Mindex Java Coding Challenge - Notes

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12/7/2023

Task 1: ReportingStructure

Step 1: Create ReportingStructure Class

1. Create a new class named `ReportingStructure` in com.mindex.challenge.data

2. Define the class with two properties: `Employee employee` and `int numberOfReports`.

Step 2: Implement ReportingStructureService

1. Create a new class named `ReportingStructureService` in com.mindex.challenge.service.

2. Implement a method that takes an `employeeId` as a parameter and returns a `ReportingStructure` object.  
  
Step 3: Create ReportingStructureServiceImpl

1. Create a new class named ReportingStructureServiceImpl in com.mindex.challenge.service.impl

2. Implement employeeService.getEmployeeById and calculateNumberOfReports methods

Step 4: Create ReportingStructureController

1. Create a new class named `ReportingStructureController` in com.mindex.challenge.controller

2. Inject an instance of `ReportingStructureService` into the controller.

3. Create a new endpoint in the controller to handle requests for reporting structure by employeeId: @GetMapping("/reportingStructure/{employeeId}")

Step 5: Test the Endpoint

1. Run the application (`gradlew bootRun`).

2. Navigate to <http://localhost:8080/reportingStructure/16a596ae-edd3-4847-99fe-c4518e82c86f> and ensure ‘numberofReports’ is equal to 4.

{"employee":{"employeeId":"16a596ae-edd3-4847-99fe-c4518e82c86f","firstName":"John","lastName":"Lennon","position":"Development Manager","department":"Engineering","directReports":[{"employeeId":"b7839309-3348-463b-a7e3-5de1c168beb3","firstName":null,"lastName":null,"position":null,"department":null,"directReports":null},{"employeeId":"03aa1462-ffa9-4978-901b-7c001562cf6f","firstName":null,"lastName":null,"position":null,"department":null,"directReports":null}]},**"numberOfReports":4}**

**Success.**

Task 2: Compensation

Step 1: Create Compensation Class

1. Create a new class named ‘Compensation’ in com.mindex.challenge.data, representing compensation details for an employee.

2. Properties should include fields such as salary, effective date, etc.

3. NOTE: Update the `Employee` class to include a reference to the new `Compensation` class.

Step 2: Implement CompensationService

1. Create a new class named ‘CompensationService’ in com.mindex.challenge.service.

2. read (employeeId); create (compensation)

Step 3: Create CompensationServiceImpl

1. Create a new class named CreateCompensationServiceImpl in com.mindex.challenge.service.impl

2. Implement read and create methods

Step 4: Create CompensationController

1. Create a new class named `CompensationController` in com.mindex.challenge.controller

2. Inject an instance of `CompensationService` into the controller.

3. NOTE: Update the `EmployeeController` class to include compensation details when reading an employee.

Step 5: Create CompensationRepository

1. Create the ‘CompensationRepository’ class in com.mindex.challenge.dao and ensure it contains the necessary methods for working with compensations.

Step 6: Troubleshoot  
Problem: After implementing Task 2 (Compensation), the numberOfReports value in reportingStructure increased from 4 to 8.

Now each direct report includes compensation information, and each employee in the hierarchy has associated compensation details. Therefore, the recursive counting of direct reports in my calculateNumberOfReports method now includes these compensation-related entries, leading to a higher count.

Solution: modify the calculateNumberOfReports method to skip counting compensation-related entries:  
  
 private int calculateNumberOfReports(Employee employee) {

int directReportsCount = 0;

List<Employee> directReports = employee.getDirectReports();

if (directReports != null) {

for (Employee directReport : directReports) {

if (directReport.getPosition() != null || directReport.getDepartment() != null) {

directReportsCount += 1 + calculateNumberOfReports(directReport);

}

}

}

return directReportsCount;

}

Step 7: Test

1. Test the new endpoints (`/compensation/{employeeId}` and `/compensation`) using cURL. Ensure creation of compensation details for an employee.

2. Navigate to <http://localhost:8080/compensation/16a596ae-edd3-4847-99fe-c4518e82c86f> and ensure new compensation details exist.

{"employee":{"employeeId":"16a596ae-edd3-4847-99fe-c4518e82c86f","firstName":"John","lastName":"Lennon","position":"Development Manager","department":"Engineering","directReports":[{"employeeId":"b7839309-3348-463b-a7e3-5de1c168beb3","firstName":"Paul","lastName":"McCartney","position":"Developer I","department":"Engineering","directReports":null,"compensation":null},{"employeeId":"03aa1462-ffa9-4978-901b-7c001562cf6f","firstName":"Ringo","lastName":"Starr","position":"Developer V","department":"Engineering","directReports":[{"employeeId":"62c1084e-6e34-4630-93fd-9153afb65309","firstName":"Pete","lastName":"Best","position":"Developer II","department":"Engineering","directReports":null,"compensation":null},{"employeeId":"c0c2293d-16bd-4603-8e08-638a9d18b22c","firstName":"George","lastName":"Harrison","position":"Developer III","department":"Engineering","directReports":null,"compensation":null}],"compensation":null}],"compensation":null,"target":{"employeeId":"16a596ae-edd3-4847-99fe-c4518e82c86f","firstName":"John","lastName":"Lennon","position":"Development Manager","department":"Engineering","directReports":[{"employeeId":"b7839309-3348-463b-a7e3-5de1c168beb3","firstName":"Paul","lastName":"McCartney","position":"Developer I","department":"Engineering","directReports":null,"compensation":null},{"employeeId":"03aa1462-ffa9-4978-901b-7c001562cf6f","firstName":"Ringo","lastName":"Starr","position":"Developer V","department":"Engineering","directReports":[{"employeeId":"62c1084e-6e34-4630-93fd-9153afb65309","firstName":"Pete","lastName":"Best","position":"Developer II","department":"Engineering","directReports":null,"compensation":null},{"employeeId":"c0c2293d-16bd-4603-8e08-638a9d18b22c","firstName":"George","lastName":"Harrison","position":"Developer III","department":"Engineering","directReports":null,"compensation":null}],"compensation":null}],"compensation":null}},**"salary":50000,"effectiveDate":"2023-12-07T00:00:00Z"**}

**Success.**

Testing Notes:

<http://localhost:8080/employee/16a596ae-edd3-4847-99fe-c4518e82c86f>

<http://localhost:8080/reportingStructure/16a596ae-edd3-4847-99fe-c4518e82c86f>  
<http://localhost:8080/compensation/16a596ae-edd3-4847-99fe-c4518e82c86f>

**Compensation Creation:**

curl -X POST -H "Content-Type: application/json" -d '{"employee": {"employeeId": "16a596ae-edd3-4847-99fe-c4518e82c86f"}, "salary": "50000", "effectiveDate": "2023-12-07T00:00:00Z"}' http://localhost:8080/compensation

**Compensation Retrieval:**

curl http://localhost:8080/compensation/16a596ae-edd3-4847-99fe-c4518e82c86f

**Reporting Structure (formatted):**

{

"employee": {

"employeeId": "16a596ae-edd3-4847-99fe-c4518e82c86f",

"firstName": "John",

"lastName": "Lennon",

"position": "Development Manager",

"department": "Engineering",

"directReports": [

{

"employeeId": "b7839309-3348-463b-a7e3-5de1c168beb3",

"firstName": "Paul",

"lastName": "McCartney",

"position": "Developer I",

"department": "Engineering",

"directReports": null,

"compensation": null

},

{

"employeeId": "03aa1462-ffa9-4978-901b-7c001562cf6f",

"firstName": "Ringo",

"lastName": "Starr",

"position": "Developer V",

"department": "Engineering",

"directReports": [

{

"employeeId": "62c1084e-6e34-4630-93fd-9153afb65309",

"firstName": "Pete",

"lastName": "Best",

"position": "Developer II",

"department": "Engineering",

"directReports": null,

"compensation": null

},

{

"employeeId": "c0c2293d-16bd-4603-8e08-638a9d18b22c",

"firstName": "George",

"lastName": "Harrison",

"position": "Developer III",

"department": "Engineering",

"directReports": null,

"compensation": null

}

],

"compensation": null

}

],

"compensation": null

},

"numberOfReports": 4

}

**Compensation (formatted):**

{

"employee": {

"employeeId": "16a596ae-edd3-4847-99fe-c4518e82c86f",

"firstName": "John",

"lastName": "Lennon",

"position": "Development Manager",

"department": "Engineering",

"directReports": [

{

"employeeId": "b7839309-3348-463b-a7e3-5de1c168beb3",

"firstName": "Paul",

"lastName": "McCartney",

"position": "Developer I",

"department": "Engineering",

"directReports": null,

"compensation": null

},

{

"employeeId": "03aa1462-ffa9-4978-901b-7c001562cf6f",

"firstName": "Ringo",

"lastName": "Starr",

"position": "Developer V",

"department": "Engineering",

"directReports": [

{

"employeeId": "62c1084e-6e34-4630-93fd-9153afb65309",

"firstName": "Pete",

"lastName": "Best",

"position": "Developer II",

"department": "Engineering",

"directReports": null,

"compensation": null

},

{

"employeeId": "c0c2293d-16bd-4603-8e08-638a9d18b22c",

"firstName": "George",

"lastName": "Harrison",

"position": "Developer III",

"department": "Engineering",

"directReports": null,

"compensation": null

}

],

"compensation": null

}

],

"compensation": null,

"target": {

"employeeId": "16a596ae-edd3-4847-99fe-c4518e82c86f",

"firstName": "John",

"lastName": "Lennon",

"position": "Development Manager",

"department": "Engineering",

"directReports": [

{

"employeeId": "b7839309-3348-463b-a7e3-5de1c168beb3",

"firstName": "Paul",

"lastName": "McCartney",

"position": "Developer I",

"department": "Engineering",

"directReports": null,

"compensation": null

},

{

"employeeId": "03aa1462-ffa9-4978-901b-7c001562cf6f",

"firstName": "Ringo",

"lastName": "Starr",

"position": "Developer V",

"department": "Engineering",

"directReports": [

{

"employeeId": "62c1084e-6e34-4630-93fd-9153afb65309",

"firstName": "Pete",

"lastName": "Best",

"position": "Developer II",

"department": "Engineering",

"directReports": null,

"compensation": null

},

{

"employeeId": "c0c2293d-16bd-4603-8e08-638a9d18b22c",

"firstName": "George",

"lastName": "Harrison",

"position": "Developer III",

"department": "Engineering",

"directReports": null,

"compensation": null

}

],

"compensation": null

}

],

"compensation": null

}

},

"salary": 50000,

"effectiveDate": "2023-12-07T00:00:00Z"

}