OOJ - Lab -

Program - 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

```
import java.util.Scanner;
  public class akshanth {
public static void main (String args[]) {
    Scanner sc=new Scanner (System.in);
    double p;
    double q;
    double d;
    double r;
    double r1;
    double r2;
    System.out.println ("Enter the coefficient of x2
            which is a : ");
int "a = "sc.nextInt();
System.out.println ("Enter the coefficient of x
            which is b : ");
int  b = sc.nextInt();
System.out.println ("Enter the constant c : ");
int c = sc.nextInt();
System.out.println ("therefore the equation is
            "+a+"x2"+b+"x"+c);
```

```
if (a==0) {
System.out.println("You cannot enter 0 as the
                    value of a");
}
d=(b*b-4*a*c);
 if (a!=0)
{

    if (d==0) {
      x1= -b/(2*a);
   System.out.println("therefore the roots are "+x1+" and "+x
}
   else if (d>0) {
      x1 = (-b+Math.sqrt(b*b-4*a*c))/(2*a);
      x2 = (-b-Math.sqrt(b*b-4*a*c))/(2*a);
    System.out.println("therefore the roots are
                        "+x1+" and "+x2);
   }
     else {
       p=(-b)/(2*a);
       q = Math.sqrt(Math.abs(d))/(2*a);
      System.out.println("the first root is "+p+"+i"+q);
      System.out.println("the second root is "+p+"-i"+q);
     }
    }
}
}
```

```
C:\Users\BMSCECSEIL74\Desktop\1BM21CS014>java akshanth
enter the coefficient of x2 which is a :
1
enter the coefficient of x which is b:
1
enter the constant  c:
1
therefore the equation is 1x21x1
the first root is0.0+i0.8660254037844386
the second root is0.0-i0.8660254037844386

C:\Users\BMSCECSEIL74\Desktop\1BM21CS014>java akshanth
enter the coefficient of x2 which is a :
0
enter the coefficient of x which is b:
1
enter the constant  c:
1
therefore the equation is 0x21x1
you cannot enter 0 as the value of a

C:\Users\BMSCECSEIL74\Desktop\1BM21CS014>java akshath
Error: Could not find or load main class akshath

C:\Users\BMSCECSEIL74\Desktop\1BM21CS014>java akshanth
enter the coefficient of x2 which is a :
1
enter the coefficient of x which is b:
3
enter the constant  c:
1
therefore the equation is 1x23x1
therefore the roots are -0.3819660112501051 and -2.618033988749895

C:\Users\BMSCECSEIL74\Desktop\1BM21CS014>java akshanth
enter the coefficient of x2 which is a :
1
enter the coefficient of x which is b:
4
enter the constant  c:
1
therefore the equation is 1x24x1
therefore the roots are -0.2679491924311228 and -3.732050807568877

C:\Users\BMSCECSEIL74\Desktop\1BM21CS014>java akshanth
enter the coefficient of x2 which is a :
1
enter the coefficient of x which is b:
2
enter the constant  c:
1
therefore the equation is 1x22x1
therefore the roots are-1.0and-1.0

C:\Users\BMSCECSEIL74\Desktop\1BM21CS014>
```