8. Quadratic Equation:

```
Import java.util.Scanner
Class Quadratic
{
  int a,b,c;
  double r1,r2,d;
  void getd().
{
  Scanner sc = 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
                    equation");
    System.out.println("Enter a non-zero
                    value for a:");
    Scanner sc = new scanner (System.in);
     a = s.nextInt();
  }
  d=b* b-4*a*
   if (d==0)
  {} r1 =(-b)/(2*a);
  System.out.println("Roots are real & equal");
  System.out.println("root1 = root2 = "+r2);
}
```

```
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("Root=+"r1+" 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("root2=+"r1+"
          +i"+r2");
  }
  }
}
class Quadratic Main
{
public static void main(String args[])
{
  Quadratic q=new quadratic();
  q.getd();
  q.compute();
}
}
```

Output:

Enter the coefficient a,b,c

Roots are real & distinct
Root 1 = -0.381966 Root 2 = -2.6180

1 2 1 2 1 2 1
Roots are imaginary

0 0 0
Not a quadratic equation

1 0 0
Roots are real and equal
Root 1 = Root 2 0.0

(i) 0 1 2
Not a quadratic equation
Enter a non-zero value of a :

(ii) 1 -2 1
Roots are real and equal
The roots are +1 and +1

(iii) 1 2 10
Roots are imaginary
Root 1 = -1.0 + i 18
Root 2 = -1.0 - i 18

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