

A5 ==> Wizard

Ivancho really likes a game in which magic is a key element. In order to be able to actually play, though, you have to pick a magic academy and attend it.

Unfortunately there are constantly exams. They are like the standard IQ tests we're familiar with where one has to place 2D objects inside holes meant for them. What these exams differ from the IQ tests with, though, is that the objects don't have to fit precisely in the holes as long as they actually fit inside and no hole contains more than one object. The objects, as well as the holes, can have the shape of equilateral triangles, squares or circles. Also, the side/diameter(not radius!) of a hole cannot be more than D units larger than the side/diameter of an object inside of it. But it can be exactly D units larger.

There are A triangular, B square-shaped and C circular objects and P triangular, Q square-shaped and R circular holes. Let the side/diameter of an object is $g[i]$:

$g[1], g[2], \dots, g[A]$ are triangular objects. $g[A+1], g[A+2], \dots, g[A+B]$ are square-shaped. $g[A+B+1], \dots, g[A+B+C]$ are circular. Analogically, $h[1], h[2], \dots, h[P+Q+R]$ are the sides/diameters of the holes.

Write a program `wizard`, which helps Ivancho with the exam by telling him which object to place in which hole so that he puts as many as possible. If there are many ways to do this, print any one of them.

Input

At the first line of the file `wizard.in` there are 3 integers - A , B and C . After that there are $g[1], g[2], \dots, g[A+B+C]$. They are followed by P, Q и R and $h[1], h[2], \dots, h[P+Q+R]$. Finally, the integer D is at the last line.

The numbers have been arranged in different lines and have been spaced out by a few extra lines for esthetical purposes. (all input files look like that, not only the example one)

Input

In the file `wizard.out` you have to print an integer S - the number of objects you have managed to place in holes - followed by S pairs of integers, where the first integer is the index of the object and the second - the index of the hole in which it has been placed.

Constraints

```
0 <= A,B,C, P,Q,R <= 1000
1 <= A+B+C <= 1000
1 <= P+Q+R <= 1000
1 <= g[i], h[i] <= 30000000 (3 * 10^7)
1 <= D <= 1000000 (10^6)
```

Example

Input (wizard.in)	Output (wizard.out)
5 3 2 24 28 29 29 30 29 26 24 23 25 5 5 5 25 24 30 24 30 22 30 27 22 23 28 26 23 26 29 2	7 1 1 2 3 3 5 4 7 7 8 9 10 10 12