

Assignment 4

Employee Payroll System

Background:

In a small company, there's a need to automate the tracking of employee basic details and their respective pay.

Objective:

Write a Java program to manage the basic payroll details for employees.

Requirements:

1. Create a class named LastnameFirstnamePayrollSystem.java(replace lastname & firstname with your name).
2. The class should have the following private data fields:
 - a. employeeName: A string that holds the name of the employee.
 - b. employeeID: A string that represents a unique employee identifier.
 - c. hourlyRate: A double that represents the hourly pay rate of the employee.
 - d. hoursWorked: A double that represents the number of hours the employee worked in the current pay period.
 - e. taxRate: A double that represents the tax rate of an employee. Value accepted should be between 0.1 and 0.4 inclusive of both.
 - f. bonus: A double that represents the bonus awarded to the employee. Value accepted should be between 0.1 and 0.5 inclusive of both.
3. Provide the following methods for the class:
 - a. Appropriate parameterized constructor to initialize all the data fields.
 - b. Getter for bonus and setters for bonus and hoursWorked. Use these getters and setters to access and change the value of these fields from the main method when required.
 - c. calculateGrossPay(): A method that returns a double. This method should calculate and return the total pay for the employee based on the hourlyRate and hoursWorked.(pay=hourlyRate * hoursWorked)
 - d. calculateTax(): A method that returns a double. This method should calculate and return the total tax for the employee based on the grossPay and taxRate (tax=grossPay * taxRate)
 - e. awardBonus(): A method that returns a double. This method should calculate bonus for the employee based on the grossPay and bonus rate (bonusAmount=grossPay * bonus)
 - f. calculateNetPay(): A method that returns a double. This method should calculate netPay for the employee based on the grossPay,tax and bonus (netPay=grossPay - tax +bonusAmount)
 - g. displayEmployeeDetails(): A method that prints out the employee's details, including their total pay.

- h. main method should have logic for **only** the following :
 - i. Accept user input for Employee Name, ID, hourly rate, tax rate and hours worked. Handle usages for hourly rate, tax rate and hours worked as shown in the sample.
 - ii. Instantiate an object of the LastnameFirstnamePayrollSystem class.
 - iii. Give the user following options and display the result according to the option selected. Handle if input is not 1,2,3 or 4.
 - 1. Calculate Pay
 - 2. Award Bonus
 - 3. Display Employee Details
 - 4. Exit
- 4. Conclude the main method with a "Program Completed" statement when the user enters 4 as an option.
- 5. Your output should match the following response

```
PS C:\Users\majit\Desktop\SCU\JAVA TA\TA-assignment4\Assignment4\src>
PS C:\Users\majit\Desktop\SCU\JAVA TA\TA-assignment4\Assignment4\src> javac MajiTuhinaA4PayrollSystem.java
PS C:\Users\majit\Desktop\SCU\JAVA TA\TA-assignment4\Assignment4\src> java MajiTuhinaA4PayrollSystem
Enter employee name: Tuhina
Enter employee ID: 1000
Enter hourly rate: abc
Invalid hourly rate.
Enter hourly rate: 50
Enter tax rate between 0.1 & 0.4 both inclusive (e.g., 0.2 for 20%): abc
Invalid tax rate.
Enter tax rate between 0.1 & 0.4 both inclusive (e.g., 0.2 for 20%): 10
Invalid tax rate.
Enter tax rate between 0.1 & 0.4 both inclusive (e.g., 0.2 for 20%): 0.2
Enter hours worked: abc
Invalid hours.
Enter hours worked: 40

1. Calculate Pay
2. Award Bonus
3. Display Employee Details
4. Exit
Choose an option: 1
Net Pay: $1600.0
```

```

Choose an option: 2
Enter bonus percentage between 0.1 & 0.5 both inclusive (e.g., 0.2 for 20%): abc
Invalid bonus rate.
Enter bonus percentage between 0.1 & 0.5 both inclusive (e.g., 0.2 for 20%): 0.6
Invalid bonus rate.
Enter bonus percentage between 0.1 & 0.5 both inclusive (e.g., 0.2 for 20%): 0.4
Bonus awarded : $800.0
1. Calculate Pay
2. Award Bonus
3. Display Employee Details
4. Exit
Choose an option: 3
Employee Name: Tuhina
Employee ID: 1000
Gross Pay: $2000.0
Tax Amount: $400.0
Net Pay (after bonus): $2400.0

1. Calculate Pay
2. Award Bonus
3. Display Employee Details
4. Exit
Choose an option: 4
Program Completed
PS C:\Users\majit\Desktop\SCU\JAVA TA\TA-assignment4\Assignment4\src>

```

If user does not use option 2, Award Bonus, make sure that net pay is calculated and displayed accordingly as shown below

```

Enter employee name: Tuhina
Enter employee ID: 1000
Enter hourly rate: 50
Enter tax rate between 0.1 & 0.4 both inclusive (e.g., 0.2 for 20%): 0.2
Enter hours worked: 40

1. Calculate Pay
2. Award Bonus
3. Display Employee Details
4. Exit
Choose an option: 1
Net Pay: $1600.0

1. Calculate Pay
2. Award Bonus
3. Display Employee Details
4. Exit
Choose an option: 3
Employee Name: Tuhina
Employee ID: 1000
Gross Pay: $2000.0
Tax Amount: $400.0
Net Pay (after bonus): $1600.0

```

6. Notes:

- a. Check if your program works properly by giving different inputs.

- b. Be mindful of new lines as mentioned in the screenshot above.
- c. Handle any possible exceptions properly.
- d. Give comments to increase code readability.
- e. Mention sources used to complete the program.
- f. Submit .java file only