Program-2

```
import java.Util.Scanner;
class Quadratic
{
    int a, b, c;
    double r1, r2, d;
    Void getd()
    {
        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 Equation");
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("Root = Root 2 = "+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");
}
Else if (d<0)
{
System.out.Print("Roots are imaginary");
r1 = (-b)/(2*a);
r2 = Math.Sqrt(-d)/(2*a);
System.out.Println("Roots are
real and distinct");
System.out.Println("Root1 = "+r1+
        "Root 2 = "+r2);
}
```

```
Else if (d<0)
    {
        System.out.Println ("Roots are imaginary");
        r1 = (-b) /(2*a);
        r2 = Math.Sqrt (-d)/(2*a);
        System.Out.Println ("Root 1 = "+r1 + "+i"
                            +r2);
        System.out.Println ("Root 1="+r1 +"-i"+r2);
    }
Else if (d<0)
{
    System.out.Println ("Roots are imaginary");
    r1 = (-b) /(2*a);
    r2 = Math.Sqrt (-d) /(2*a);
    System.Out.Println ("Root 1 = "+r1+"i"+r2);
    System.Out.Println ("Root 1 = "+r1+"-i"+r2);
}
}
Class Quadratic Main
{
    Public Static void main (String args[])
    {
        Quadratic q = new Quadratic();
        q.getd();
        q.Compute();
    }
}
```

Output:

Mrunalini 1BM22CS228

Enter the coefficients of a, b, c

1

5

2

Roots are real and distinct

Root 1 = -4.561552180

Root 2 = -0.438447819

Output 2

Mrunal 1BM22CS228

Enter the co-efficients of a, b, c

1

2

1

Roots are real & Equal

Root 1 = Root 2 = -1.0

Dec 12

```java
import java.util.Scanner;
class Quadratic
{
    int a,b,c;
    double r1,r2,d;
    void getd()
    {
     System.out.println("Mrunalini SM 1BM22CS228");
     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 equation");
      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("Roo1="+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("Root1="+r1+"+i"+r2);
    System.out.println("Root1="+r1+"-i"+r2);
   }
  }
 }
class QuadraticMain
{
 public static void main(String args[])
 {
  Quadratic q = new Quadratic();
  q.getd();
  q.compute();
 }
}
```

```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\gmith\OneDrive\Desktop> javac Quadratic.java
PS C:\Users\gmith\OneDrive\Desktop> java QuadraticMain
Mrunalini SM 1BM22CS228
Enter the coefficients of a,b,c
1
5
2
Roots are real and distinct
Roo1=-0.4384471871911697Root2=-4.561552812808831
PS C:\Users\gmith\OneDrive\Desktop> javac Quadratic.java
PS C:\Users\gmith\OneDrive\Desktop> java QuadraticMain
Mrunalini SM 1BM22CS228
Enter the coefficients of a,b,c
1
2
1
Roots are real and equal
Root1=Root2=-1.0
PS C:\Users\gmith\OneDrive\Desktop>
```