and they want to minimize it. That includes the cost of making a layer, the cost of recycling a layer and the cost of transferring the ball from one factory to another. Thankfully, delivery to and from the client is handled by another company and they pick up the ball from any factory to the client and send it back for recycling to any factory for free. As you can imagine, when the manager receive an order of a ball made of 101 exotic layer, some of his brain cell commit suicide. So he turns to you to make his life easier. Given a description of the factories, and a description of a type of ball calculate the minimum cost to produce the ball.

Input

The first line consist of two number F $(1 \leq F \leq 500)$ which is the number of factory and L $(1 \leq L \leq 500)$ which is the number of type of layer. Each factory is represented by an integer from 1 to F and each layer type is represented by an integer from 1 to L.

The next $3F$ line represent the factory information, each factory is described with three line.

The first line consist of F integers, $C_i (0 \leq C_i \leq 10^3)$ where C_i is the cost of transferring a ball from the current factory to the i'th factory.

The second line consist of L integer, D_i($-1 \le D_i \le 10^3$) where D_i is the cost of producing the layer type i.

The third line consist of L integer, R_i($-1 \le R_i \le 10^3$) where R_i is the cost of recycling the layer type i.

If D_i or R_i is -1, that means the factory cannot produce or recycle the layer type.

The next line represent the ball layer configuration.

The line start with an integer N($1 \le N \le 500$) which is the number of layer in the ball. The next N integer, G_i($1 \le G_i \le L$) represent the type of layer of the ball.

Output

Output a single integer R which is the minimum cost of producing the ball.

Sample Input Output

Sample Input	Sample Output

3 3
0 10 15
99 -1 -1
10 -1 -1
10 0 5
-1 10 10
-1 5 5
15 5 0
-1 1 -1
-1 20 -1
2 3 2
	26

Sample Input	Sample Output

3 3
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10 0 5
-1 10 10
-1 5 5
15 5 0
-1 1 -1
-1 20 -1
5 1 2 3 2 1
	303

Note

In the first example, the ball configuration is 3, 2. The cheapest way to make and recycle the ball is from factory 3, costing 1 for first layer, then, factory 2, with transfer cost of 5 and produce costing of 10 for the second layer. The for recycling, the second layer is recycled starting at factory 2, costing 5 for second layer and 5 for the first layer, again at the same factory (so no transfer cost).h