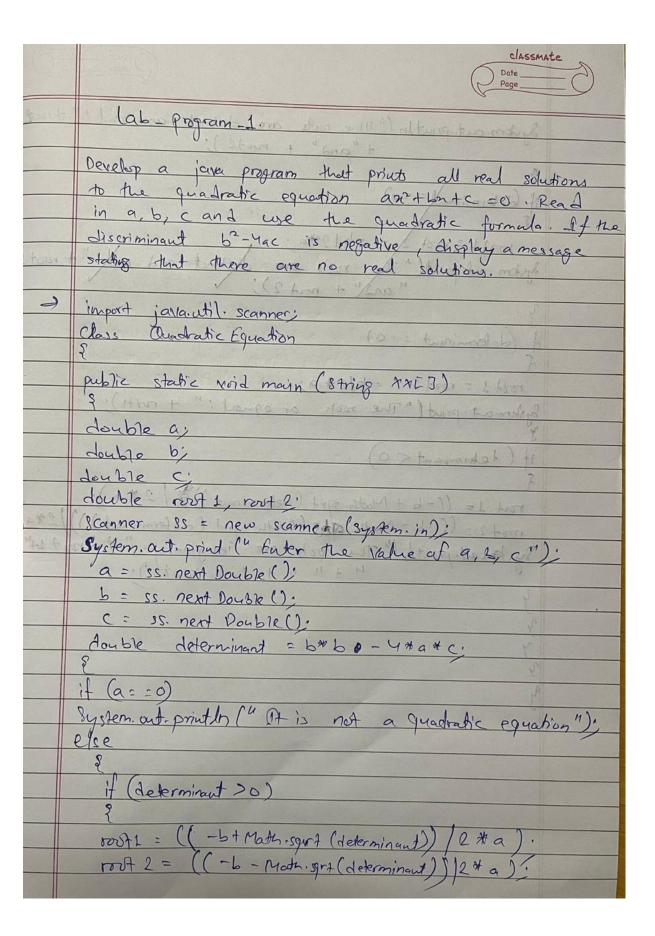
Lab Program 1:

Develop a Java program that prints all real solutions to the quadratic equation ax2+bx+c=0. Read in a, b, c and use the quadratic formula. If the discriminant b2-4ac is negative, display a message stating that there are no real solutions.

```
import java.util.Scanner;
class QuadraticEquation
{
public static void main(String XX[])
double a;
double b:
double c:
double root1, root2;
Scanner SS=new Scanner(System.in);
System.out.print("Enter the values of a,b,c");
a=SS.nextDouble();
b=SS.nextDouble();
c=SS.nextDouble();
double determinant=b*b-4*a*c;
{
if(a==0)
System.out.print("It is not a quadratic equation");
elsea
{
if(determinant>0)
root1=((-b+Math.sqrt(determinant))/2*a);
root2=((-b-Math.sqrt(determinant))/2*a);
```

```
System.out.print("The roots are distinct and real:"+root1+"and "+root2);
}
if(determinant==0)
{
root1=root2=-b/2*a;
System.out.print("The roots are equal:"+root1);
}
if(determinant<0)
{
root1=((-b+Math.abs(Math.sqrt(determinant)))/2*a);
root2=((-b-Math.abs(Math.sqrt(determinant)))/2*a);
System.out.print("the \ roots \ are \ imaginary:"+"i"+root1+" \ "+"i"+root2);
}
}
}
}
```



System out printle (" The roots are distinct and real!" + root + "ana" + roof1= roof & = -b12*a; (determinant ==0) roof 1 = roof 2 = - 6/2 * a; System at print "The roots ar equal:" + most); ? (deferminant < 0 roof 1= (1-6 + Math. sqrt (determinant)) not 2 = ((-b - Math. att (Math. sgrt (deferminant)))/2#a
System at printly ("The rook are imaginary: " t "root 14"

4 11 11 4 ";" not):

```
Microsoft Windows [Version 10.0.22000.1098]
(c) Microsoft Corporation. All rights reserved.
C:\WINDOWS\system32>cd C:\Users\ACER\Documents
C:\Users\ACER\Documents>set path=C:\Program Files\Java\jdk-19\bin
C:\Users\ACER\Documents>javac QuadraticEquation.java
C:\Users\ACER\Documents>java QuadraticEquation
Enter the values of a,b,c22
18
10
the roots are imaginary:iNaN iNaN
C:\Users\ACER\Documents>java QuadraticEquation
Enter the values of a,b,c0
55
It is not a quadratic equation
C:\Users\ACER\Documents>-22
'-22' is not recognized as an internal or external command,
operable program or batch file.
C:\Users\ACER\Documents>java QuadraticEquation
Enter the values of a,b,c2
4
the roots are imaginary:iNaN iNaN
C:\Users\ACER\Documents>
```