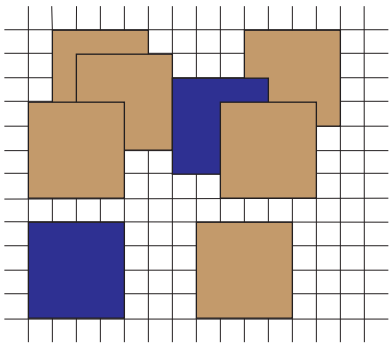
B. **Solar Panel Slip**

Input File: B.txt
Run Time Limit: 10 sec

Sunny had solar panels installed on his roof. There were N of them, each 4x4 meters, But unfortunately the installers (and Sunny) did not allow for the strong winds in Texas. Some of the panels have slipped from their original position, but remain connected and oriented parallel to the roof edges. The wiring has also (remarkably) caused the corners of each panel to have integer coordinates. Some of the panels took a beating and stopped working completely. They are shaded dark in the figure below.



You are given the positions of all the solar panels and, for each, an indication of whether it still works. Calculate the total area of the working panels that can be seen from directly above the roof.

Input:
There may be up to 100 test cases. Each one follows the format below. Following the last test case is a line containing a single integer 0. Do not process this line. Each test case begins with the integer N ($1 \leq N \leq 100$) giving the total number of solar panels. N lines follow, each giving the x, y ($2 \leq x, y \leq 98$) integer coordinates of the center of the panel and the word *OK* if the panel works, or *FAULTY* if it doesn't work.

Panels are listed strictly in the order of their height from the roof's surface. Therefore, if panel i is partially, or totally occluded by panel j, panel i will be listed before j.

In spite of the repositioning of the panels, they did not bend. Each remains flat and parallel to the surface of the roof. Therefore cyclic overlaps cannot occur. For example, if we use the notation $x \to y$ to mean that x partially occludes y, then we cannot have $x \to a \to b \cdots \to x$ for any number of intervening panels between x and itself.

Output:
For each test case, give the test case number starting at 1, and give the total area in square meters of the working solar panels.