

Valuepitch Coding Challenge

Problem Statement

In this challenge, you are required to model a family tree. Given a list of people and how they are related to each other, your code should be able to do the following,

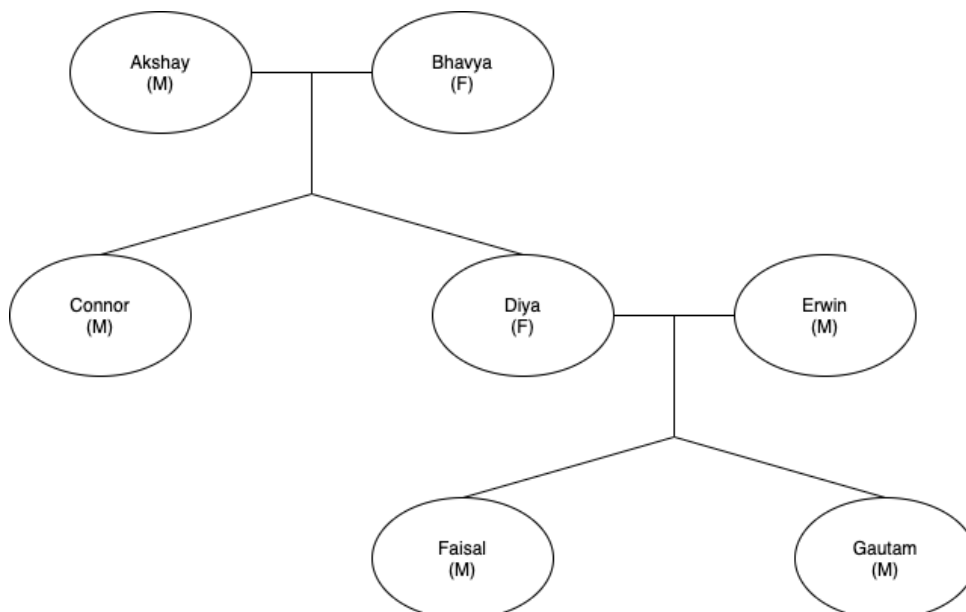
1. Given a 'name' and a 'relationship' as an input, the output are the people that correspond to the relationship.
2. Give the closest 'relationship' between any two 'name's on the tree.

Example

Let's go through the problem with an example. Suppose these are the relationships, with possible relationships being, 'husband', 'wife', 'son', 'daughter', 'brother' and 'sister' (gender can be derived from these relations).

1. Akshay is the husband of Bhavya
2. Connor is the son of Akshay
3. Diya is the daughter of Bhavya
4. Diya is the wife of Erwin
5. Faisal is the son of Diya
6. Gautam is the brother of Faisal

We arrive at a family tree that looks like this



Challenge 1

Now given a 'name' and 'relation' like these

Input

Brother of Diya
Son of Diya
Father of Erwin

Output

Connor
Faisal, Gautam
UNKNOWN

BONUS POINTS If relations like 'uncle', 'aunt', 'niece', 'nephew', 'grandfather' and 'grandmother' can be shown as well.

Challenge II

Given 2 names, find the closest relation between them.

Input

_____ Connor and Gautam
Erwin and Bhavya

Output

Connor is the brother of the mother of Gautam
Erwin is the husband of the daughter of Bhavya

BONUS POINTS If relations like 'uncle', 'aunt', 'niece', 'nephew', 'grandfather' and 'grandmother' can be shown as well. Eg: "Connor is the brother of the mother of Gautam" becomes "Connor is the uncle of Gautam".

Submission

You are required to submit the script(s) and a text file explaining how to run it (Python and Golang are preferred). Be sure to include any requirements. Ensure that the core logic of family tree creation and traversal is not implemented using any 3rd party library. Input needs to be read from a text file, and output should be printed to console. Your program should execute and take the location to the test file as a parameter. The first line of the input file will contain the number of relations, number of Challenge 1 and 2 questions

Your submission will be judged based on readability, logic, ease of running/building and extensibility, so be sure to follow all the standard coding conventions (Eg. PEP8 for Python).

Sample

Input File

6 3 2

Akshay is the husband of Bhavya

Connor is the son of Akshay

Diya is the daughter of Bhavya

Diya is the wife of Erwin

Faisal is the son of Diya

Gautam is the brother of Faisal

Brother of Diya

Son of Diya

Father of Erwin

Connor and Gautam

Erwin and Bhavya

Output

Connor

Faisal, Gautam

UNKNOWN

Connor is the brother of the mother of Gautam

Erwin is the husband of the daughter of Bhavya