Problem 2: Nah I'd Win
3 Points

Problem ID: `nah`
Rank: `1`

Introduction

After Bumgumi and the fraud Yuta were taken out by the special grade cursed spirit J*b, Shinjuku needs the help of the honored one. After awakening from the Prison Realm, Gojo Satoru proclaims:

Problem Statement

Gojo has a power level $\mathbf{P}$ and is facing off against $\mathbf{N}$ curses ordered 1 to $\mathbf{N}$. The curses have power levels $\mathbf{E_1}$ $\mathbf{E_2}$ ... $\mathbf{E_N}$. Gojo exorcises the curses in order, starting with curse 1. The i^{th} curse Gojo exorcises depletes his power level by $\mathbf{E}_i$. If Gojo's power level falls below 0, he is defeated. However, Gojo can also activate Reverse Cursed Technique to restore $\mathbf{R}$ power to himself. Since this technique requires high levels of focus, Gojo can only use it once every time he defeats $\mathbf{K}$ curses. Note that Gojo does not start with the ability to use Reverse Cursed Technique. Determine if Gojo is able to defeat all the curses without being defeated himself. Output the string `nah i'd win` if he can and `nah i'd lose` otherwise.

*Note: Templates are available for this problem—and **all other problems in this contest**—in Python, Java, and C++! Find them in the contest.zip provided at the start of the contest. Templates handle input and output for you, so you can just fill out a single function!*

Input Format

The first line of the input contains a single integer $\mathbf{T}$ denoting the number of test cases that follow.

For each test case:

- The first line contains four space-separated integers $\mathbf{N}$ $\mathbf{P}$ $\mathbf{R}$ $\mathbf{K}$ where:
  - $\mathbf{N}$ denotes the number of curses.
  - $\mathbf{P}$ denotes the power level Gojo starts with.
  - $\mathbf{R}$ denotes the amount of power the Reverse Cursed Technique restores.
  - $\mathbf{K}$ denotes the number of curses Gojo must defeat before he can use the Reverse Cursed Technique again.
- The second line contains a list of $\mathbf{N}$ space-separated integers $\mathbf{E_1}$ $\mathbf{E_2}$ ... $\mathbf{E_N}$, where $\mathbf{E}_i$ denotes the power level of the i^{th} curse.

Output Format

For each test case, output the correct string `nah i'd win` or `nah i'd lose` depending on it Gojo can successfully defeat all the curses.

Constraints

$1 \leq \mathbf{T} \leq 100$
$1 \leq \mathbf{N} \leq 10^4$
$1 \leq \mathbf{P} \leq 10^5$
$1 \leq \mathbf{R} \leq 10^4$
$1 \leq \mathbf{K} \leq 10^4$
$1 \leq \mathbf{E}_i \leq 10^4$

Sample Test Cases

Sample Input Download

```
6
5 60 5 1
12 6 23 8 10
4 42 10 3
40 10 5 8
3 10 5 2
5 5 5
3 20 50 3
10 10 10
4 5 10 1
4 10 10 10
1 10 100 1
15
```

Sample Output Download

```
nah i'd win
nah i'd lose
nah i'd win
nah i'd lose
nah i'd win
nah i'd lose
```

Sample Explanations

For the first test case, the sum of the curses' power is only 59, which is less than Gojo's starting power $\mathbf{P} = 60$. Gojo will be able to defeat all the curses without even needing to regenerate his power.

For the second test case, Gojo will be left at 2 power after defeating the first curse. Since the next curse has power level $\mathbf{E}_2 = 10$, and he cannot yet regenerate power (as he has not defeated $\mathbf{K} = 3$ curses), he loses.

For the third test case, Gojo will be left on 0 power after defeating the first two curses. However, since $\mathbf{K} = 2$, he can regenerate $\mathbf{R} = 5$ power—enough to defeat the third curse.

For the sixth test case, Gojo is immediately defeated by the first curse since it has a power level $\mathbf{E}_1 = 15$ and Gojo has starting power $\mathbf{P} = 10$. In this case, Gojo is unable to use his Reverse Cursed Technique before being defeated.