1. Program: Write a java program that prints all real solutions to the quadratic equation ax2+bx+c=0. Read in a, b, c and use the quadratic formula.

<u>Program</u>

```java
import java.util.Scanner;

public class QuadraticEquationExample1

{

public static void main(String[] Strings)

{

Scanner input = new Scanner(System.in);

System.out.print("Enter the value of a: ");

double a = input.nextDouble();

System.out.print("Enter the value of b: ");

double b = input.nextDouble();

System.out.print("Enter the value of c: ");

double c = input.nextDouble();

double d= b * b - 4.0 * a * c;

if (d> 0.0)

{

double r1 = (-b + Math.pow(d, 0.5)) / (2.0 * a);

double r2 = (-b - Math.pow(d, 0.5)) / (2.0 * a);

System.out.println("The roots are " + r1 + " and " + r2);

}

else if (d == 0.0)

{
```

```java
double r1 = -b / (2.0 * a);

System.out.println("The root is " + r1);

}

else

{

System.out.println("Roots are not real.");

}

}

}
```

2. **Create a Java class called Student with the following details as variables within it.**
   (i) USN
   (ii) Name
   (iii) Branch
   (iv) Phone
   Write a Java program to create n Student objects and print the USN, Name, Branch, and Phone of these objects with suitable headings.

```java
//Program: Save the program with Lab1A.java
import java.io.*;
class Student
{
String usn, name, branch;
long ph;
Student()
{
usn = name = branch = "no value";
ph = 0;
}
void read_data(String u, String n, String b, long p)
{
usn = u;
name = n;
branch = b;
ph =p;
}

void display()
{
```

```java
System.out.println(usn + "\t" + name + "\t" + branch + "\t\t" + ph);
}
}
class Lab1A
{
public static void main(String args[]) throws Exception
{
String u, n, b;
long p;
int no;
BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
System.out.println("Enter number of records");
no = Integer.parseInt(br.readLine());
Student[] s = new Student[no];
for(int i=0; i<s.length;i++)
{
System.out.println("Enter " + (i + 1) + " Student record");
s[i] = new Student();
System.out.println("Enter student USN");
u = br.readLine();
System.out.println("Enter student Name");
n = br.readLine();

System.out.println("Enter student Branch");
b = br.readLine();
System.out.println("Enter student Phone number");
p = Long.parseLong(br.readLine());
s[i].read_data(u, n, b, p);
}
System.out.println("USN \t\t NAME \t BRANCH \t PHONE NO");
for(int i=0; i<s.length;i++)
{
s[i].display();
}
}
}
```