

SDE-2 Technical Assessment

TypeScript OOP

Below is an example organization chart. At the top is the CEO, John Smith. John's subordinates are Margot, Tyler, Ben and Georgina.

```
John Smith
  - Margot Donald
    - Cassandra Reynolds
      - Mary Blue
      - Bob Saget
        - Tina Teff
        - Will Turner
  - Tyler Simpson
    - Harry Tobs
      - Thomas Brown
    - George Carrey
    - Gary Styles
  - Ben Willis
  - Georgina Flangy
    - Sophie Turner
```

The CEO is represented with the following structure:

```
interface Employee {
  uniqueId: number;
  name: string;
  subordinates: Employee[];
};

const ceo: Employee = {
  uniqueId: 1
  name: John Smith,
  subordinates: [Employee, Employee, ....]
};
```

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Your task is to create a concrete class called **EmployeeOrgApp** that implements **IEmployeeOrgApp**.

```
interface Employee {
    uniqueId: number;
    name: string;
    subordinates: Employee[];
}

interface IEmployeeOrgApp {
    ceo: Employee;

    /**
     * Moves the employee with employeeID (uniqueId) under a supervisor
     * (another employee) that has supervisorID (uniqueId).
     * E.g. Move Bob(employeeID) to be subordinate of
     * Georgina (supervisorID).
     * @param employeeID
     * @param supervisorID
     */
    move(employeeID: number, supervisorID: number): void;

    /** Undo last move action */
    undo(): void;

    /** Redo last undone action */
    redo(): void;
}
```

The class should be instantiable with the **CEO** as a constructor parameter:

```
const app = new EmployeeOrgApp(ceo)
```

The class should allow us to:

1. Move employee A to become the subordinate of employee B (i.e. B becomes A's supervisor).

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2. Undo/redo the move action.

You may assume:

1. When an employee (e.g. Bob Saget) is moved to a new supervisor (e.g. Georgina), Bob's existing subordinates (Tina Teff) will become the subordinate of Cassandra, Bob's old supervisor.
2. Employees without any subordinates have an empty list for their subordinates property.
3. You may not clone the state/tree during each action (move/undo/redo).

Assessment Criteria:

1. The efficiency of the code
2. Object oriented programming design
3. Readability
4. Completeness of solution

Requirements:

- Must be written in TypeScript.

How to submit?

Please submit a GitHub link to your project with clear instructions on how to build/run/start the project

in the README.md. You can email that link to careers@manufacanalytics.com.

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The submission deadline is 2 days starting from the day you receive the assignment. Say, if you receive your assignment on 1st July 2022, please submit the assignment solution by 3rd July 2022 at midnight.

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