OOJ WEEK-3

PROGRAMS

LAB-1

1] Develop a java program that prints all real solutions to the quadratic equation $ax^2+bx+c=0$. Read in a, b, c and use the quadratic formula. If the discriminate b^2-4ac is negative, display a message stating that there are no real solutions.

ALGORITHM

Step 1:- Start

Step 2:- Input the value of a, b, c

Step 3:- Calculate D = (b*b -(4*a*c))

Step 4:- If (d>0)

Display roots are real, calculate the roots

=> r1 = (-b+√D) /(2*a)

and r2 = (-b- √D) /(2*a)

else if (d=0)

Display Roots are equal, calculate the roots

=> $r_1 = r_2 = -b/(2*a)$

else Display " there are no real Roots "!

Step 5 :- Print r1 and r2

Step 6:- Stop

PROGRAM:-

```
import java.util.Scanner;
import java.lang.Math;
public class Main
{
public static void main (String [] args) {
Scanner sn = new Scanner (System.in);
int a,b,c;
double r1,r2,d;
char ch;
System.out.println ("Solution of Quadratic equation
                                    -ax^2+bx+c");
do
{
System.out.println ("\nenter a:");
a= sn.nextInt();
System.out.println ("enter b:");
b= sn.nextInt();
System.out.println ("enter c:");
c= sn.nextInt();
d= ((b*b)-(4*a*c));
if (d>0)
{
r1 = ((-b+Math.sqrt(d))/(2*a));
r2 = ((-b-Math.sqrt(d))/(2*a));
System.out.println ("roots are-\n"+"r1="+r1+"\n"
                                    +"r2="+r2);
}
else if (d==0)
```

```
{
 r1 = (-b/(2*a));
 System.out.println("roots are equal \n"+"r1=r2="+r1);
}
else
{
System.out.println("there are no real roots");
}
System.out.println("\n"+"do you want to find another set
                    of roots? \n!");
 ch=sn.next().charAt(0);
}
while(ch=='y');
}
```