Payroll Project

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1 Design Objectives and Approach

The design objective was to make a payroll design for a company in which some employees works on monthly salary basis and for others salary depends on no. of hours they worked. Some of them can get extra commission on the basis of their sales. For those who are part of employee union can be charged different dues. Full problem description is in Problem.pdf.

Approach : I have made only one employee class irrespective of salary basis. This class contains all the necessary information about an employee. In this way a employee database can be created and operations can be performed on that. Every day some employees will post time cards, Sales Receipt that can be written in different files. Everyday a payroll function will run which will take account of time cards and Sales Receipt and union charges(if any)and will calculate salary for each day. It will add each day salary until the day comes when employee should receive salary as per the problem.

2 Design Role and Responsibilities

There are three roles one is of employee who can add time cards and sales receipt which on verification will be added to database and can edit some of their information. Second is of union leader which can request some union charges to union members. Now last and most important role is of an Admin("can be accountant of company") who will run payroll each day. He can also add and remove employees.

3 Design Choices

I had design choice between databases. I chose JSON file since I was new towards using SQL. I had choice between making two employee classes and making only one class. I chose making only one employee class for future design improvements(an employee can change his salary basis).

4 Design Preferences

Approach for different functionalities:
Adding an employee : with the help of some user provided essential information about new employee, a constructor of class Employee will be called which will initialize all other variables of Employee class. Then I am adding that employee data to a database which is a JSON file "employees.json".
Removing an employee : An Object will be mapped to database and then employee which gets fired, his data will be removed from Object. and then database will get rewrite by that Object.
Changing data of an employee : An Object will be mapped to database and then employee whose data should get changed, his data will be changed from Object. and then database will get rewrite by that Object.
Post a time card : User will provide id and time hours and they will get stored in a file "Time_Card.txt".
Post a Sales Receipt : User will provide id and amt of sales and they will get stored in a file "Sales_Recipt.txt".
Post a union charges : There will be only one field for all union dues willbe added in that field .
Running Payroll : It will run everyday by admin. For each day it will calculate that day salary and add it to total salary, also it will add that day sales salary in com_salary field of that employee. The employee will get salary on day as specified in the problem and his corresponding salary field will become 0.

5 Design Challenges, Experiments and Alternative Design

Using JSON database was a great challenge since it is writing the whole database whenever a new change happened. Sql database can be used as an alternative.

6 Future Improvements

Functionalities for changing employee salary basis can be added.
Database can be Changed for efficiency.
Restriction on functionality access can be done.