Q1.

class Player{

    String name;

    int age;

    Player(String name, int age){

        this.name = name;

        this.age = age;

    }

    void displayPlayerInfo(){

        System.out.println("Player Info");

        System.out.println("Name: " + this.name);

        System.out.println("Age: " + this.age);

    }

}

class Batsman extends Player{

    int runsScored;

    int inningsPlayed;

    Batsman(String name,int age,int runsScored,int inningsPlayed){

        super(name, age);

        this.runsScored = runsScored;

        this.inningsPlayed = inningsPlayed;

    }

    void displayPlayerInfo(){

        System.out.println("Batsman Info");

        System.out.println("Name: " + this.name);

        System.out.println("Age: " + this.age);

        System.out.println("Runs Scored: " + this.runsScored);

        System.out.println("Innings Played: " + this.inningsPlayed);

    }

}

class Bowler extends Player{

    int matchesPlayed;

    int wicketsTaken;

    Bowler(String name,int age,int matchesPlayed,int wicketsTaken){

        super(name, age);

        this.matchesPlayed = matchesPlayed;

        this.wicketsTaken = wicketsTaken;

    }

    void displayPlayerInfo(){

        System.out.println("Bowler Info");

        System.out.println("Name: " + this.name);

        System.out.println("Age: " + this.age);

        System.out.println("Wickets Taken: " + this.wicketsTaken);

        System.out.println("Matches Played: " + this.matchesPlayed);

    }

}

public class Cricket {

    public static void main(String[] args) {

        Player p = new Player("Johnty Rhodes", 46);

        Batsman rohit = new Batsman("Rohit Sharma", 37, 10866, 265);

        Bowler arshdeep = new Bowler("Arshdeep Singh", 25, 6, 10);

        p.displayPlayerInfo();

        System.out.println();

        rohit.displayPlayerInfo();

        System.out.println();

        arshdeep.displayPlayerInfo();

    }

}

class Player{

    String name;

    int age;

    Player(String name, int age){

        this.name = name;

        this.age = age;

    }

    void displayPlayerInfo(){

        System.out.println("Player Info");

        System.out.println("Name: " + this.name);

        System.out.println("Age: " + this.age);

    }

}

class Batsman extends Player{

    int runsScored;

    int inningsPlayed;

    Batsman(String name,int age,int runsScored,int inningsPlayed){

        super(name, age);

        this.runsScored = runsScored;

        this.inningsPlayed = inningsPlayed;

    }

    void displayPlayerInfo(){

        System.out.println("Batsman Info");

        System.out.println("Name: " + this.name);

        System.out.println("Age: " + this.age);

        System.out.println("Runs Scored: " + this.runsScored);

        System.out.println("Innings Played: " + this.inningsPlayed);

    }

}

class Bowler extends Player{

    int matchesPlayed;

    int wicketsTaken;

    Bowler(String name,int age,int matchesPlayed,int wicketsTaken){

        super(name, age);

        this.matchesPlayed = matchesPlayed;

        this.wicketsTaken = wicketsTaken;

    }

    void displayPlayerInfo(){

        System.out.println("Bowler Info");

        System.out.println("Name: " + this.name);

        System.out.println("Age: " + this.age);

        System.out.println("Wickets Taken: " + this.wicketsTaken);

        System.out.println("Matches Played: " + this.matchesPlayed);

    }

}

public class Cricket {

    public static void main(String[] args) {

        Player p = new Player("Johnty Rhodes", 46);

        Batsman rohit = new Batsman("Rohit Sharma", 37, 10866, 265);

        Bowler arshdeep = new Bowler("Arshdeep Singh", 25, 6, 10);

        p.displayPlayerInfo();

        System.out.println();

        rohit.displayPlayerInfo();

        System.out.println();

        arshdeep.displayPlayerInfo();

    }

}

Q2.

import java.util.\*;

class MovieTheatre{

    double perTicket = 5;

    double performanceCost = 20;

    double perAttendeeCost = 0.50;

    int numberOfAttendees;

    MovieTheatre(int numberOfAttendees){

        this.numberOfAttendees = numberOfAttendees;

    }

    double profitProgram(){

        double grossIncome = numberOfAttendees\*perTicket;

        double cost = numberOfAttendees\*perAttendeeCost + performanceCost;

        return grossIncome-cost;

    }

}

public class TicketCost {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter the number of attendees in the theatre for the show: ");

        int noOfAttendees = sc.nextInt();

        MovieTheatre theatre = new MovieTheatre(noOfAttendees);

        double profit = theatre.profitProgram();

        System.out.println("Total Net Profit made by the theatre is $" + profit);

    }

}

Q3.

import java.util.Scanner;

class WashingMachine {

    int capacity = 10;

    void switchOn(){

        System.out.println("Machine Ready for Use");

    }

    int acceptClothes(int clothes){

        if(clothes>capacity){

            System.out.println("Clothes greater than capacity!");

            return capacity;

        }

        return clothes;

    }

    int acceptDetergent(int amtOfDetergent){

        return amtOfDetergent;

    }

    void switchOff(){

        System.out.println("Machine is turned off!");

    }

}

public class Machine {

    public static void main(String[] args) {

        WashingMachine m = new WashingMachine();

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter the amount of detergent in grams: ");

        int detergent = sc.nextInt();

        System.out.print("Enter the number of clothes: ");

        int clothes = sc.nextInt();

        m.acceptDetergent(detergent);

        int washing = m.acceptClothes(clothes);

        m.switchOn();

        System.out.println(washing+ " clothes are getting washed.");

        System.out.println("Clothes are washed and rinsed successfully!");

        m.switchOff();

    }

}

Q4.

package **CARS**;

abstract class Car{

    String brand;

    Car(String brand){

        this.brand = brand;

    }

    void displayBrand(){

        System.out.println("Brand: " + this.brand);

    }

    abstract void avg();

    abstract void mode();

}

class Maruti extends Car{

    int mileage;

    String model;

    Maruti(int mileage, String model){

        super("Maruti");

        this.mileage = mileage;

        this.model = model;

    }

    void avg(){

        System.out.println("This Car of Maruti gives an average of " + this.mileage +"km/hr");

    }

    void mode(){

        System.out.println("Maruti: " + this.model);

    }

}

class Santro extends Car{

    int mileage;

    String model;

    Santro(int mileage,String model){

        super("Santro");

        this.mileage = mileage;

        this.model = model;

    }

    void avg(){

        System.out.println("This Car of Santro gives an average of " + this.mileage +"km/hr");

    }

    void mode(){

        System.out.println("Santro: " + this.model);

    }

}

class Car1{

}

public class CarTransport {

    public static void main(String[] args) {

        Car maruti800 = new Maruti(30,"800");

        maruti800.displayBrand();

        maruti800.mode();

        maruti800.avg();

        Car santro = new Santro(27,"120");

        santro.displayBrand();

        santro.mode();

        santro.avg();

    }

}

Q5.

class Bank{

    int deposit(int amt, int balance){

        return amt+balance;

    }

    int withdraw(int amt, int balance){

        return balance>=amt?(balance-amt):0;

    }

}

public class BankWork {

    public static void main(String[] args) {

        Bank b = new Bank();

        System.out.println(b.deposit(2000, 12050));

        System.out.println(b.withdraw(220, 14050));

        System.out.println(b.withdraw(12000, 1100));

    }

}

Q6.

import java.util.\*;

public class Model {

    private int x, y, z;

    public Model() {

        this.x = 0;

        this.y = 0;

        this.z = 0;

    }

    public Model(int x, int y, int z) {

        this.x = x;

        this.y = y;

        this.z = z;

    }

    public void inputCoordinates() {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter x-coordinate: ");

        this.x = scanner.nextInt();

        System.out.print("Enter y-coordinate: ");

        this.y = scanner.nextInt();

        System.out.print("Enter z-coordinate: ");

        this.z = scanner.nextInt();

    }

    public void displayCoordinates() {

        System.out.println("3D Point: (" + x + ", " + y + ", " + z + ")");

    }

    public double computeDistance(Model other) {

        return Math.sqrt(Math.pow(this.x - other.x, 2) +

                         Math.pow(this.y - other.y, 2) +

                         Math.pow(this.z - other.z, 2));

    }

    public static void main(String[] args) {

        Model origin = new Model();

        System.out.println("Origin:");

        origin.displayCoordinates();

        Model arbitraryPoint = new Model(3, 4, 5);

        System.out.println("Arbitrary Point:");

        arbitraryPoint.displayCoordinates();

        Model userPoint = new Model();

        System.out.println("Input coordinates for a new point:");

        userPoint.inputCoordinates();

        userPoint.displayCoordinates();

        double distance = arbitraryPoint.computeDistance(userPoint);

        System.out.println("Distance between Arbitrary Point and User Point: " + distance);

    }

}