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Assignment - 10
(method overriding)

(2) write a java program to create a class called vehicle with a method called drive(). Create a subclass called car that overrides the drive() method to print "Repairing a car".

2 write a java program to create a class known as "BankAccount" with methods called deposit() and withdraw(). Create a subclass called SavingsAccount has overrides the withdraw() method to prevent withdrawals if the account balance falls below one hundred. Instance variable are ACCno, :accname, Initial balance, constructor will be used for initialization.

3 write a java program to create a class known as person with methods called getFirstName() and getLastName(). Create a subclass called Employee that adds a new method named getEmployeeID() and overrides the getLastName() method to include the employee's job title. Instance variable are Fname, Lname, jobtitle (For person), (EmpId For employee) Printing in main method

4 write a java program to create a class called shape with methods called getPerimeter() and getArea(). Create a subclass called circle that overrides the getPerimeter() and getArea() methods to calculate the area and perimeter of a class.

5 write a java program to create a vehicle class hierarchy. The base class should be vehicle, with subclasses Truck, Car and MotorCycle. Each subclass should have properties such as make, model, year and fuel type. Implement methods for calculating fuel efficiency and maximum speed.

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1
```
import java.lang.*;
class Vehicle {
    void drive() {
        System.out.println("Inside vehicle class.");
    }
}
public class Car extends Vehicle {
    void drive() {
        System.out.println("Repairing a car.");
    }
    public static void main (String args[]) {
        Car C = new Car();
        C.driver();
    }
}
```

output:-
Repairing a car.

2
```
import java.lang.*;
import java.util.*;
class BankAccount {
    Static Scanner SC = new Scanner (System.in);
    String accNo, accName;
    float initialBalance;

    void deposit() {
        System.out.Print("\nEnter the amount to be deposited
                          :- ");
        initialBalance += SC.nextFloat();
        System.out.println("Final Balance is :- "+ initialBalance);
    }
```

```
    void withdraw() { }
}

public class SavingsAccount extends BankAccount {
    SavingsAccount(String accNo, String accName, float
                                        initialBalance) {
        this.accNo = accNo;
        this.accName = accName;
        this.initialBalance = initialBalance;
    }
    void withdraw() {
        if(initialBalance < 100) {
            System.out.println("\nYou cannot withdraw
                money because the balance is less
                than Rs. 100.");
            return;
        }
        System.out.print("\n Enter the amount to withdraw:");
        float amount = sc.nextFloat();
        if (initialBalance - amount < 100) {
            System.out.println("withdrawal failed as the
                balance would fall below Rs. 100!.");
        } else {
            initialBalance -= amount;
            System.out.println("withdrawal of Rs. " +
                amount + " is successful.");
            System.out.println("Final Balance is :-" +
                initialBalance);
        }
    }
```

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```
public static void main(String args[]){
    System.out.print("Enter the account number:-");
    String accNo = sc.nextLine();

    System.out.print("Enter the account holder's
                        name :- ");
    String accName = sc.nextLine();
    System.out.print("Enter the initial balance:-");
    float initialBalance = sc.nextFloat();

    SavingsAccount SA = new SavingsAccount(accNo,
                        accName, initialBalance);
    System.out.println("\nAccount Details :- ");
    System.out.println("Account Number:-"+sa.accNo);
    System.out.println("Account holder's Name :-"+sa.accName);
    System.out.println("Balance :-"+sa.initialBalance);
    sa.deposit();
    sa.withdraw();
    sc.close();
  }
}
```

Output:-

Enter the account number:- 101
Enter the account holder's name:- Rajesh Rana
Enter the initial balance :- 315

Account Details:-
Account Number :- 101
Account holder's Name :- Rajesh Rana
Balance :- 315.0

Enter the amount to be deposited :- 15
Final Balance is :- 330.0

Enter the amount to withdraw :- 87
Withdrawal of Rs. 87.0 is successful.
Final Balance is :- 243.0

3
```
import java.lang.*;
import java.util.*;
class person {
    static Scanner sc = new Scanner(System.in);
    String fname, lname, jobTitle;
    void getFirstName() {
        System.out.print("Enter your first Name :-");
        fname = sc.nextLine();
    }
    void getLastName() {
        System.out.print("Enter your Last Name :-");
        lname = sc.nextLine();
    }
}
public class Employee extends person {
    int empID;
    void getEmployeeID() {
        System.out.print("Enter your Employee ID :-");
        empID = sc.nextInt();
    }
    void getLastName() {
        super.getLastName();
        System.out.print("Enter your job title :-");
        jobTitle = sc.nextLine();
    }
```

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```
public static void main (String args[]) {
    Employee emp = new Employee();
    emp.getFirstName();
    emp.getLastName();
    emp.getEmployeeID();

    System.out.println("\nEmployee details :- ");
    System.out.println("Employee ID :- " + emp.EmpID);
    System.out.println("First Name :- " + emp.fname);
    System.out.println("Last Name :- " + emp.lname);
    System.out.println("Job Title :- " + emp.JobTitle);

    sc.close();
  }
}
```

Output :-

```
Enter your first Name :- Rajesh
Enter your Last Name :- Rana
Enter your job title :- Manager
Enter your Employee ID :- 100

Employee details :-
Employee ID :- 100
First Name :- Rajesh
Last Name :- Rana
Job Title :- Manager
```

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4
```
import java.lang.*;
import java.io.*;
class Shape{
    static BufferedReader br = new BufferedReader
                (new InputStreamReader(System.in));
    float radius;
    void getPerimeter(){ }
    void getArea(){ }
}
Public class circle extends Shape {
    void getPerimeter() {
        System.out.println("The perimeter of the circle
                is:-" + (2*3.14*radius));
    }
    [redacted]
    Void getArea() {
        System.out.println("The area of the circle
                is:-" + (3.14*radius*radius));
    }
    public static void main(String args[]) throws IOException
    {
        Circle c = new circle();
        System.out.print("Enter the radius of the
                circle:-");
        c.radius = Float.parseFloat(br.readLine());
        c.getPerimeter();
        c.getArea();
    }
}
```

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OUTPUT:-

```
Enter the radius of the circle :- 7
The perimeter of the circle is :- 43.96
The area of the circle is :- 153.86
```

5

```
import java.lang.*;
import java.util.*;
class Vehicle {
    static Scanner sc = new Scanner(System.in);
    String make, model, fuelType;
    int year;
}
class Truck extends Vehicle {
    void fuelEfficiency(float dist, float fuel) {
        float eff = dist/fuel;
        System.out.println("The fuel efficiency of the
            truck is :- " + eff + " Km/L");
    }
    void maxSpeed() {
        System.out.println("The maximum speed of truck
            is 150 km/hr.\n\n");
    }
}
class Car extends Vehicle {
    void fuelEfficiency(float dist, float fuel) {
        float eff = dist/fuel;
        System.out.println("The fuel efficiency of
            the car is :- " + eff + " Km/L");
    }
    void maxSpeed() {
        System.out.println("The maximum speed of car
            is 380 Km/hr.\n\n");
    }
}
```

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```
class Motorcycle extends Vehicle {
    void fuelEfficiency (float dist, float fuel) {
        float eff = dist/fuel;
        System.out.println("The fuel efficiency of the
            motorcycle is :- " + eff + " Km/L");
    }
    void maxSpeed() {
        System.out.println("The maximum speed of the
            motorcycle is 250 km/hr.");
    }
}

public class Main extends Vehicle {
    static float dist, fuel;
    static void input (Vehicle V, String veName) {
        System.out.println("Enter " + veName + " details:-");
        System.out.print(" Enter the make (Bharat
                                    Stage):- ");
        V.make = sc.nextLine();
        System.out.print(" Enter the model :- ");
        V.model = sc.nextLine();
        System.out.print(" Enter the fuel type :-");
        V.fuelType = sc.nextLine();
        System.out.print(" Enter the year of
                                    manufacturing :-");
        V.year = sc.nextInt();
        System.out.print(" Enter the distance traveled:-");
        dist = sc.nextFloat();
        System.out.print(" Enter the fuel consumed :-");
        fuel = sc.nextFloat();
        sc.nextLine();
    }
```

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```
Static void display (Vehicle v, String veName){
    System.out.println("\n" + veName + "details:-");
    System.out.println("make (Bharat Stage):-" +
                        "v.make);
    System.out.println("model :-" + v.model);
    System.out.println("Fuel Type :- " + v.fuelType);
    System.out.println("Year of manufacturing:-"
                        + v.year);
}

Public static void main (String args[]){
    Truck t = new Truck();
    input (t, "Truck");
    display (t, "Truck");
    t.fuelEfficiency (dist, fuel);
    t.maxSpeed();

    Car c = new Car();
    input (c, "car");
    display (c, "car");
    c.fuelEfficiency (dist, fuel);
    c.maxSpeed();

    MotorCycle m = new MotorCycle();
    input (m, "Motor Cycle");
    display (m, "Motor Cycle");
    m.fuelEfficiency (dist, fuel);
    m.maxSpeed();
    sc.close();
```

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output:-
Enter Truck details:-
Enter the make (Bharat Stage):- BS6
Enter the model:- Tata 1618
Enter the fuel type:- Diesel
Enter the year of manufacturing:- 2022
Enter the distance traveled:- 3000
Enter the fuel consumed:- 250

Truck details:-
make (Bharat Stage):- BS6
model:- Tata 1618
Fuel Type:- Diesel
Year of manufacturing:- 2022
The fuel efficiency of the truck is:- 12.0 km/l
The maximum speed of truck is 150 km/hr.

Enter Car details:-
Enter the make (Bharat Stage):- BS6
Enter the model:- BMW M4 competition
Enter the fuel type:- Petrol
Enter the year of manufacturing:- 2024
Enter the distance traveled:- 300
Enter the fuel consumed:- 100

Car details:-
make (Bharat Stage):- BS6
model:- BMW M4 Competition
Fuel Type:- Petrol
Year of manufacturing:- 2024

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The fuel efficiency of the car is:- 3.0 km/L
The maximum speed of car is 380 km/hr.

Enter Motor Cycle details :-
Enter the make (Bharat Stage):- BS6
Enter the model:- BMW M 1000 RR
Enter the fuel type :- Petrol
Enter the year of manufacturing:- 2025
Enter the distance traveled :- 250
Enter the fuel consumed:- 16

motor cycle details :-
make (Bharat Stage):- BS6
model:- BMW M 1000 RR
Fuel Type:- Petrol
Year of manufacturing:- 2025
The fuel efficiency of the motorcycle is :- 15.625 km/L
The maximum speed of motorcycle is 250 km/hr.