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LAB-2

Quadratic Eqn:-

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 ne display a message that there are no real solution

```
importjava.util.Scanner;

class quadratic
{
    int a,b,c ;
    double r1,r2,d;
    void gtd()
    {
        Scanner s=new Scanner (System.in);
        System.out.println ("enter the coefficients of a,b,c
        a=s.nextInt()
        b=s.nextInt()
        c=s.nextInt()
    }
    void compute()
    {
        while(a==0)
        {
            System.out.println("Not a quadratic eqn");
```

```
System.out.println("Enter a non zero value for a");
Scanner s = new Scanner(System.in);
a = s.nextint();
}
d = b*b - 4*a*c
if(d==0)
{
r1=(-b)/(2*a)
System.out.println("Roots are real and equal");
System.out.println("Root1 = Root2 =" +r1);
}
else if(d>0)
{
r1 = ((-b) + (math.sqrt(d)))/(double)(2*a);
r2 = ((-b) - (math.sqrt(d)))/(double)(2*a);
System.out.println("Roots are real and distinct");
System.out.println("Root1 =" +Root2 =" +r2);
}
else if(d<0)
{
System.out.println("Roots are imaginary");
r1 =(-b)/(2*a)
r2 = math.sqrt(-d)/(2*a)
System.out.println("Root1=" + r1 +"+i" + r2);
System.out.println("Root1=" + r1 +"-i" + r2);
}
```

```
    }

}

class Quadratic Main
{
  public static void main (String args[])
    {
      Quadratic q = new Quadratic()
        q.getd();
        q.compute();
    }
}
```

Output

Enter the coefficients of a, b, c

1

2

1

roots are real and equal.

Roots 1 = Roots 2 = -1.0

Enter the coefficients of a, b, c

1

4

1

roots are real & distinct

Roots - 1 = 0.267949

Roots 2 = -3.732050

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