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1BM19CS090
Mohammed Ibrahim Rahil.S.

Lab Program-1 :

Develop a Java prg 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 -ve, display message stating there are no real solutions.

Code:

```
import java.util.*;
class roots
{
   public static void main(String args[])
   {
      double a,b,c,x,y,d;
      System.out.println("Enter the coefficients a,b,c: ");
      Scanner s = new Scanner(System.in);
      a = s.nextFloat();
      b = s.nextFloat();
      c = s.nextFloat();
      d = (b*b)-(4*a*c);
      if (d==0)
      {
         x = -b/(2*a);
         y = x
         System.out.println("Both Roots Are Real and Equal");
         System.out.println("R1 = "+x+" And R2 = "+y);
      }
      else 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("R1 = "+x+" And R2 = "+y);
        }
        else
        {
            System.out.println("Roots Are Imaginary. No
                                Real Solutions!");
        }
    }
}
```

Roots.java

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```java
import java.util.*;
class roots
 {
   public static void main(String args[])
   {
    double a,b,c,x,y,d;
    System.out.println("Enter the coefficients a,b,c:");
    Scanner s=new Scanner(System.in);
    a=s.nextFloat();
    b=s.nextFloat();
    c=s.nextFloat();
    d=(b*b)-(4*a*c);
    if(d==0)
    {
      x=-b/(2*a);
      y=x;
      System.out.println("Both Roots Are Real and Equal ");
      System.out.println("R1="+x+" And R2="+y);
    }
    else 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("R1="+x+" And R2="+y);
    }
    else
    {
      System.out.println("Roots Are Imaginary. No Real Solution!");
    }
   }
}

```