

Problem 211: Who's Your Supervisor?

Difficulty: Medium

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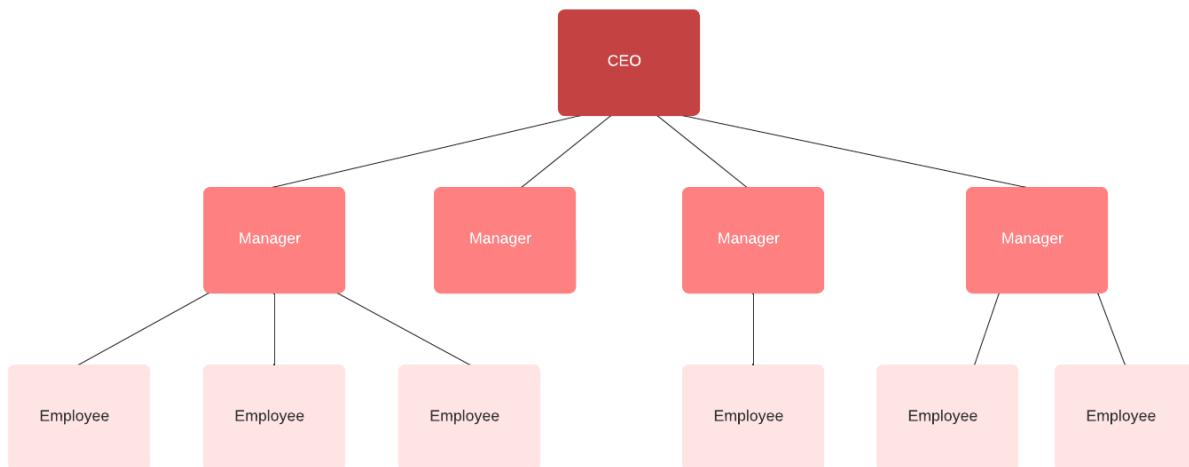
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Problem Background

When working for a government contractor, you will find that requesting access to company resources often requires approval from your manager. Some examples of company resources include software installations, access to shared drives, access to applications on the intranet, budget allocation, etc. These types of requests can be automated to send an approval request to the employee's manager without human intervention. But the manager may not be available or may have missed the notification of the approval request. In that case, we would want the system to send the request to the next manager in the chain, the manager of the manager, and so on, until someone approves or denies the request.

Problem Description

Lockheed Martin wants to implement an automated manager notification system. You have been hired to program this system. The human resources department tracks the names of direct reports for each manager in the company, all the way up to the CEO. Each direct report has a single manager, but each manager may have one, zero, or multiple direct reports. The CEO will not have a manager. Some managers are newly hired and have not been assigned direct reports yet. The management structure can be represented as a standard hierachal structure, like the one below.



Your goal with this program is to create the hierachal management structure, then print out the entire line of managers for each employee. The data received from human resources will not be in

hierarchical order of management. The output must be in alphabetical order by first name for each employee.

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...

- A positive integer, M , representing the total number of managers, including the CEO.
- M sections, each containing information for each manager, including:
 - A single line containing the name of the manager.
 - An integer, N , representing the number of direct reports for that manager.
 - N lines containing the name of each direct report.

```
1
3
Brett Shofquel
5
Beth Burns
Brennan McCloud
Ibrahim Harvey
Jacob Allard
Shannon Takamoto
Thomas Takamoto
2
Brett Shofquel
Enida MacConnell
Enida MacConnell
2
Jane Wong
Marjorie Zaremby
```

Sample Output

For each test case, your program must print the name of each employee, followed by the name of each manager in the hierarchy for that employee. The output will be sorted ascending by first name of each employee. Each name in the manager chain will be separated by a forward slash.

Beth Burns/Brett Shofquel/Thomas Takamoto
Brennan McCloud/Brett Shofquel/Thomas Takamoto
Brett Shofquel/Thomas Takamoto
Enida MacConnell/Thomas Takamoto
Ibrahim Harvey/Brett Shofquel/Thomas Takamoto
Jacob Allard/Brett Shofquel/Thomas Takamoto
Jane Wong/Enida MacConnell/Thomas Takamoto
Marjorie Zaremba/Enida MacConnell/Thomas Takamoto
Shannon Takamoto/Brett Shofquel/Thomas Takamoto
Thomas Takamoto