15 Mesoamerican pyramids

6 points

Introduction

Dr. Jones, the world-renowned archeology professor, is investigating the pre-Columbian cultures and civilizations located in Central America. Their architecture produced the Mesoamerican pyramids. The most popular were built by Aztecs and Mayans. These structures, although similar to the Egyptian pyramids, are distinguished by having flat tops and stairs ascending their faces. It is important to note that the pyramids have layers and the number of steps per layer is the same on all of its faces.

During the investigation, a book was found that contained the plans of hundreds of Mesoamerican pyramids. Dr. Jones believes that most of the plans are real, but some of them are fake. He realized in the fake plans that the number of stairs per layer is not the same on all of the faces. Because Dr. Jones is very busy and given the clue he has pointed out, can you help him to detect fake Mesoamerican pyramids?

Input

The first line gives the number of pyramids to analyse. Then for each pyramid a line with the following information is provided: the name of the village in a single word, for the north face of the pyramid the number of steps per each layer in ascending order separated with a white space, then a separator "#", and the same information in descending order for the south face.

Output

For each pyramid return a line stating if the number of steps per layer is the same in both faces.

Example

Input

```
2
Tenochtitlan 2 3 4 5 4 # 4 5 4 3 2
Teotihuacan 1 2 2 3 4 4 6 7 # 7 6 4 3 3 2 2 1
```

Output

```
Tenochtitlan has same number of steps for both faces
Teotihuacan has NOT same number of steps for both faces
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