Catch a Zombie

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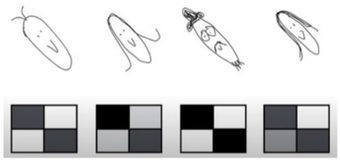
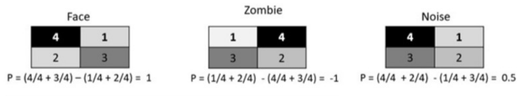
You are stuck in Slanted island. On this island the face of people have slanted by 45 degrees. Its hard to make out who is a person and who is a zombie!

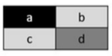


In this image you can see that the faces of people can be represented as a 2 by 2 matrix. Slanted people are identified by matrices which have a higher value at their (backslash direction) diagonal compared to the their (forward slash direction) diagonal. Zombies have the opposite, i.e. their matrices have higher values at their (slash) diagonals compared to their (backslash) diagonals. Noise images do not have higher values at any of the diagonals.

In order to identify a person from a zombie or a noise image, you need to calculate the probability as shown in the following image:



The 2 by 2 matrix will have a, b, c, and d values ordered as follows:



The P value is computed using the formula:

P = (a/4 + d/4) – (b/4 + c/4)

- If (P >= 1), the image represents a FACE
- If (P <= -1), the image represents a ZOMBIE
- If (-1 < P < 1), the image represents NOISE.

Help us find FACE, ZOMBIE and NOISE.

Input Format

The program reads integer **n** (number of lines). On each of the following **n** lines, a list of 4 non-negative integer values are read. These 4 values represent faces of people (matrix values a, b, c, and d).

Constraints

- 1 <= n <=500
- values of a, b, c and d are non-negative are must be 0, 1, 2, 3 or 4.

Output Format

The program outputs the identification of each face as, ZOMBIE, FACE, NOISE, INVALID on a separate line.

Sample Input 0

```
2
4 1 2 3
1 4 3 2
```

Sample Output 0

```
FACE
ZOMBIE
```

Explanation 0

The program reads n = 2 lines. The first line contains matrix 4 1 2 3. The P value determines FACE. The send line contains 1 4 3 2, the P value classifies it as ZOMBIE

Contest ends in 6 hours

Submissions: 70
Max Score: 25
Difficulty: Easy

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Java 7

```
1  import java.util.Scanner;
2  public class Solution
3  {
4      public static void main(String[] args)
5      {
6          Scanner input = new Scanner(System.in);
7          int n = input.nextInt();
8
9          if (1 <= n && n<=500)
10         {
11             double[][] arr = new double[2][2];
12
13             for (int i = 0; i < n; i++)
14             {
15                 for(int j = 0; j < 2; j++)
16                 {
17                     for(int k = 0; k < 2; k++)
18                     {
19                         arr[j][k] = input.nextInt();
20                         if (arr[j][k] < 0)
21                             return;
22                     }
23
24                 }
25                 String result = null;
26                 int j = 0, k = 0;
27                 double p = (arr[j][k]/4.0 + arr[j+1][k+1]/4.0)  -  (arr[j][k+1]/4.0 + arr[j+1][k]/4.0) ;
28                 if ( p >= 1 )
29                     result = "FACE";
30                 else if ( p <= -1 )
31                     result = "ZOMBIE";
32                 else if (-1 < p && p< 1)
33                     result = "NOISE";
34                 System.out.println(result);
35
36                 j+=1;
37                 k+=1;
38             }
39         }
40     }
41 }
```

Line: 1 Col: 1

Upload Code as File | Test against custom input | Run Code | Submit Code