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Object Oriented Programming Using Java Lab
2019-2020 Odd – III Semester C Section
Assignment – I: Classes and Objects   Date: 02-07-2019
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1. Write a program called **NumberGuess** to play the number guessing game. The program shall generate a random number between 0 and 99. The player inputs his/her guess, and the program shall response with "Try higher", "Try lower" or "You got it in n trials" accordingly. For example:

```
java NumberGuess
Key in your guess:
50
Try higher
70
Try lower
65
Try lower
61
You got it in 4 trials!
```

Hints
Use Math.random() to produce a random number in double between 0.0 (inclusive) and 1.0 (exclusive).

2. Consider the following members to generate a Electricity bill: Consumer no., consumer name, previous month reading, current month reading, type of EB connection (i.e domestic or commercial).

a. Bill is calculated using the following tariff:

For the domestic type:

First 100 units - Rs. 1 per unit

101-200 units - Rs. 2.50 per unit

201 -500 units - Rs. 4 per unit

> 501 units - Rs. 6 per unit

For the commercial type:

First 100 units - Rs. 2 per unit

101-200 units - Rs. 4.50 per unit

201 -500 units - Rs. 6 per unit

> 501 units - Rs. 7 per unit

b. Create a class with appropriate variable members and methods. Ensure that the class is applied with Encapsulation in Java.

3. Create a class named 'Employee' with id, name, designation, date-of-birth, date-of-join, basic, DA, HRA, LIC, PF and no. of hours worked. Calculate the Gross salary and net salary as per the following:

a. If the designation is "Intern" then the salary can be calculated based on working hours.

Gross salary = no.of hours worked * hourly wage + DA as 2000 + HRA as 1000

Deductions=LIC premium amount (if employee opted for that) + PF as 500

Net salary= Gross salary – Deductions

b. If the designation is "Manager":

Gross salary = Basicpay + DA as 40% of basicpay + HRA as 10% of basicpay

Deductions=LIC premium amount (if employee opted for that) + PF as 8% of basicpay

Net salary= Gross salary – Deductions

c. If the designation is "others – Trainee, Analyst, Software engineer, TeamLead":

Gross salary = Basicpay + DA as 30% of basicpay + HRA as 10% of basicpay

Deductions=LIC premium amount (if employee opted for that) + PF as 8% of basicpay

Net salary= Gross salary – Deductions

- Calculate the Payroll for 'n' employees and display the salary details for all employees.
- Prepare the payslip for a particular employee.
- Provide an option to promote a particular employee based on the years of experience.

4. Consider the following members for a 'Student' with regno, name, dept, 3 marks.

- Calculate the total and grade for the given student number. [apply encapsulation]
- Search the student using id, department. [use method overloading]
- Perform these operations for 'n' number of students.