Q Develop a java program that prints all the real solutions to the quadratic equation $ax^2+bx+c=0$ Read in a, b, c and use the quadratic formula. If the discriminant b^2-4ac is negative, display a message stating that there are not real solutions

```
import java.util.Scanner;
class quadratic.
{
 public static void main (String args [])
 double root1=0, root2=0;
 Scanner ss = new Scanner (System.in);
 System.out.print("Enter the value of a in
                    ax^2+bx+c=0: ");
   double a = ss.nextDouble();
   System.out.print("Enter the value of b in
                    ax^2+bx+c=0: ");
   double b = ss.nextDouble();
 System.out.print("Enter the value of c in ax^2+bx+c
                    =0: ");
   double c = ss.nextDouble();
 double denominator = 2*a;
 double D = (b*b)-4*a*c;
 if (D>0)
 {
   System.out.println("The solutions are real and
                    distinct");
 root1 = ((-b+Math.sqrt(D)) / denominator);
 root2 = ((-b-Math.sqrt(D)) / denominator);
 System.out.println("Roots are "+root1+" "+root2);
```

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```
}
else if (D==0)
{
System.out.println ("The solutions are real and equal");
root1 = root2 = -b/denominator;
System.out.println("Roots are" +root1+"and"+root2);
}
else {
System.out.println("Equationhas no real solutions");
}
}
}
```

OUTPUT

Enter the coefficient of a of $ax^2+bx+c=0$: 15
Enter the coefficient of b of $ax^2+bx+c=0$: 68
Enter the coefficient of c of $ax^2+bx+c=0$: 3
The solutions are real and distinct
Roots are -0.044555558333472335 -4.488777777499 9861

Enter the coiffecent of a of $ax^2+bx+c=0$: 1
Enter the coefficient of b of $ax^2+bx+c=0$: -3
Enter the coefficient of c of $ax^2+bx+c=0$: 4
Equation has no real solutions

Enter the coefficient of a of $ax^2+bx+c=0$: 4
Enter the coefficient of b of $ax^2+bx+c=0$: 4
Enter the coefficient of c of $ax^2+bx+c=0$: 1
The solutions are real and equal
Roots are -0.5 and -0.5

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ALGORITHM :-

Step 1: Input A, B, C values of equation $Ax^2 + Bx + C$

Step 2: SET ~~Denominator = 2a~~ & $D = b^2 - 4ac$

Step 3: If $D > 0$, print Real solutions and discrete
root 1 = $-b + \sqrt{D}/2a$
root 2 = $-b - \sqrt{D}/2a$

Step 4: If $D = 0$, print Solution real and equal
root$_1$ = root$_2$ = $-b/2a$

Step 5: else print & No real solution

Step 6: END