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

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

- Adding an employee to the Organisation
- 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 their past subordinates to the new team. Instead, the most senior (based on start date) of their 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 their subordinates start reporting to the employee's manager temporarily.
    - 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 their subordinates come back to report to them, unless they have moved teams.
- Promotions
  - When an employee is promoted, they effectively become a peer of their former manager. Unfortunately, there is a single CEO for the company, so it is not possible to promote one of the CEO's subordinates.
  - An employee can also become a Director if they have at least 20 employees in their unit (people subordinate to them, and their subordinates), including at least 2 managers (people that also have direct reports).
  - An employee can also become a Vice President if they have at least 40 employees in their unit (people subordinate to them, and their subordinates), including at least 4 directors.

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. Consider that this code may be used in a production system in the future, but only as a component, so you do not need to design UIs, APIs, CLIs, etc. as part of your solution. You also do not need to design a database or data access.

You can use any programming language you want. Feel free to use libraries and patterns standard to your chosen language, though it's suggested to minimize the usage of frameworks which take design decisions away from you (e.g. rails, django, Spring Roo), as the goal is to evaluate the code and design written by yourself. The parts of the solution we are most interested in can be written without any libraries.

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

Plan to spend around two hours on this solution. You may not be able to complete all of the requirements, so consider what you would show as a prototype or proof of concept towards a production-ready component.

Please do not publish your solution (e.g. in a public GitHub repository).