

The company you work for, Intuition Inc, wants to keep their Organisation Chart up to date, so they can clearly determine each worker's role and responsibilities, including management chain up to the CEO. They have assigned to you the awesome task of writing a program to help them achieve this.

What you need to do:

- For every employee, store (at least) the following information:
 - First name(s), last name(s), role, start date and employee number.
 - Employee number must be unique within the company.
 - The available roles are:
 - CEO
 - Vice President
 - Director
 - Manager
 - Employee which can be Permanent or Contractor
 - Every active employee within the organisation has a manager, except the CEO.
- There is only a single CEO.
- Contractors can not have direct reports
- Every active employee has a numeric value that determines their level in the company hierarchy in relation to the CEO (who is at level 1)
 - For instance, the CEO is at level 1, one of his direct reports is at level 2, the direct report of the latter is at level 3 and so on.

Based on the information collected above and any other information you find pertinent, there are certain operations that need to be implemented as REST service endpoints:

- Adding an employee to the [Organization](#)
- Changing teams.
 - An employee can move to another team within the organisation. When moving to a different team, an employee starts reporting to a new manager, without transferring his past subordinates to the new team. Instead, the most senior (based on start date) of his subordinates should be promoted to manage the employee's former team.
 - Example:
 - Louis, who used to report to Sally, decides to move teams, and now he reports to Brandon.
 - Mark, who was Louis' most senior direct report and permanent employee, is promoted to manage all former subordinates of Louis, and he also now reports to Sally.
- Employee goes on holidays
 - When an employee goes on holidays, all his subordinates start reporting to the employee's manager temporarily.

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- Example:
 - Pete, who reports to Laura, goes on holidays. Until he comes back, all his direct reports now report to Laura
- Employee comes back from holidays
 - When an employee comes back from holidays, all his subordinates come back to report to him, unless they have moved teams.
- Promotions
 - When an employee is promoted, he effectively becomes a peer of his former manager. Unfortunately, there is a single CEO for the company, so attempting a promotion of one of the CEO's subordinates should fail.
 - An employee can become a Director if he has at least 20 employees in his organisation (people subordinate to him, and his subordinates), including at least 2 managers (people that also have direct reports).
 - An employee can become a Vice President if he has at least 40 employees in his organisation (people subordinate to him, and his subordinates), including at least 4 directors.

You should use Java to build the solution, you can use any application server to deploy your code, minimize the use of third party libraries but feel free to use standard libs for things like connecting to the database.

We are interested in seeing what data structures and algorithms you have chosen to implement in order to satisfy the given requirements. We will be assessing how you structure your code to facilitate extensibility, readability and testability, compliance with best OO practices and also how easy it is for others to understand and modify.

We are also interested in seeing how efficient your solution is, so don't forget to comment on the complexity of the algorithms you implement.

Please hand in your solution along with any notes, comments, and assumptions you have made while working on it.

Please do not publish your solution (e.g. in a public GitHub repository).