Mango Plantation

Problem code: CDQU02

Kripa and Ajay love Mango's but they do not have mango tree of their own, so they decided to plant a lot of mango trees to create an orchard of mango trees.
But after they planted a lot of trees as planned but stray animal came and eat the saplings of the mango trees and some of their hardwork get destroyed. Kripa decided to make a fence around the orchard but as they are running on tight bugget they have to find the **minimum** length of fence and area covered by it.

Input

- The first line of the input contains an integer **T** denoting the number of test cases. The description of **T** test cases follows.
- Each of the next **T** lines will contain integers **N** denoting the number of saplings.
- The next **N** lines will contains two integers **X** , **Y** denoting the coordinates of tree planted

Output

- For each test case, output a single line containing two integers **perimeter** and **area** of orchard seprated by space.
- As perimeter and area can be real numbers you have to print **floor** of **perimeter** and **area**

Constraints

- **1 ≤ T ≤ 100**
- **1≤N≤1000**
- **-5000≤X,Y≤5000**

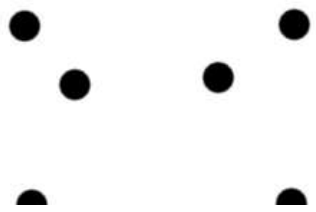
Example

Input:
1
6
0 0
3 0
3 3
0 3
1 1
2 2

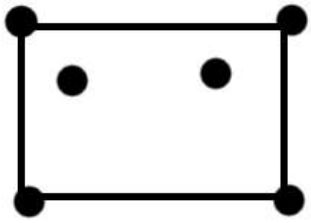
Output:
12 9

Explanation

Example case 1. The outer trees will form a square area with length 3 unit.
Initially the location of trees



Minimum fencing will be done like this



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Comments