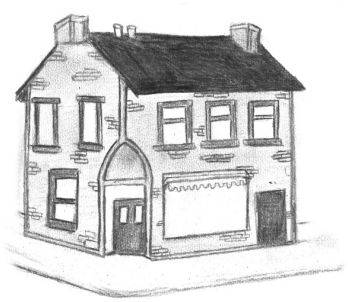
Problem E
Education



Seeking to cash in on the lucrative private education business, *EduCorp* recently established the prestigious "Bootcamp Academy of Economics" and, counter to their early projections, is growing rapidly.

So rapidly, in fact, that the student body is already overflowing the small (but prestigious) campus building and now needs to be contained somewhere else while more new (and prestigious) buildings are built.

Each department will sell off its original space and then move into its own new rented building. As departments are deeply territorial, buildings must not be shared. Because this is an economics academy, the capacities and rents of each of all the local available buildings were easy to find by disguising the task as homework.

However, it still remains to choose which buildings to rent so as to minimise total budget. This is where you can help.

Input

- one line containing the integers n and m ($1 \leq n \leq m \leq 5000$), the number of departments and buildings respectively.
- one line containing n integers $s_1 \ldots s_n$ ($1 \leq s_i \leq 1000$ for each i), where s_i is the number of students in department i.
- one line containing m integers $p_1 \ldots p_m$ ($1 \leq p_i \leq 1000$ for each i), where p_i is the capacity of building i.
- one line containing m integers $r_1 \ldots r_m$ ($1 \leq r_i \leq 1000$ for each i), where r_i is the yearly rental cost of building i.

Output

If it is not possible to rent enough buildings for all the departments, output `impossible`.

Otherwise, output n unique, space-separated integers $v_1 \ldots v_n$, where the i-th number is the building to be rented by the i-th department so as to minimise the total spend on rent. If there are multiple equally good answers, you may print any.

Sample Input 1

```
2 5
40 200
1000 199 201 10 50
600 300 400 200 800
```

Sample Output 1

```
2 3
```

Sample Input 2

```
3 5
10 20 30
30 25 20 15 10
30 25 20 15 10
```

Sample Output 2

```
5 3 1
```

Sample Input 3

```
1 1
20
10
1
```

Sample Output 3

```
impossible
```