CCSC:MW Programming Competition

Student Course Selection

Robert and his **F-1** buddies have started college this Fall. Unfortunately, they were late in choosing courses and found that already **S** students have enrolled for different courses before them. Each course has an associated number with it ranging from **1** to **N**. The conditions for choosing courses are as follows:

They will choose the course **i** (**1** <= **i** <= **N**), for which the value of **v** is minimum. Here, **v = y*z** where **z** is the number of students already enrolled in the course **i,** and **y** is the sum of IQ of the last two students who enrolled in that course. If a single student has applied for a course, then the value of **y** will be that student's IQ. If no student has enrolled for that course, then value of **y** will be 0. If the value of **v** is same for two courses, then they will choose the course with the minimum course number. You need to find which courses Robert and his friends should take after following the above conditions.

Note: Each of them will choose their courses, one at a time. Robert will choose his course first followed by his friends.

Input

The first line contains the numbers **N**, **F** and **S** where **N** denotes the number of courses in that college, **F** denotes Robert and his friends and **S** denotes the number of students who have already applied for the courses.

The next line consists of **S** space separated integers **Y[i]** which denotes the IQ of the i^{th} student. Here, the i^{th} student chooses the i^{th} course.

The next line consists of **F** space separated integers **X[i]** which denotes the IQ of Robert and his friends.

Output

Print **F** space separated integers in a line which denotes the course number which Robert and his friends have applied for.

Constraints:
1 <= **C** <= 10000
1 <= **P** <= 10000
1 <= **N** <= **C**
1 <= **Y[i], X[i]** <= 10000

Example 1

Input:

5 4 4
2 8 5 1

9 10 5 1

Output:

5 4 1 3

Explanation
In the sample test case, the last course has not been applied by anyone. So, its sum will be 0 initially. Hence, Robert will apply there as the value of **v** = 0.
Now Robert's first friend will apply for the 4th course as its value of **v** = 1, which is minimum of all the four courses.
Robert's second friend will apply for the 1st course as its value of **v** = 2, which is minimum of all the four courses.
Similarly, Robert's third friend will apply for the 3rd course as its value of **v** = 5, which is minimum of all the four courses.

Example 2

Input:

10 10 10
2 8 5 1 10 5 9 9 3 5
2 5 1 8 6 5 1 10 1 6

Output:

4 1 9 3 6 10 4 2 9 9