1- We consider the modified class BankApp (Chapter 1 pages 18-19)

class BankApp
{
    public static void main(String[] args)
    {
        BankAccount bal = new BankAccount(100.00); // create acct

        bal.display(); // display balance
        bal.deposit(74.35); // make deposit
        bal.withdraw(200.00); // make withdrawal
    } // end main()
} // end class BankApp

that produces the following output:

> java BankApp

balance=100.0

Deposit requested 74.35
balance=174.35

Withdrawal requested 200.0
Sorry you do not have enough in your account
balance=174.35

Modify accordingly the original class BankAccount below (Hint: modify methods deposit and withdraw – method display has already been modified)

class BankAccount
{
    // Variables
    private double balance;

    // Constructors
    public BankAccount(double balance)
    {
        this.balance = balance;
    }

// Methods

public void deposit(double amount)  // makes deposit
{
    balance = balance + amount;
}

public void withdraw(double amount)  // makes withdraw
{
    balance = balance - amount
}

public void display()  // displays balance
{
    System.out.println("balance=" + balance);
    System.out.println("");
}

}  // end class BankAccount


// Methods

public void deposit(double amount)  // makes deposit
{
    balance = balance + amount;
}

public void withdraw(double amount)  // makes withdraw
{
    balance = balance - amount
}

public void display()  // displays balance
{
    System.out.println("balance=" + balance);
    System.out.println("");
}

}  // end class BankAccount


2- Solving quadratic equation of the form: \( ax^2+bx+c=0 \)  \((a, b, c \text{ inputs})\)

Complete the QuadraticEquation class below such that the TestQuadratic class provides the following output examples:

Example 1:
> java TestQuadraticEquation 3.0 2.0 1.0
3.0*x^2 + 2.0*x + 1.0 = 0
This equation has 0 solution(s)

Example 2:
> java TestQuadraticEquation 1.0 3.0 2.0
1.0*x^2 + 3.0*x + 2.0 = 0
This equation has 2 solution(s)
-1.0
-2.0

Example 3
> java TestQuadraticEquation 2.0 4.0 2.0
2.0*x^2 + 4.0*x + 2.0 = 0
This equation has 1 solution(s)
-1.0
public class TestQuadraticEquation {
    // simple test program for QuadraticEquation
    // solve quadratic equation a*x^2 + b*x + c = 0
    // with a, b, c provided in command line

    public static void main(String[] args) {
        // get the coefficients from the command line
        double a, b, c;
        double[] result[];
        int count;
        a = Double.parseDouble(args[0]);
        b = Double.parseDouble(args[1]);
        c = Double.parseDouble(args[2]);

        QuadraticEquation qe1 = new QuadraticEquation(a, b, c);

        qe1.print();
        result = qe1.getSolution(); // array that contains solutions
        count = result.length;
        System.out.println("This equation has " + count + " solution(s)";

        if (count > 0) {
            System.out.println(result[0]);
        }
        if (count > 1) {
            System.out.println(result[1]);
        }
    }
}

//==============================================

public class QuadraticEquation {
    // a quadratic equation a*x^2 + b*x + c = 0
    double a;
    double b;
    double c;

    // Constructor
    public QuadraticEquation(double a, double b, double c) {
        this.a = a;
        this.b = b;
        this.c = c;
    }

    // Methods
    private String toSignedString(double d) {
        // creates string from double value with explicit sign
        if (d >= 0) {
            return "+ " + d);
        } else {
            return "- " + (-d));
        }
    }
}
private double discriminant() {
    // the discriminant of the equation
    return b*b/(4*a*a) - c/a;
}

public double[] getSolution() {
    // TO COMPLETE
}

public void print() {
    // print the equation to the screen
    System.out.println(a + "*x^2 " + toSignedString(b) + "*x " + toSignedString(c) + " = 0");
}
}