SRM Institute Of Science & Technology

Department Of Computer Science & Business System

Employee Payroll System

(Assignment – 1)

Submitted by:-

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OBJECTIVE

My project's primary goal is to create a file-based **Employee Payroll System** using the Java programming language and Object-Oriented Programming methodology.

The key goals of this project are:

- Understanding class and object creation
- Implementation of constructor overloading
- Demonstrating the concept of method overloading
- Applying file handling with respect to data storage
- Performing searching and display operations

The project also intends to demonstrate the usage of a "real world" payroll system where all employee data can be saved permanently on a file, and later retrieved from the file when needed. As a consequence, it will give the developer more knowledge about Java programming and will give them a better understanding of the Object-Oriented Programming principles.

PROBLEM DESCRIPTION

Payroll records kept manually can have numerous issues like loss of data, mistakes, and overall inefficient use of time recorded managing payroll records. Organizations need an easy solution to these problems that allow them to:

- Safely keep employees' personal information.
- Calculate net wages correctly.
- Access employee information easily.
- Keep record of their employees permanently.

By creating a new console-based (text based) payroll solution, the issues of updating payroll will be resolved by automatically creating employee records in a text file. When calculating the net wages of each employee will assure they will be calculated accurately by using defined allowances. And, searching for any employee in the system will be done very quickly using their employee ID number.

CLASS DESIGN

There are two main classes in this project:

1. Employee Class

- Contains information about employees, such as employee id, the employee's name, and their base salary
- Has a default and parameterised constructor
- Has overloaded methods for calculating net pay
- Can convert its object data to a file format

2. Main Class

- Controls program flow
- Shows the program menu
- Is used to read or write files
- Provides methods for adding, viewing and searching

The object-oriented design separates data elements (i.e., the Employee class) from control structures (i.e., the Main class).

CODE EXPLANATION

The program's execution starts in the Main class from the main() method, and will display a menu to the user to choose from several options.

The following are some features of the program:

- **Constructor Overloading -** Employee can be created using multiple constructor methods.
- **Method Overloading -** Net Salary can be calculated with or without bonus.
- **File Handling -** The program uses FileWriter and BufferedReader for working with files.
- **Searching Logic -** The program will compare the employee id found in the employee file with the user input.

NET Salary Calculation:

- HRA = 20% of Basic Salary
- DA = 10% of Basic Salary
- NET Salary = Basic Salary + HRA + DA

Employee records can be stored as comma-separated values in a text document.

INPUT & OUTPUT SCREENSHOTS

The program provides a menu-driven interface where users can:

1. Add a new employee by entering ID, name, and salary
2. View all employee records stored in the file
3. Search for an employee using ID
4. Exit the program

Screenshots for the Output:

1. Data input test case

```
C:\Users\parth\Downloads\New folder (3)\EmployeePayroll>java Main

===== Employee Payroll Menu =====
1. Add New Employee
2. View All Employees
3. Search Employee By ID
4. Exit
Enter your choice: 1
Enter Employee ID: 2001
Enter Employee Name: Ayush
Enter Basic Salary: 27000
Employee saved successfully!

===== Employee Payroll Menu =====
1. Add New Employee
2. View All Employees
3. Search Employee By ID
4. Exit
Enter your choice: 1
Enter Employee ID: 2101
Enter Employee Name: Parth
Enter Basic Salary: 35000
Employee saved successfully!

===== Employee Payroll Menu =====
1. Add New Employee
2. View All Employees
3. Search Employee By ID
4. Exit
Enter your choice: 1
Enter Employee ID: 3020
Enter Employee Name: Pranav
Enter Basic Salary: 25000
Employee saved successfully!
```

2. Data display test case

```
===== Employee Payroll Menu =====
1. Add New Employee
2. View All Employees
3. Search Employee By ID
4. Exit
Enter your choice: 2

ID      Name    Basic Salary    Net Salary
-----------------------------------------------
2001    Ayush   27000.0         35100.0
2101    Parth   35000.0         45500.0
3020    Pranav  25000.0         32500.0
```

3. Employee Search Test Case

```
===== Employee Payroll Menu =====
1. Add New Employee
2. View All Employees
3. Search Employee By ID
4. Exit
Enter your choice: 3
Enter Employee ID to search: 2102
Employee not found.

===== Employee Payroll Menu =====
1. Add New Employee
2. View All Employees
3. Search Employee By ID
4. Exit
Enter your choice: 3
Enter Employee ID to search: 2101

Employee Found!
Name: Parth
Net Salary: 45500.0
```

4. Exit test case

```
===== Employee Payroll Menu =====
1. Add New Employee
2. View All Employees
3. Search Employee By ID
4. Exit
Enter your choice: 4
Exiting Program...

C:\Users\parth\Downloads\New folder (3)\EmployeePayroll>
```

CONCLUSION

The Employee Payroll Management System has been developed using Java. The purpose of this project is to show application of Object Oriented Programming and File Handling techniques.

The following were accomplished with this project:

- Created practical understanding of Classes and Objects
- Created file-based storage for data
- Implemented salary calculations of employees
- Successfully searched for and retrieved data

The system is easy to use and functional. The next phases of improvement for this project will be to add database connectivity or implement a graphical user interface. The overall result of this project was an increased ability to write programming logic and apply real world problem solving skills in a work environment.