

500

There is a popular children's game called "500" which is played with one ball and at least three players. One of the players is designated as the thrower. This player throws the ball up in the air towards the other players. While throwing the ball, the thrower also shouts out a point value. Whoever catches the ball then receives that many points. If the ball hits the ground without being caught, then nobody receives those points. This continues until one player reaches 500 points, which makes them the winner.

Instead of calling out a numeric value for a throw, the thrower can opt to shout "Jackpot!" which means that anyone who catches that throw immediately wins. They can also instead shout "Bankrupt!" which means that whoever catches that throw loses all of the points they've accrued, going back to 0.

Sometimes the players lose track of how many points they have and so your task is to write a program which will decide the winner of games of 500, given the sequence of throws that take place. Keep in mind that it's possible that a game will continue a bit after someone has won. Any throws that take place after a player has won should not have any effect on the outcome.

Input

The input consists of multiple games. The first line of input for each game is an integer N giving the number of throws in that game. Following that will be N lines, with each corresponding to one throw of the ball. Each of these lines consists of two parts, separated by a space.

The first is the value called out for the throw. This will either be a positive integer less than 500, "BANKRUPT" or "JACKPOT". The second part of each throw line contains either the name of the player who caught the throw, or "GROUND" if the ball hits the ground before anyone could catch it.

If N is 0, that indicates that there are no more games to process.

Output

The output should consist of one line for each game of 500 in the input. Each of these output lines should contain either "The winner is " followed by the name of the winner, or the text "There is no winner." if none of the players reached five hundred points.

Example Input

```
10
150 Mark
200 GROUND
75 Stephanie
100 GROUND
200 Stephanie
BANKRUPT Mark
325 Luis
400 Mark
JACKPOT GROUND
250 Stephanie
3
150 Mark
JACKPOT GROUND
50 Stephanie
0
```

Example Output

```
The winner is Stephanie.
There is no winner.
```