

Problem H

Horse Carts

You just found a cave filled with N treasures (numbered from 1 to N). Treasure i has a weight of W_i and a value of V_i .

Luckily, you also bring M horse carts (numbered from 1 to M) to help you carry the treasures. Each cart can only carry one treasure; cart j can only carry a treasure with weight at most S_j .

Determine the maximum total value of treasures that you can take using your horse carts.

Input

The first line consists of two integers N M ($1 \leq N, M \leq 100\,000$).

Each of the next N lines consists of two integers W_i V_i ($1 \leq W_i, V_i \leq 10^6$).

The following line consists of M integers S_j ($1 \leq S_j \leq 10^6$).

Output

Output a single integer representing the maximum total value of treasures that you can take using your horse carts.

Sample Input #1

```
8 5
2 10
9 4
6 10
2 20
3 15
3 9
4 8
4 10
1 5 3 3 10
```

Sample Output #1

```
55
```

Explanation for the sample input/output #1

You can put treasures 8, 4, 5 and 3 to carts 2, 3, 4, and 5, respectively.

Sample Input #2

```
5 3
1 4
1 2
1 7
1 1
1 9
1 1 1
```

Sample Output #2

```
20
```

Explanation for the sample input/output #2

You can put treasures 1, 3, and 5 in any of your carts.

Sample Input #3

```
2 5
9 100
4 100
1 2 3 1 3
```

Sample Output #3

```
0
```

Explanation for the sample input/output #3

None of the treasures fit in any of your carts.

Sample Input #4

```
7 4
1 10
1 20
2 50
3 5
4 8
10 100
12 40
2 2 5 7
```

Sample Output #4

```
88
```