SSN College of Engineering,
Department of Computer Science and Engineering
CS2309 - Java Lab

Exercise 3a:

1.Write a program to have a class hierarchy of Employee. Manager is a employee. Secretary is a employee. Programmer is a employee. Executive officer is a manager. Use needed members and calculate their salary and bonus. Explain the type of inheritance used.

2. Write a program to create a class named parent with parent's name, DOB, hobby and other needed members. Derive a class child with child's name, DOB, hobby and other needed members. In the child initialize both parent and child details. Calculate the age of father and age of child and their difference. Check for hobby matching also.

Exercise 3b:

1. Design a Vehicle class hierarchy in Java. Write a test program to demonstrate polymorphism

Instructions:

1. Create a abstract class Vehicle with needed members like owner name, registration number, date of purchase, no. of wheels, engine type, no. of gears, fuel type, vehicle price, tank capacity, color, model, maker etc., and methods like mileage calculation, vehicle age calculation. Vehicle expenditure, maker search and city vehicle search [hint:
    i. mileage calculation – you have to calculate km/liter from tank capacity.
    Input : starting reading, ending reading
    ii. vehicle age calculation – calculate age from current date with purchased date.

iii. maker search – given the maker name display all the vehicles (car & bike) of that maker and their owner and registration details.
[implement here]

iv. City vehicle search – given a city code, from the registration number of the vehicle search and display the owner details of those vehicle.(both car & bike)
[implement here]

v. Have input and output functions in each class separately.

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2. Create a class Bike which inherits from Vehicle. Override the functions like mileage calculation, vehicle age calculation, vehicle expenditure.
[hint:

i. Vehicle expenditure -
fuel consumption amount + repair charges + service charges
First 2 services are free

]

3. Create a class Car which inherits from Vehicle. Override the functions like mileage calculation, vehicle age calculation, vehicle expenditure.
[hint:

i. Vehicle expenditure -
fuel consumption amount + repair charges + service charges + accessories + battery or gas consumption
First 3 services are free

]

4. Count no. of vehicles, cars and bikes using static variables.
5. In main method create any number of bikes or cars and store them in vehicle reference array.