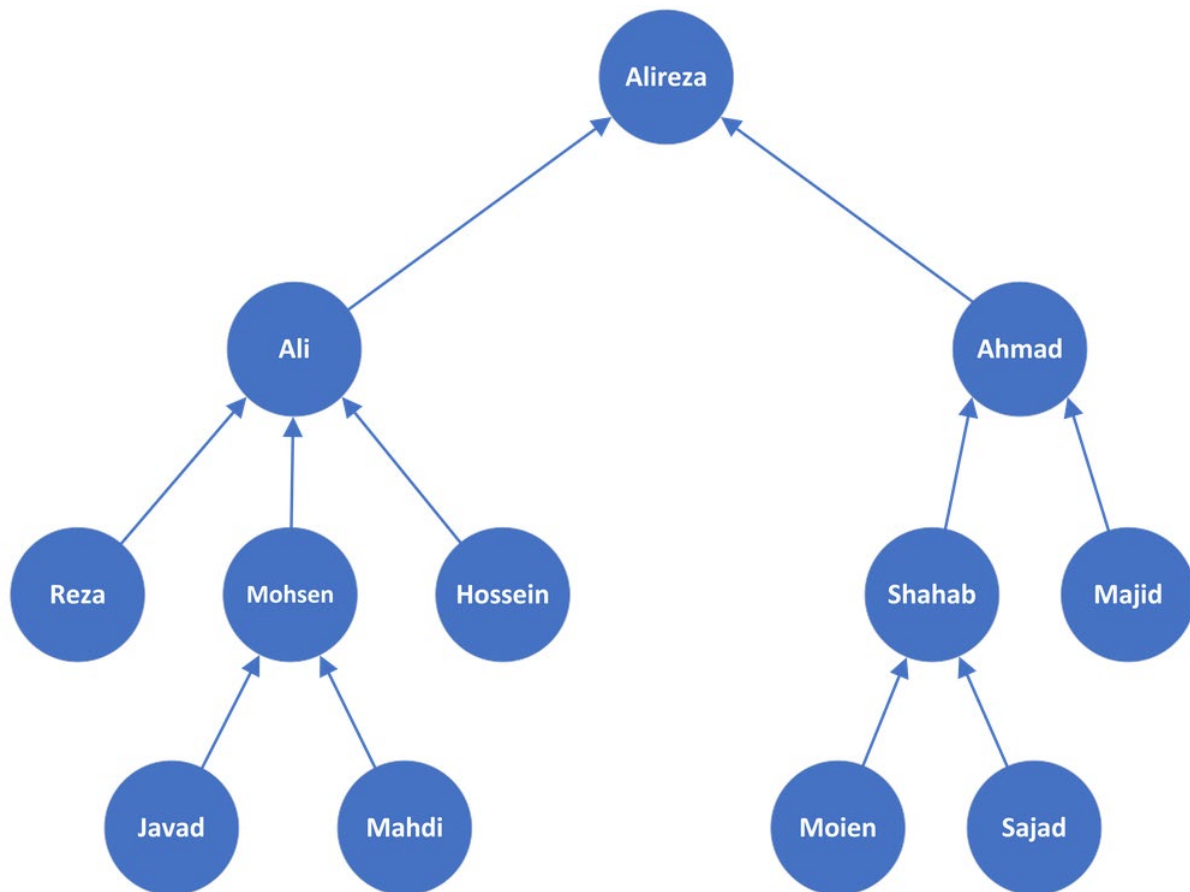


Implementation of Family Tree

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A genealogy is supposed to be prepared according to the information collected from the lineage of a family throughout history. The filial and paternal relationship of the family members is given, based on which a graph can be formed as shown below.



Print the graph line by line but in alphabetical order according to the following description in the output.

First, print the name of the highest member and then his children in alphabetical order:

Alireza->Ahmad Ali

Then for those children, print their children in alphabetical order:

Ahmad->Majid Shahab

Ali->Hossein Mohsen Reza

And don't print anything for someone who doesn't have children. Continue this process according to the example.

Entrance:

In the input, the number n is given first. Then, in line n , the father and child relationship between the family members comes. In each line, two names x and y are separated by a space, where x is the child of y . Range: $(1 \leq n \leq 100)$

Output:

Print the family tree according to the description.

Example:

Sample entry 1:

11

Ali Alireza

Reza Ali

Javad Mohsen

Mahdi Mohsen

Hossein Ali

Mohsen Ali

Sajad Shahab

Moien Shahab

Majid Ahmad

Shahab Ahmad

Ahmad Alireza

Sample output 1:

Alireza->Ahmad Ali

Ahmad->Majid Shahab

Ali->Hossein Mohsen Reza

Majid

Shahab->Moien Sajad

Hossein

Mohsen->Javad Mahdi

Reza

Moien

Sajad

Javad

Mahdi

This example is the same graph that you see in the form of the question.