WEEK 1:

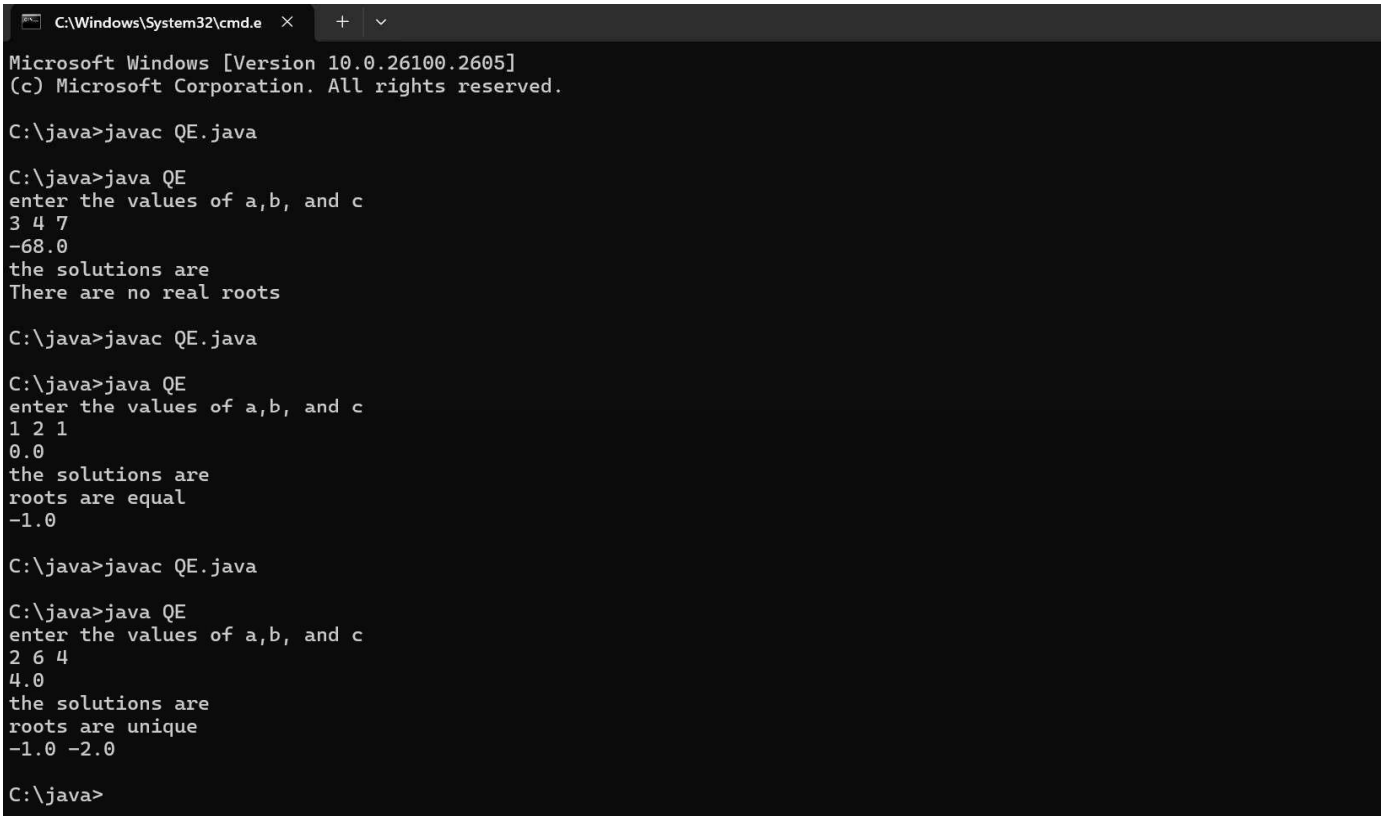
Develop a Java program that prints all real solu ons to the quadra c equa on ax2+bx+c=0. Read in a, b, c and use the quadra c formula. If the discriminate b2-4ac is nega ve, display a message sta ng that there are no real solu ons.

Source Code:

```
 import java.util.Scanner;

class Quadratic {     float d;
   Scanner sc = new Scanner(System.in);
    void solver()


   {
       System.out.println("enter the values of a,b, and c");        int a = sc.nextInt();
int b = sc.nextInt();        int c = sc.nextInt();



      if (a == 0) {
         System.out.println("invalid equation");
      }        else{
         d= b*b - 4*a*c;
         System.out.println(d);
         System.out.println("the solutions are");            if(d>0){
            System.out.println("roots are unique ");               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("There are no real roots" );
         }
      }
```

```
   }


}



public class QE {
   public static void main(String[] args) {        Quadratic q1 = new Quadratic();         q1.solver();

  }
}
```

OUTPUT:



Pgm 1 25/09/24

Develop a Java Program that prints all the real solutions to the quadratic equation $ax^2 + bx + c = 0$
Read in a, b, c and use the quadratic formula.
If the discreminant $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.

```
import java.util.Scanner;
public class QuadraticEquation {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter coefficient a: ");
        double a = sc.nextDouble();
        System.out.println("Enter coefficient b: ");
        double b = sc.nextDouble();
        System.out.println("Enter coefficient 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 real and distinct");
            System.out.println("Root 1 = " + root1);
            System.out.println("Root 2 = " + root2);
        }
        else if(discriminant == 0) {
```

```
            double root = -b/(2*a);
            System.out.println("Roots are real and equal");
            System.out.println("Root = " + root);
        }
    else {
            System.out.println("There are no real solutions");
        }
    }
}
```

⇒ Enter coefficient a:
1
Enter coefficient b:
2
Enter coefficient c:
1
Roots are real and equal
Root = -1.0

⇒ Enter coefficient a:
1
Enter coefficient b:
1
Enter coefficient c:
1
There are no real solutions.

⇒ 1, 2, 3.
no real solutions.