

4417 Development

Development of unused land is an essential first step for creation of infrastructure. An entrepreneur ventures into a project for creation of a state-of-the-art health-care centre in a city. Government is prepared to allocate under certain conditions, a part of an unused block of land for the project. The block exists in the form of an $M \times N$ grid of square plots each of unit area. The entrepreneur has estimated for each plot, the cost of development in certain unit and rounded it to an integer. He requires for the project, a total number of K connected plots. However he is allowed to select only a rectangular/square block of plots so that at least one side of the selected block either coincides with or is a part of a side of the existing block. In addition, on removal of the selected block, plots in the existing block should remain connected.

Given the cost of development for each plot in the grid and the total number K of plots to be selected, write a program to select all feasible blocks (say b in number), for each one of which the total cost of development C is the least.

Tables below illustrate the selection of all 3 feasible blocks ($b = 3$), each containing 4 plots ($K = 4$) with least total cost of development ($C = 47$). Integers on the grid represent cost of development of plots and shaded plots identify selected blocks.

03	20	29	06
21	09	06	11
07	10	25	05

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Input

Input may contain multiple test cases.

For each test case the first line gives three integers M , N and K as defined above. Each of the next M lines contains N integers; the j -th integer in the i -th line represents the cost of development of the plot in i -th row and j -th column of the grid.

Input terminates with a line containing '0' as the first input for a test case.

Output

For each test case, print in the first line, the least total cost of development C and the total number of feasible blocks b .

The first line is followed by b more lines; each line contains two pairs of integers identifying a feasible block. The 1st pair identifies the first and the last row of the selected block, while the 2nd pair identifies the first and the last columns of the block.

The lines appear in lexicographic order.

Sample Input

```
3 4 4
3 20 29 6
21 9 6 11
7 10 25 5
3 4 3
```

```
3 20 29 6
21 9 6 11
7 10 25 5
0
```

Sample Output

```
47 3
2 3 1 2
2 3 3 4
3 3 1 4
22 1
1 3 4 4
```