


Pizza Delivery

Problem ID: pizza
CPU Time limit: 1 second
Memory limit: 1024 MB
Difficulty: 4.1

Your Irish pizza and kebab restaurant is doing very well. Not only is the restaurant full almost every night, but there are also an ever increasing number of deliveries to be made, all over town. To meet this demand, you realize that it will be necessary to separate the delivery service from the restaurant. A new large kitchen, only for baking pizzas and being a base for deliveries, has to be established somewhere in town.



Source: Norwegian/Swedish Championships 2004

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The main cost in the delivery service is not the making of the pizza itself, but the time it takes to deliver it. To minimize this, you need to carefully plan the location of the new kitchen. To your help you have a database of all last year's deliveries. For each location in the city, you know how many deliveries were made there last year. The kitchen location will be chosen based on the assumption that the pattern of demand will be the same in the future.

Your city has a typical suburban layout – an orthogonal grid of equal-size square blocks. All places of interest (delivery points and the kitchen) are considered to be located at street crossings. The distance between two street crossings is the Manhattan distance, i.e., the number of blocks you have to drive vertically, plus the number of blocks you have to drive horizontally. The total cost for a delivery point is its Manhattan distance from the kitchen, times the number of deliveries to the point. Note that we are only counting the distance *from* the kitchen *to* the delivery point. Even though we always drive directly back to the kitchen after a delivery is made, this (equal) distance is not included in the cost measure.

Input

On the first line, there is a number, $1 \leq n \leq 20$, indicating the number of test cases. Each test case begins with a line with two integers, $1 \leq x \leq 100$, $1 \leq y \leq 100$, indicating the size of the two-dimensional street grid. Then follow y lines, each with x integers, $0 \leq d \leq 1000$, indicating the number of deliveries made to each street crossing last year.

Output

For each test case, output the least possible total delivery cost (the sum of all delivery costs last year), assuming that the kitchen was located optimally. There should be one line for each test case, with an integer indicating the cost, followed by a single space and the word “blocks”.

Sample Input 1

```
2
4 4
0 8 2 0
1 4 5 0
0 1 0 1
3 9 2 0
6 7
0 0 0 0 0 0
0 1 0 3 0 1
2 9 1 2 1 2
8 7 1 3 4 3
1 0 2 2 7 7
0 1 0 0 1 0
0 0 0 0 0 0
```

Sample Output 1

```
55 blocks
162 blocks
```