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 discriminate b2 -4ac is negative, display a message stating that there are no real solutions.

1) Implement Quadratic equation, print all real solutions of eqn $ax^2+bx+c=0$, Read in a, b, c and use quadratic formula

Date
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```
import java.util.Scanner

class quadratic
float d;
Scanner sc = new Scanner (System.in);
void check()
{ System.out.println ("Enter values a b c");
 int a = sc.nextInt();
 int b = sc.nextInt();
 int c = sc.nextInt();
 if (a==0){
System.out.println("Invalid");
 else {
    d = b*b -4*a*c;
 System.out.println (d);
 System.out.println ("The solutions are");
 if (d>0){
System.out.println(d)is roots are unique
// System.out.println(
 double r1= (-b+ Math.sqrt(d))/(2*a);
  double r2 = (-b - Math.Sqrt(d))/(2*a);
System.out.println(r1+" "+r2);
}
  if (d==0){
System.out.println ("roots are equal");
double r = -b/(2*a);
System.out.println(r);
}
 if (d<0){
system.out.println ("Roots are imaginary");
double r1 = Math.sqrt(-d)/(2*a);
double r2 = (-b)/(2*a);
Syste
```

```
System.out.println(r2 + " "+"i" + " "r1+" "+r2+" -i "+r1);
}
}}}
public class main{
public static void main(String args[])
{ quadratic q1= new quadratic();
  q1.check();
  }
}
```

Enter values of a, b, c
3 8 1
d=52.0
the solutions are
roots are unique
-0.1314129   -2.535183

import

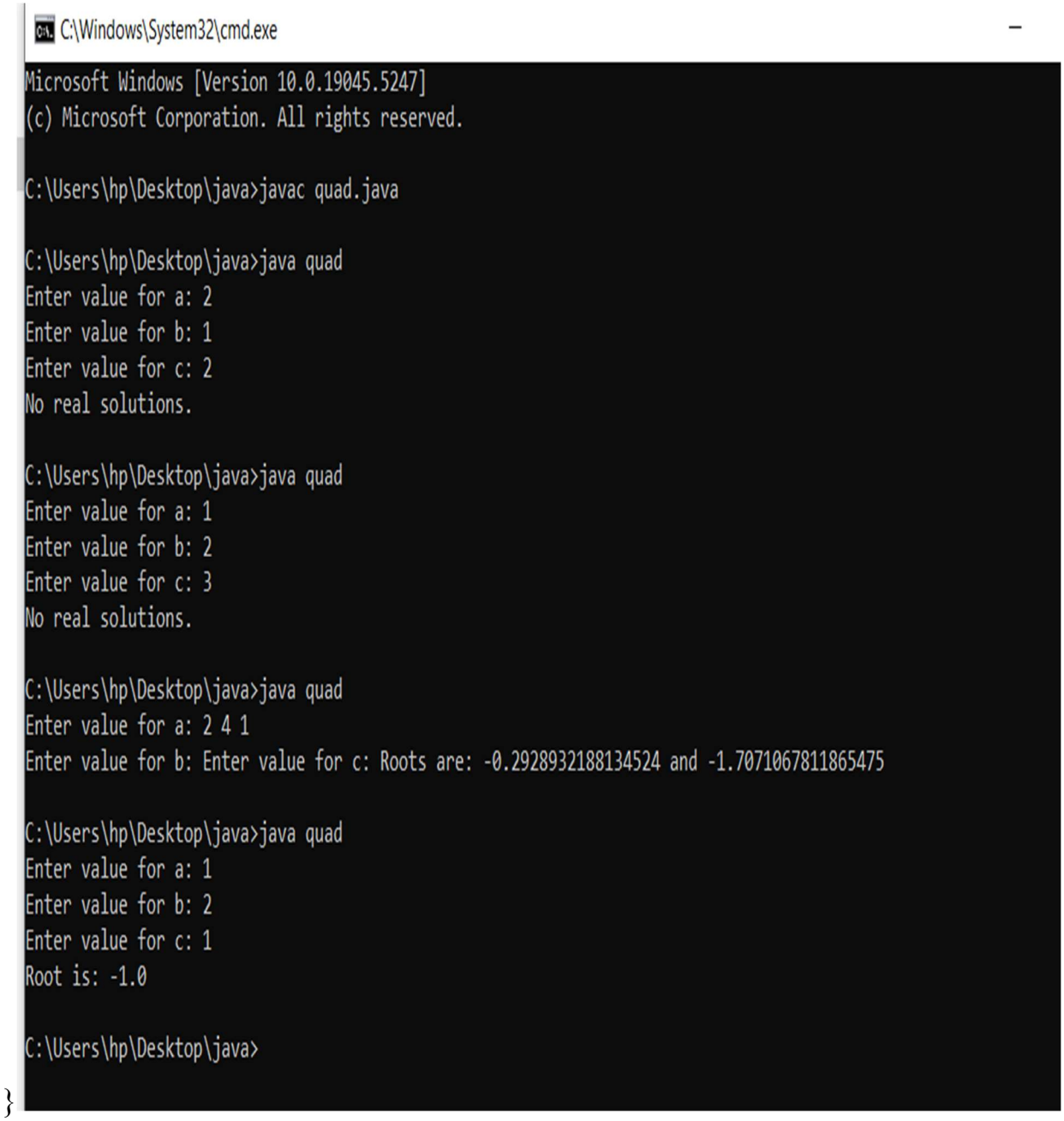
```
java.util.Scanner;

public class quad {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);

      System.out.print("Enter value for a: ");
      double a = sc.nextDouble();
      System.out.print("Enter value for b: ");
      double b = sc.nextDouble();
      System.out.print("Enter value for c: ");
      double c = sc.nextDouble();

      double discriminant = b * b - 4 * a * c;

      if (discriminant > 0) {
         double root1 = (-b + Math.sqrt(discriminant)) / (2 * a);
         double root2 = (-b - Math.sqrt(discriminant)) / (2 * a);
         System.out.println("Roots are: " + root1 + " and " + root2);
      } else if (discriminant == 0) {
         double root = -b / (2 * a);
         System.out.println("Root is: " + root);
      } else {
         System.out.println("No real solutions.");
      }
   }
```


C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.5247]
(c) Microsoft Corporation. All rights reserved.
C:\Users\hp\Desktop\java>javac quad.java
C:\Users\hp\Desktop\java>java quad
Enter value for a: 2
Enter value for b: 1
Enter value for c: 2
No real solutions.
C:\Users\hp\Desktop\java>java quad
Enter value for a: 1
Enter value for b: 2
Enter value for c: 3
No real solutions.
C:\Users\hp\Desktop\java>java quad
Enter value for a: 2 4 1
Enter value for b: Enter value for c: Roots are: -0.2928932188134524 and -1.7071067811865475
C:\Users\hp\Desktop\java>java quad
Enter value for a: 1
Enter value for b: 2
Enter value for c: 1
Root is: -1.0
C:\Users\hp\Desktop\java>

}