Lab 1 - 12/12/2023

UKA12-12-23

Quadratic Equation

```
import java.util.Scanner;
class Quadratic
{   <- Scanner scan = new Scanner(System.in);
public void compute(int a, int b, int c)
 {
   while(a==0)
   {
    System.out.println("Enter a non zero value of a:");
    a=scan.nextInt();
   }
   int d = b*b - 4*a*c;
   double r1=0.0, r2=0.0;
   if(d==0)
    {
     r1 = -b/(2*a);
     System.out.println("Roots are real and equal.");
     System.out.println("Root 1 = Root 2= " + r1);
    }
  else if(d>0)
  {
   r1=((-b) + Math.sqrt(d))/(2*a);
   r2=((-b) - Math.sqrt(d))/(2*a);
   System.out.println("Roots are real and distinct.");
   System.out.println("Root 1 = " + 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 2 = "+r1+" - i "+r2);
}
}
public static void main(String args[])
{
int a, b, c;
System.out.println("Enter the co-efficients a,
                    b and c of a quadratic equation");
a = scan.nextInt();
b = scan.nextInt();
c = scan.nextInt();
Quadratic q = new Quadratic();
q.compute(a, b, c);
}
}
```

5x²+6x+1

← System.out.println("Sneha N Shastri - 1BM22 CS283)

Output 1:

Enter the co-efficients of a, b and c of a quadratic equation:

5 6 1

Roots are real and distinct

Root 1 = -0.2 Root 2 = -1.0

Output 2:

Enter the co-efficients of a, b and c of a quadratic equation:

1 -4 4

Roots are real and equal
Root 1 = Root 2 = 2.0

Output 3:
Enter the co-efficients of a, b and c of a quadratic equation:
1 -1 1
Roots are imaginary
Root 1 = 0.0 + i 0.8660254037844386
Root 2 = 0.0 - i 0.8660254037844386

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