

# Web Engineering Lab

## Lab 03

**Marks 100**

### Instructions

Work on this quiz/lab individually.

You are **NOT** allowed to use internet, mobile phone. However, you can use your books, notes, handouts etc.

You are **NOT** allowed to borrow anything from your peer student.

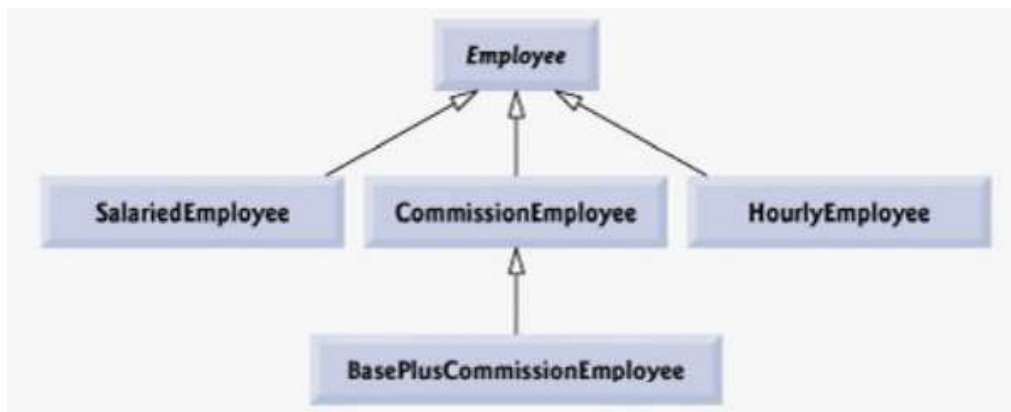
### What you have to do

Program the following tasks in Java, compile and execute them. The name of your files will be according to the task given in this lab.

### Task 1

**[100]**

A company pays its employees on a weekly basis. The employees are of four types: Salaried employees are paid a fixed weekly salary regardless of the number of hours worked, hourly employees are paid by the hour and receive overtime pay for all hours worked in excess of 40 hours, commission employees are paid a percentage of their sales and salaried-commission employees receive a base salary plus a percentage of their sales. For the current pay period, the company has decided to reward salaried-commission employees by adding 10% to their base salaries. The company wants to implement a Java application that performs its payroll calculations polymorphically.



The implementation of the required data-members and two methods (i.e., `earnings()` and `toString()`) in each of the class is depicted in the following:

	earnings	toString
Employee	abstract	<i>firstName lastName</i> social security number: <i>SSN</i>
Salaried- Employee	weeklySalary	salaried employee: <i>firstName lastName</i> social security number: <i>SSN</i> weekly salary: <i>weeklySalary</i>
Hourly- Employee	if hours <= 40 wage * hours if hours > 40 40 * wage + ( hours - 40 ) * wage * 1.5	hourly employee: <i>firstName lastName</i> social security number: <i>SSN</i> hourly wage: <i>wage</i> ; hours worked: <i>hours</i>
Commission- Employee	commissionRate * grossSales	commission employee: <i>firstName lastName</i> social security number: <i>SSN</i> gross sales: <i>grossSales</i> ; commission rate: <i>commissionRate</i>
BasePlus- Commission- Employee	( commissionRate * grossSales ) + baseSalary	base salaried commission employee: <i>firstName lastName</i> social security number: <i>SSN</i> gross sales: <i>grossSales</i> ; commission rate: <i>commissionRate</i> ; base salary: <i>baseSalary</i>

Write a `Driver` class that uses an **array of `Employee`** references to objects of each concrete class in the hierarchy. The program should print a text description of the object to which each array element refers. Also, in the loop processes all the employees in the array, determine the type of employee and display his/her earning.

Instructions:

- You can use `instanceof` operator to determine the type of object e.g., `if(obj instanceof HourlyEmployee){}`
- You need to override `String toString()` method in your respective class to print the text description of the object. This method will be invoked whenever you will print the object of that class. e.g., `System.out.println(obj);`
- Take input for all the required parameters.

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