→ Lab Program - 1

① Algorithm -

int a, b, c

input a, b, c

d = b * b - 4 * a * c

~~x = -b + √~~

if (d < 0)

print ("no real solutions");

else

int x = (-b + √d) / 2a

int y = (-b - √d) / 2a

print ("Solution of eqn is x and y")

exit.

② Code

```
import java.util.*;
class quad {
  void main () {
    double a, b, c, x, y;
    Scanner sc = new Scanner (System.in)
    System.out.println ("Enter values of a, b and c");
    a = sc.nextDouble ();
    b = sc.nextDouble ();
    c = sc.nextDouble ();
    double d = (b * b) - (4 * a * c);
    if (d > 0) {
      x = (-b + Math.sqrt (d)) / (2 * a);
      y = (-b ∓ Math.sqrt (d)) / (2 * a);
      System.out.println ("Roots are real and distinct");
      System.out.println ("Roots are " + x + "and" + y);
    }
    else if (d == 0) {
```

```
        x = -b/(2*a);
        y=x;
        System.out.println("Roots are" + x + "and" + y);
        }
        else if (d<0)
            System.out.println("There are no real solutions");
        }
}
```

② Expected Output -

```
Enter values of a,b and c
1
2
1
Roots are -1 and -1
```

```
import java.util.*;
class Student
{
String usn,name;
static int credits[];
static double marks[];
void input(int n)
{
Scanner sc=new Scanner(System.in);
System.out.println("enter usn and name ");
usn=sc.nextLine();
name=sc.nextLine();
System.out.println("enter marks along with credits");
for(int i=0;i<n;i++)
{
marks[i]=sc.nextDouble();
credits[i]=sc.nextInt();
System.out.println();
}
}
double calculate(int n)
{
int c,cred=0;
double tot,total=0.0;
for(int i=0;i<n;i++)
{
tot=marks[i];
if(tot>=90)
        c=10;
        else if(tot>=80)
        c=9;
        else if(tot>=70)
        c=8;
        else if(tot>=60)
        c=7;
        else if(tot>=50)
        c=6;
        else if(tot>=40)
c=4;
    else
```

```
            else if(tot>=70)
            c=8;
            else if(tot>=60)
            c=7;
            else if(tot>=50)
            c=6;
            else if(tot>=40)
c=4;
   else
c=0;
   total=total+(c*credits[i]);
cred=cred+credits[i];
}
total=total/cred;
return(total);
}
void display(int n,double total)
{
System.out.println("name of student : "+name);
System.out.println("usn of student : "+usn);
System.out.println("marks of student along with credits of course");
for(int i=0;i<n;i++)
{
System.out.println(marks[i]+"   "+credits[i]);
}
System.out.println("sgpa of student : "+total);
}
public static void main(String args[])
{
Scanner sc=new Scanner(System.in);
Student obj=new Student();
System.out.println("enter no of course ");
int n=sc.nextInt();
credits=new int[n];
marks=new double[n];
obj.input(n);
double total=obj.calculate(n);
obj.display(n,total);
}
}
```

```
 enter no of course
5
enter usn and name
123
Prithviraj
enter marks along with credits
90
4

90
3

90
4

93
4

90
5

name of student : Prithviraj
usn of student : 123
marks of student along with credits of course
90.0   4
90.0   3
90.0   4
93.0   4
90.0   5
sgpa of student : 10.0
```