

Problem 253: Keeping Cool

Difficulty: Easy

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Problem Background

Despite the amount of power they can produce, engines can be extremely delicate things. If they're not running in ideal conditions, they can gradually damage themselves to the point that they become completely useless. Care has to be taken to ensure that an engine is well-maintained and running smoothly to avoid disastrous results.

Problem Description

Lockheed Martin is developing a new temperature sensor to be installed in its fighter aircraft. This sensor will monitor the temperature of the aircraft's engine to ensure it's running at an ideal temperature. The sensor should set off warning alarms in any of the following situations:

- If any reading from the sensor is below a minimum temperature threshold; this means the engine isn't running as efficiently as it should, which may indicate damage
- If any reading from the sensor is above a maximum temperature threshold; this means the engine is running too hot and could become damaged quickly
- If the average of a series of readings from the sensor is above a warning threshold; this means the engine is running hotter than it should and may be receiving more damage over time, possibly due to overdue maintenance

Write a program that can accept a series of readings from the temperature sensor and display the appropriate output according to the rules above.

Sample Input

The first line of your program's input, received from the standard input channel, will contain a positive integer representing the number of test cases. Each test case will include two lines of text:

- A line containing the following information, separated by spaces:
 - A positive integer indicating the number of readings received from the sensor, N
 - A positive decimal indicating the minimum temperature threshold, L
 - A positive decimal indicating the warning threshold, A
 - A positive decimal indicating the maximum temperature threshold, H
- A line containing N positive decimals separated by spaces, representing the sensor readings over a period of time

For this problem, $L < A < H$ for all test cases.

```
4
5 100.0 175.0 200.0
99.0 112.0 140.0 155.0 170.0
5 100.0 175.0 200.0
170.0 175.0 180.0 185.0 190.0
5 100.0 175.0 200.0
150.0 165.0 220.0 170.0 170.0
5 100.0 175.0 200.0
140.0 145.0 150.0 155.0 160.0
```

Sample Output

For each test case, your program must print a line indicating the warning system's output, as follows:

- If any temperature in the list is less than the minimum temperature threshold L , print “TOO COOL”
- Otherwise, if any temperature in the list is higher than the maximum temperature threshold H , print “TOO HOT”
- Otherwise, if the average of all temperatures in the test case is higher than the warning threshold A , print “WARNING”
- Otherwise, print “OK”

```
TOO COOL
WARNING
TOO HOT
OK
```