

SE 116 Introduction to Programming II

Lab No:	03 (GRADED)
Topic:	Collection Framework

TASK 1:

In this lab, you are responsible for creating an Employee Management System. With the help of this system, users can keep track of their employees status, salaries and can give upper bounds to their salaries.

Create an Employee class that has `id`, `name`, `monthlySalary` as class fields. You will decide on the data types of the following class fields. Implement its accessors and mutators for the class fields above and parameterized constructor that will assign `id` and `name` to some values except `monthlySalary`, initialize the `monthlySalary` field to a default value as 0.0 in that constructor.

Create a Manager class that has `id`, `name`, `salaryLimit` as class fields. You will decide on the data types of the following class fields. Implement its accessors and mutators for the following class fields and parameterized constructor that will assign `id` and `name` to some values except `salaryLimit`, initialize the `salaryLimit` field to a default value as 0.0 in that constructor.

BE CAREFUL THAT YOUR ACCESSOR AND MUTATOR METHOD NAMES MUST BE IN CAMEL CASE FORMAT;

For example: `monthlySalary`'s accessor and mutators should be like this:

`getMonthlySalary()`

`setMonthlySalary()`

There can be parameters between parenthesis.

Also, create EMS(Employee Management System) class for handling those employees stuffs such as calculating their salaries, registering them into system, removing them if they've leave the company. This EMS has name of the company as `companyName`, Manager of the company as `manager`, the Set of Employees they are currently working in the company as `employees`, an associative array to represent employees as keys their monthly salary as values with the following field name as `salaryMap`. Implement accessor and mutators for the class fields above and a parameterized constructor for the only 2 class fields which are `name`, `manager` assign other class fields to empty set and map in that constructor.

```
registerEmployee(Employee employee); : When registering into system assign his/her salary into 0 in associative array. Also, don't forget to add them into set.
```

```
removeEmployee(Employee employee);
```

The EMS should get an .csv file from user with names and daily salaries in it. The EMS should learn the employee names from this file and will register them into system if they are not exist in the system. Concurrently, the EMS will calculate the monthly salary of each employee from that daily salaries total value gathered from that file and will assign that salary value to each Employee in the system as their `monthlySalary`. This process will be done in the following method name;

```
calculateSalaries(String fileName);
```

Additionally, EMS has a special feature for Managers. EMS can ask company's manager to assign a salary limit optionally. Whenever the system calculates the total salary of each employee and if there is some salary limit assigned to the system. The system will find the ones with exceeding this limit and will fire from the company for causing over cost. This process will be done in the following method name;

```
askForSalaryLimit();
```

You will find the salary .csv file in the Blackboard as **LAB3.csv**