4326 Minimal Ratio Tree

For a tree, which nodes and edges are all weighted, the ratio of it is calculated according to the following equation.

$$Ratio = \frac{\sum edge\ weight}{\sum node\ weight}$$

Given a complete graph of n nodes with all nodes and edges weighted, your task is to find a tree, which is a sub-graph of the original graph, with m nodes and whose ratio is the smallest among all the trees of m nodes in the graph.

Input

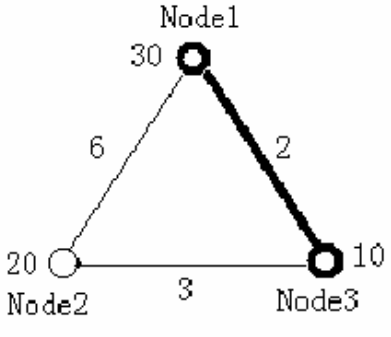
Input contains multiple test cases. The first line of each test case contains two integers n ($2 \leq n \leq 15$) and m ($2 \leq m \leq n$), which stands for the number of nodes in the graph and the number of nodes in the minimal ratio tree. Two zeros end the input. The next line contains n numbers which stand for the weight of each node. The following n lines contain a diagonally symmetrical $n \times n$ connectivity matrix with each element shows the weight of the edge connecting one node with another. Of course, the diagonal will be all 0, since there is no edge connecting a node with itself.

All the weights of both nodes and edges (except for the ones on the diagonal of the matrix) are integers and in the range of [1, 100].

Output

For each test case output one line contains a sequence of the m nodes which constructs the minimal ratio tree. Nodes should be arranged in ascending order. If there are several such sequences, pick the one which has the smallest node number; if there's a tie, look at the second smallest node number, etc. Please note that the nodes are numbered from 1.

Note: The figure on the right illustrates the first test case in sample input. Node 1 and Node 3 form the minimal ratio tree.



Sample Input

```
3 2
30 20 10
0 6 2
6 0 3
2 3 0
2 2
1 1
0 2
2 0
0 0
```

Sample Output

```
1 3
1 2
```