Tile Stack

(Time Limit: 5 seconds)

Problem Description

- **English**

Michael is given n types of tiles and an unlimited amount of tiles of each type. Each tile of type i has a rectangular shape with two dimensions $d_{i,1}$ and $d_{i,2}$ (note that the shape becomes square when $d_{i,1} = d_{i,2}$). Now Michael wants to stack tiles one by one and along the vertical direction on a two-dimensional plane such that the centers of all tiles in the stack are vertically aligned, and meanwhile for every two adjacent tiles in the stack, the bottom boundary of the upper tile and the top boundary of the lower tile are horizontally aligned.

During the stacking process, a tile can be rotated by 90-degree or not rotated so that one of its two dimensions becomes the width while the other dimension is the height. In addition, a tile t is placed on top of another tile t' only if the width of t is smaller than the width of t'. The height of a stack is the sum of the heights of all tiles in the stack. Please write a program to determine the height of a tallest stack that Michael can build.

- **Chinese**

麥可有 n 種矩形磁磚且每種磁磚沒有數量限制，第 i 種磁磚的兩個維度上的尺寸值，分別為 $d_{i,1}$ 和 $d_{i,2}$ (當 $d_{i,1}=d_{i,2}$ 時，磁磚的形狀為正方形)。現在麥可想要在一個二維平面上將磁磚沿著垂直方向一個接者一個地堆疊，使得堆疊上去的所有磁磚其中心點垂直對齊，同時任兩相鄰磁磚其上方磁磚的底邊與下方磁磚的頂邊水平對齊。

堆疊過程中，每個磁磚可以被旋轉 90 度或不被旋轉，因此其中一個尺寸值將形成該磁磚的寬度，而另一個尺寸尺值則為該磁磚的高度。此外，若一個磁磚 t 被放置在另一個磁磚 t'的上方時，則磁磚 t 的寬度必定小於磁磚 t'的寬度。一個堆疊的高度為該堆疊內所有磁磚高度的總和。請寫一個程式來計算麥可所能造出的最高磁磚堆疊的高度。

Technical Specification

- The number of tile types, n, is an integer between 1 and 6000. (磁磚的種類

數 n 為一介於 1 到 6000 之間的整數)

- Each dimension of a tile is an integer between 1 and 500. (磁磚上的每個尺寸值為一個介於 1 到 500 之間的整數)

Input Format

- **English**

The first line contains an integer which indicates the number of test cases. For each test case, the first line contains an integer, n, denoting the number of tile types; in the next n lines, the ith line gives two integers $d_{i,1}$ and $d_{i,2}$, denoting the two dimensions of a tile of type i.

- **Chinese**

第一行為一個整數，代表測試資料有幾筆。每一筆測試資料的第一行為整數 n，代表磁磚的種類數，而接下來的 n 行，第 i 行為兩個值，代表第 i 種磁磚的二個尺寸值 $d_{i,1}$ 和 $d_{i,2}$。

Output Format

- **English**

For each test case, output the height of a tallest stack in a new line.

- **Chinese**

針對每一筆測試資料，於一新行上輸出最高堆疊的高度。

Example

Sample Input:	Sample Output:
2 2 2 3 4 5 3 1 2 3 3 4 5	14 15

English

The first test case of Sample Input is explained here. It has two types of tiles. Each tile of type 1 has dimensions $d_{1,1} = 2$ and $d_{1,2} = 3$, while each tile of type 2 has dimensions $d_{2,1} = 4$ and $d_{2,2} = 5$. A tallest tile stack that can be built is shown below. This stack contains two tiles of type 1 and two tiles of type 2; its height is 4 + 5 + 2 + 3 = 14.

Chinese

輸入範例中第一筆測試資料的說明如下：它有二種磁磚，第 1 種磁磚的二個尺寸值分別為 $d_{1,1} = 2$ and $d_{1,2} = 3$，第 2 種磁磚的二個尺寸值分別為 $d_{2,1} = 4$ and $d_{2,2} = 5$，一個所能造出的最高磁磚堆疊如下圖所示，每個種類的磁磚有二個，高度為 4 + 5 + 2 + 3 = 14。