Problem C. Bear and Reverse Radewoosh

Time limit   2000 ms
Mem limit   262144 kB

Limak and Radewoosh are going to compete against each other in the upcoming algorithmic contest. They are equally skilled but they won't solve problems in the same order.

There will be n problems. The i-th problem has initial score p_i and it takes exactly t_i minutes to solve it. Problems are sorted by difficulty — it's guaranteed that $p_i < p_{i+1}$ and $t_i < t_{i+1}$.

A constant c is given too, representing the speed of loosing points. Then, submitting the i-th problem at time x (x minutes after the start of the contest) gives $max(0, \ p_i - c{\cdot}x)$ points.

Limak is going to solve problems in order $1, 2, ..., n$ (sorted increasingly by p_i). Radewoosh is going to solve them in order $n, n - 1, ..., 1$ (sorted decreasingly by p_i). Your task is to predict the outcome — print the name of the winner (person who gets more points at the end) or a word `"Tie"` in case of a tie.

You may assume that the duration of the competition is greater or equal than the sum of all t_i. That means both Limak and Radewoosh will accept all n problems.

Input

The first line contains two integers n and c ($1 \leq n \leq 50, 1 \leq c \leq 1000$) — the number of problems and the constant representing the speed of loosing points.

The second line contains n integers $p_1, p_2, ..., p_n$ ($1 \leq p_i \leq 1000, p_i < p_{i+1}$) — initial scores.

The third line contains n integers $t_1, t_2, ..., t_n$ ($1 \leq t_i \leq 1000, t_i < t_{i+1}$) where t_i denotes the number of minutes one needs to solve the i-th problem.

Output

Print `"Limak"` (without quotes) if Limak will get more points in total. Print `"Radewoosh"` (without quotes) if Radewoosh will get more points in total. Print `"Tie"` (without quotes) if Limak and Radewoosh will get the same total number of points.

Sample 1

Input	Output

Input	Output
3 2 50 85 250 10 15 25	Limak

Sample 2

Input	Output
3 6 50 85 250 10 15 25	Radewoosh

Sample 3

Input	Output
8 1 10 20 30 40 50 60 70 80 8 10 58 63 71 72 75 76	Tie

Note

In the first sample, there are 3 problems. Limak solves them as follows:

1. Limak spends 10 minutes on the 1-st problem and he gets $50 - c \cdot 10 = 50 - 2 \cdot 10 = 30$ points.
2. Limak spends 15 minutes on the 2-nd problem so he submits it $10 + 15 = 25$ minutes after the start of the contest. For the 2-nd problem he gets $85 - 2 \cdot 25 = 35$ points.
3. He spends 25 minutes on the 3-rd problem so he submits it $10 + 15 + 25 = 50$ minutes after the start. For this problem he gets $250 - 2 \cdot 50 = 150$ points.

So, Limak got $30 + 35 + 150 = 215$ points.

Radewoosh solves problem in the reversed order:

1. Radewoosh solves 3-rd problem after 25 minutes so he gets $250 - 2 \cdot 25 = 200$ points.
2. He spends 15 minutes on the 2-nd problem so he submits it $25 + 15 = 40$ minutes after the start. He gets $85 - 2 \cdot 40 = 5$ points for this problem.
3. He spends 10 minutes on the 1-st problem so he submits it $25 + 15 + 10 = 50$ minutes after the start. He gets $max(0, 50 - 2 \cdot 50) = max(0, -50) = 0$ points.

Radewoosh got $200 + 5 + 0 = 205$ points in total. Limak has 215 points so Limak wins.

In the second sample, Limak will get 0 points for each problem and Radewoosh will first solve the hardest problem and he will get $250 - 6 \cdot 25 = 100$ points for that. Radewoosh will get 0 points for other two problems but he is the winner anyway.

In the third sample, Limak will get 2 points for the 1-st problem and 2 points for the 2-nd problem. Radewoosh will get 4 points for the 8-th problem. They won't get points for other problems and thus there is a tie because $2 + 2 = 4$.