BIRZEIT UNIVERSITY

Assignment3: (It's allowed to use Chapters 1-11 only)

Palestinian Dairy Factory

Employee Class:

Design a class named `Employee` . The class should keep the following information in fields:

- `Employee name`
- `Employee Number`
- `Hire date`.
- `Address` that composed of (street, state,city,zip code).

Write one or more constructors and the appropriate accessor and mutator methods for the class. This class has `isEmpNumberValid` method which return boolean data type . Employee Number in the format XXX–L, where each X is a digit within the range 0–9 and the L is a letter within the range A–M

ProductionWorker Class:

Next, write a class named `productionWorker` that inherits from the Employee class. The `productionWorker` class should have fields to hold the following information:

- `Shift` (an integer)
- `Hourly pay rate` (a double)
- `Number of hours per month`

The workday is divided into two `shifts: day` and `night`. The shift field will be an integer value representing the shift that the employee works. The day shift is shift 1 and the night shift is shift 2.

`getTotalSalary()` method should calculate the total salary based on the following:

Day shift worker should at least works 8 hours with rate per hour, and for any extra hours he/she get 1.25 hours instead of it, but night shift have to work at least 7 hours and for any extra hours he/she get 1.5 hours instead of it. Day shifts has only one value, 1 or 2 and others not allowed. Calculation of salary should be per month.(let month has 26 days/work).

Write one or more constructors and the appropriate accessor and mutator methods for the class.

ShiftSupervisor Class:

In this factory, a shift supervisor is an employee whose supervises a shift. In addition to a basic salary, the shift supervisor earns a monthly bonus when his or her shift meets production goals (set this value by program user). Design a `ShiftSupervisor` class that inherits from the Employee class you created above. The `ShiftSupervisor` class should have a field that holds the following information:

- `monthly salary`
- `monthly production bonus` that a shift supervisor has earned.
- `Number of products that produced by team that he/she supervised.`
- `Number of products must produced under his/her supervision.`

`getTotalSalary()` method should calculate the total salary based on the following: If shift supervisor employee teams produce the required number of products or more, the he/she can earn the monthly bonus. *Write one or more constructors and the appropriate accessor and mutator methods for the class.*

TeamLeader Class:

In this factory, a team leader is production worker who leads a small team. In addition to hourly pay, team leaders earn a fixed monthly bonus (read from user). Team leaders are required to attend a minimum number of hours of training per month.

The `TeamLeader` class should have a field that holds the following information:

- `Monthly Bonus`
- `Required Training Hours`
- `Training Hours Attended`

Design a `TeamLeader` class that inherits from the `ProductionWorker` class you designed. `getTotalSalary()` method should calculate the total salary based on the following:

- Hours and payed rate + `bonus.`
- `calculations of bonus depends on the total training hours attended by team leader according to the following equation.`
  `Bonus_achieved= Bonus*training _hours/attended_hours`

Write one or more constructors and the appropriate accessor and mutator methods for the class.

Notes :

- `toString method should be implemented in appropriate way in all Employee sub classes displaying all the information including.`
- `Your program should be test for all bugs and illegal inputs from user.`
- `Create classes separately (Employee.java,ProductionWorker.java,etc)`
- `You should decide the data types for every data members in classes`

Competitive Part : You have to guess other methods,at least one different method for any class from above program.(These methods should be YOURS and not shared with others , every new unique creative method will get +3 marks as bonus).This method should do something creative (calculation) , not accessor and mutator.

Class Driver for Palestinian Dairy Factory:

1. Draw UML for this factory (consider all notations, private, public, protected, final, for modifiers and methods, and relations like like inheritance and aggregations).

You can use any tools that may helps in class diagram, covert to pdf format and attache it .
I recommend to use free tool form https://www.diagrams.net/

2. You should create a Test class that has an Arraylist of different Employee types, then call a method that will list all employee info who is greater than average of all employees.

```
public static void ListGreaterThanAverage(ArrayList<Employee> list)
      {
         ....
            }
```

Note: Array List should have at least 2 types from every subclass (fill the array list manually).You don't need to create scanner to read from console

Set of instructions:

1.Create folder at your desktop with your Assignment#, ID, and your name
Example: A3_1190100_Ali Mohammad

2. Create a new project using Eclipse IDE and store your project inside this folder.
3.**Zipped** this folder and submit it by your ITC account [under meta course].

Grading policy and general notes on the Assignment:

1. Your application should have all functionalities working properly. Twenty percent of marks will be graded for the functionality of the assignment.
2. The following notes will make up the remaining 10 marks of the grade:
   a. There has to be adequate documentation and comments in the code(i.e., methods, loops, etc.);
   b. Your code should follow the code convention (i.e., spaces, indentations,etc.); and
3. Any plagiarized code will not be marked.
4. ANY LATE Assignment will never be accepted for any excuse.

Types of cheating:

Types of cheating:
1. Getting codes form outsource, like books, internet.
2. Cheating from any classmate.
3. Trying to get answers from any website.
4. Trying to get answers from the Facebook groups or from any social media.
5. Trying to get answer from Che-gg, Coursehero, and or other website.

Deadline: Saturday 14/12/2020 before 23:59

Good Luck!!