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IDE

Find all employees who directly or indirectly reports to a manager

Given a map containing employee to manager mappings, find all employees under each manager who directly or indirectly reports to him.

For example, consider below employee-manager pairs:
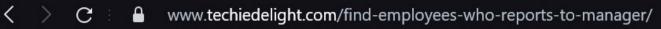
```
A -> A
B -> A
C -> B
D -> B
E -> D
F -> E
```

Here, A reports to himself i.e. A is head of the company and is the manager of employee B. B is the manager of employees C and D, D is the manager of employee E, E is the manager of employee F, C and F are not managers of any employee.

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```
D -> A
C -> B
D -> B
E -> D
F -> E
```

Here, A reports to himself i.e. A is head of the company and is the manager of employee B. B is the manager of employees C and D, D is the manager of employee E, E is the manager of employee F, C and F are not managers of any employee.

Output:

```
A -> B, D, C, E, F
B -> D, C, E, F
C ->
D -> E, F
E -> F
F ->
```

The idea is to construct a reverse map, containing manager to employee mappings, and recursively find all reporting employees (direct and indirect) in the hierarchy for every manager. The algorithm can be implemented as follows in C++, Java and Python –