29/9/20

1BM19CS090
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Lab Program-1 :

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

Code:

```
import java.util.*;
class roots
{
   public static void main(String args[])
   {
      double a,b,c,x,y,d;
      System.out.println("Enter the coefficients a,b,c: ");
      Scanner s = new Scanner(System.in);
      a = s.nextFloat();
      b = s.nextFloat();
      c = s.nextFloat();
      d = (b*b)-(4*a*c);
      if (d==0)
      {
         x = -b/(2*a);
         y = x
         System.out.println("Both Roots Are Real and Equal");
         System.out.println("R1 = "+x+" And R2 = "+y);
      }
      else if (d>0)
      {
         x = (-b+Math.sqrt(d))/(2*a);
         y = (-b-Math.sqrt(d))/(2*a);
```

```
            System.out.println("Roots Are Real and Distinct");
            System.out.println("R1 = "+x+" And R2 = "+y);
        }
        else
        {
            System.out.println("Roots Are Imaginary. No
                                Real Solutions!");
        }
    }
}
```

Roots.java

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```java
import java.util.*;
class roots
 {
   public static void main(String args[])
   {
    double a,b,c,x,y,d;
    System.out.println("Enter the coefficients a,b,c:");
    Scanner s=new Scanner(System.in);
    a=s.nextFloat();
    b=s.nextFloat();
    c=s.nextFloat();
    d=(b*b)-(4*a*c);
    if(d==0)
    {
      x=-b/(2*a);
      y=x;
      System.out.println("Both Roots Are Real and Equal ");
      System.out.println("R1="+x+" And R2="+y);
    }
    else if(d>0)
    {
      x=(-b+Math.sqrt(d))/(2*a);
      y=(-b-Math.sqrt(d))/(2*a);
      System.out.println("Roots Are Real and Distinct");
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    }
    else
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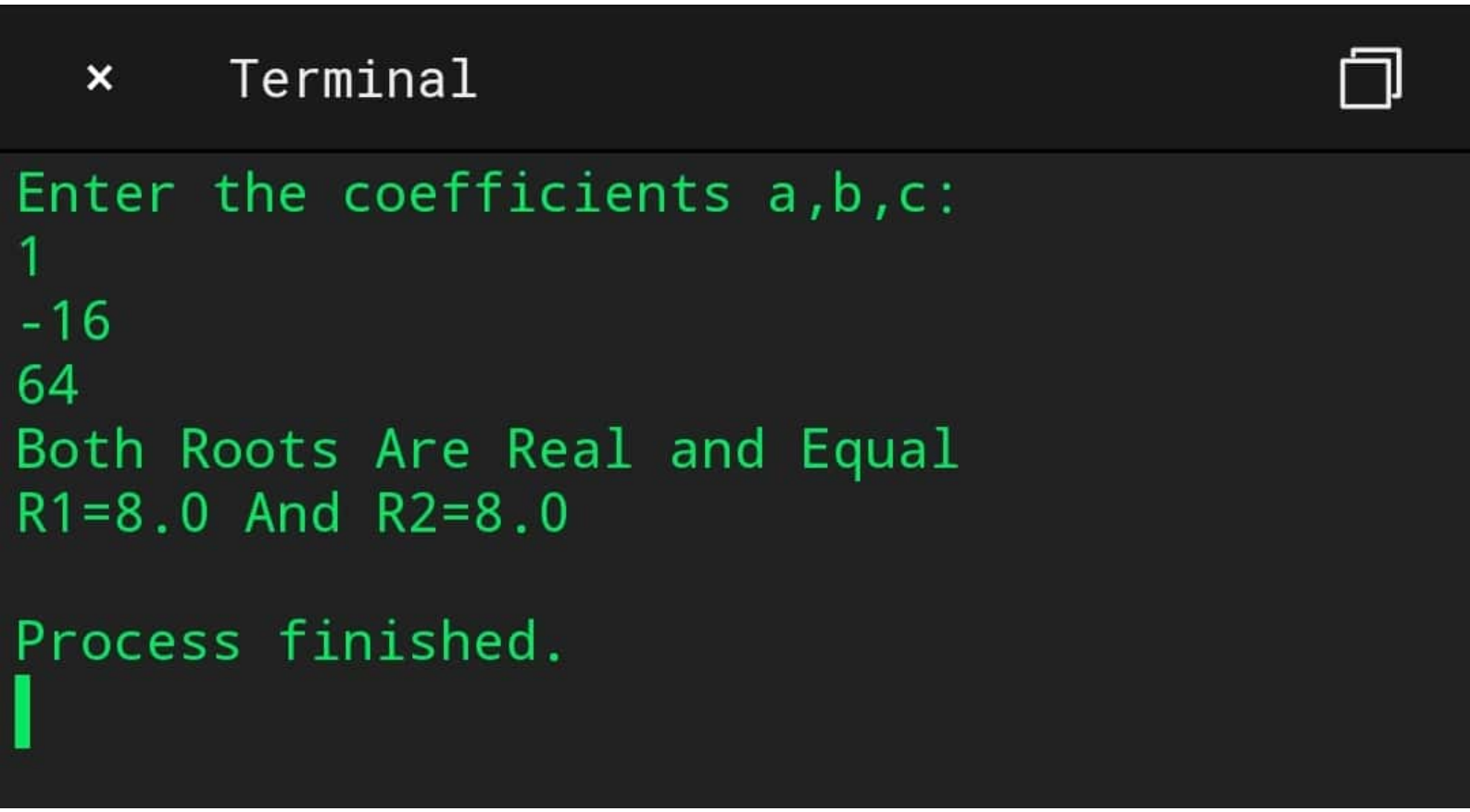
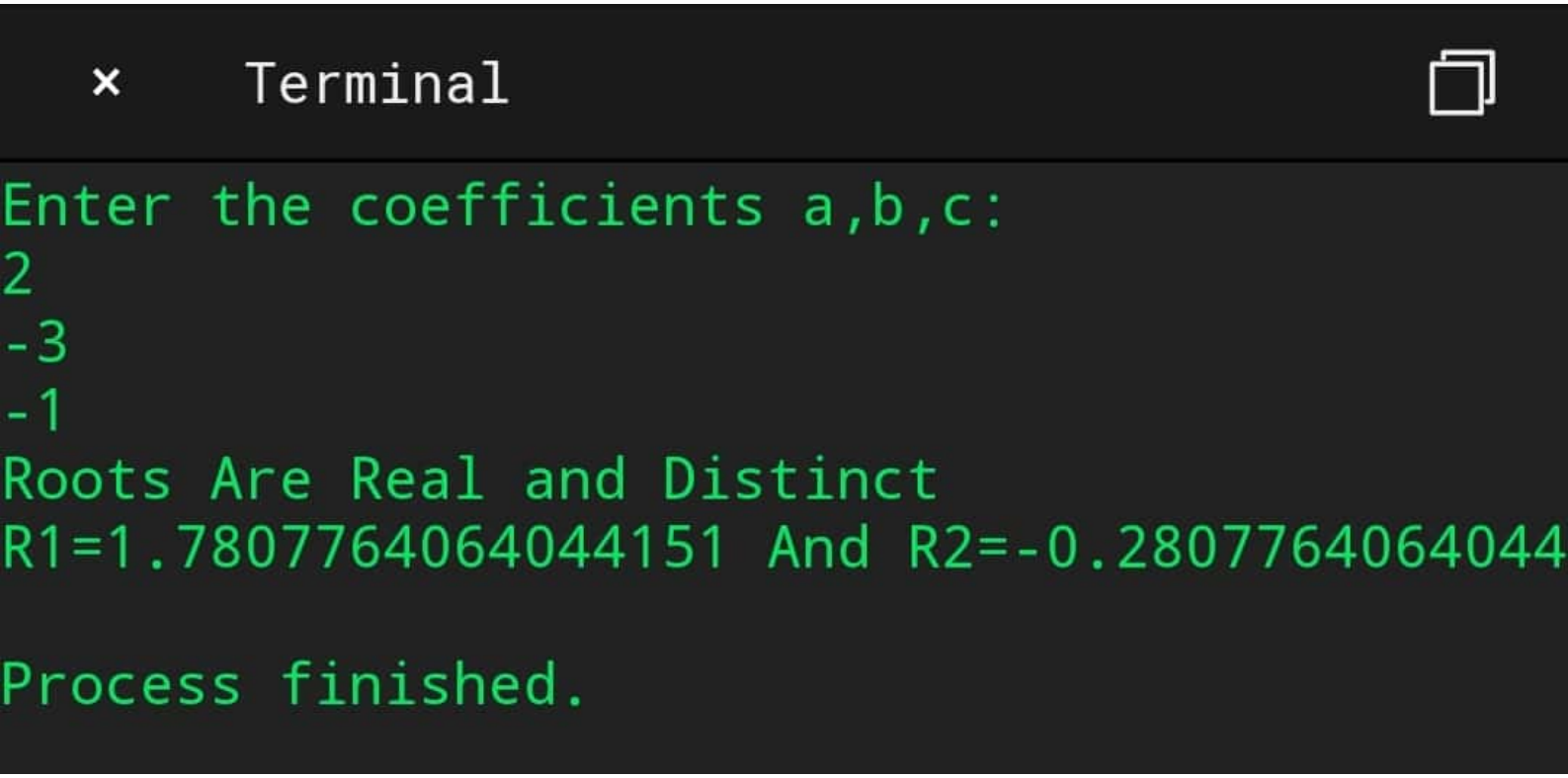
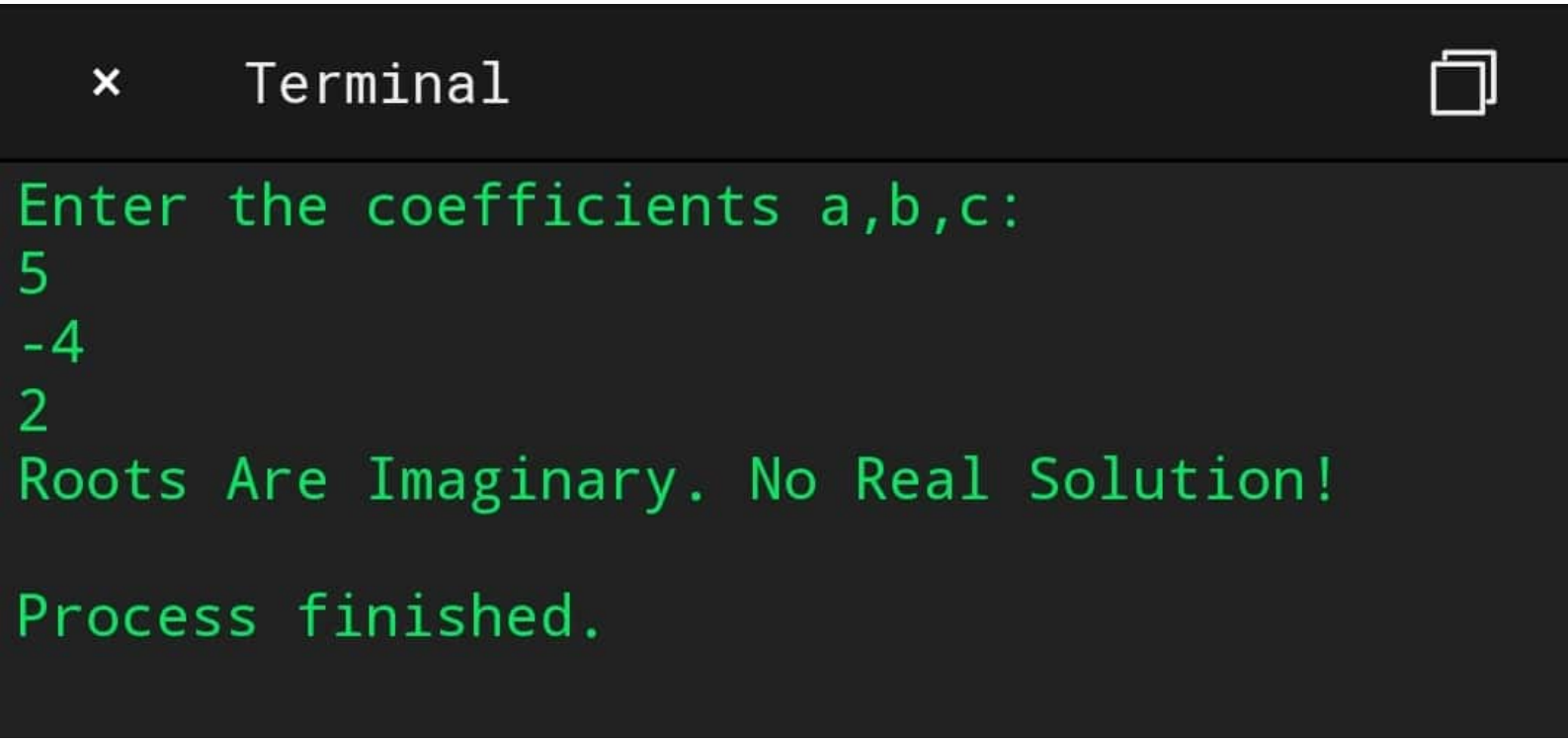
}

```







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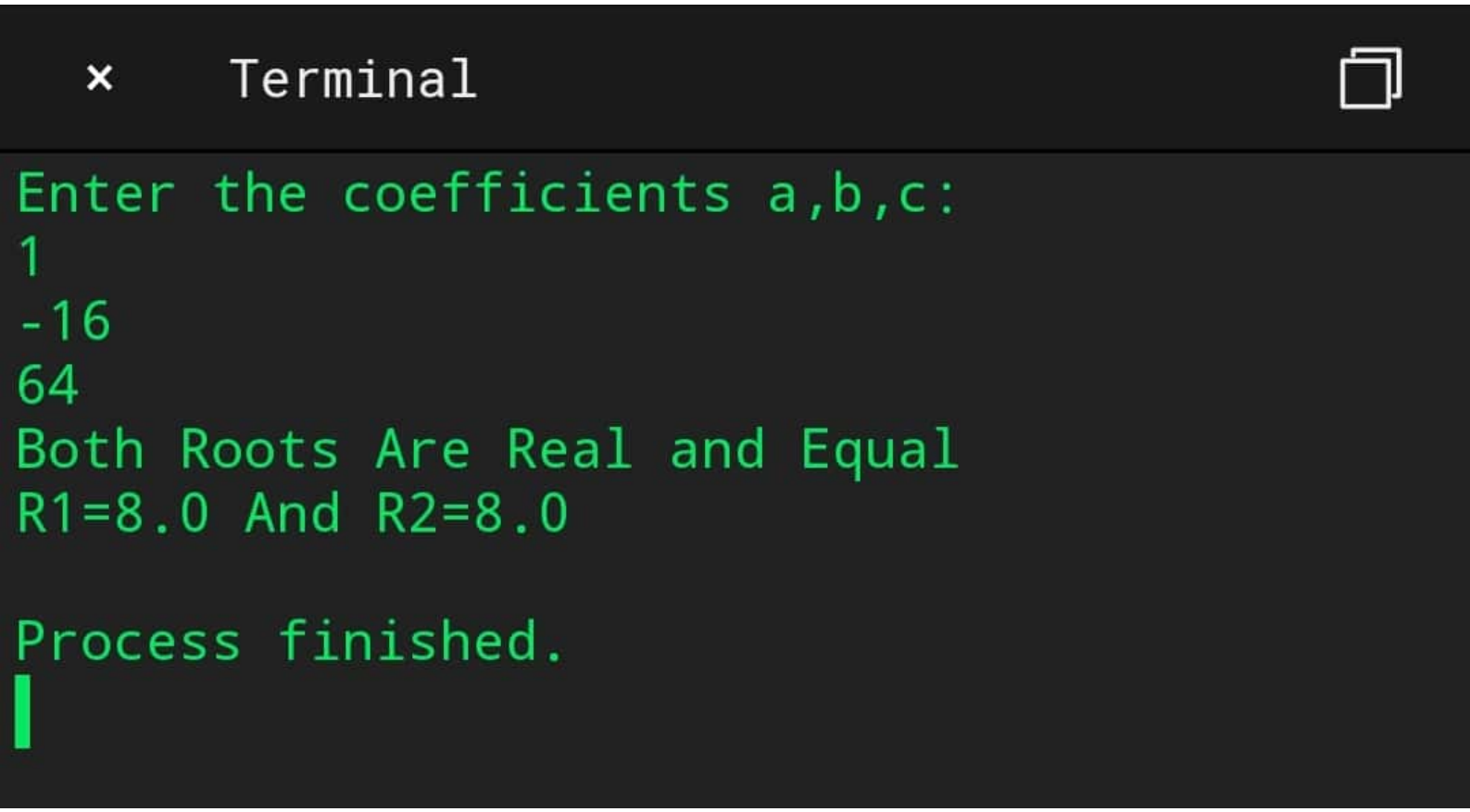
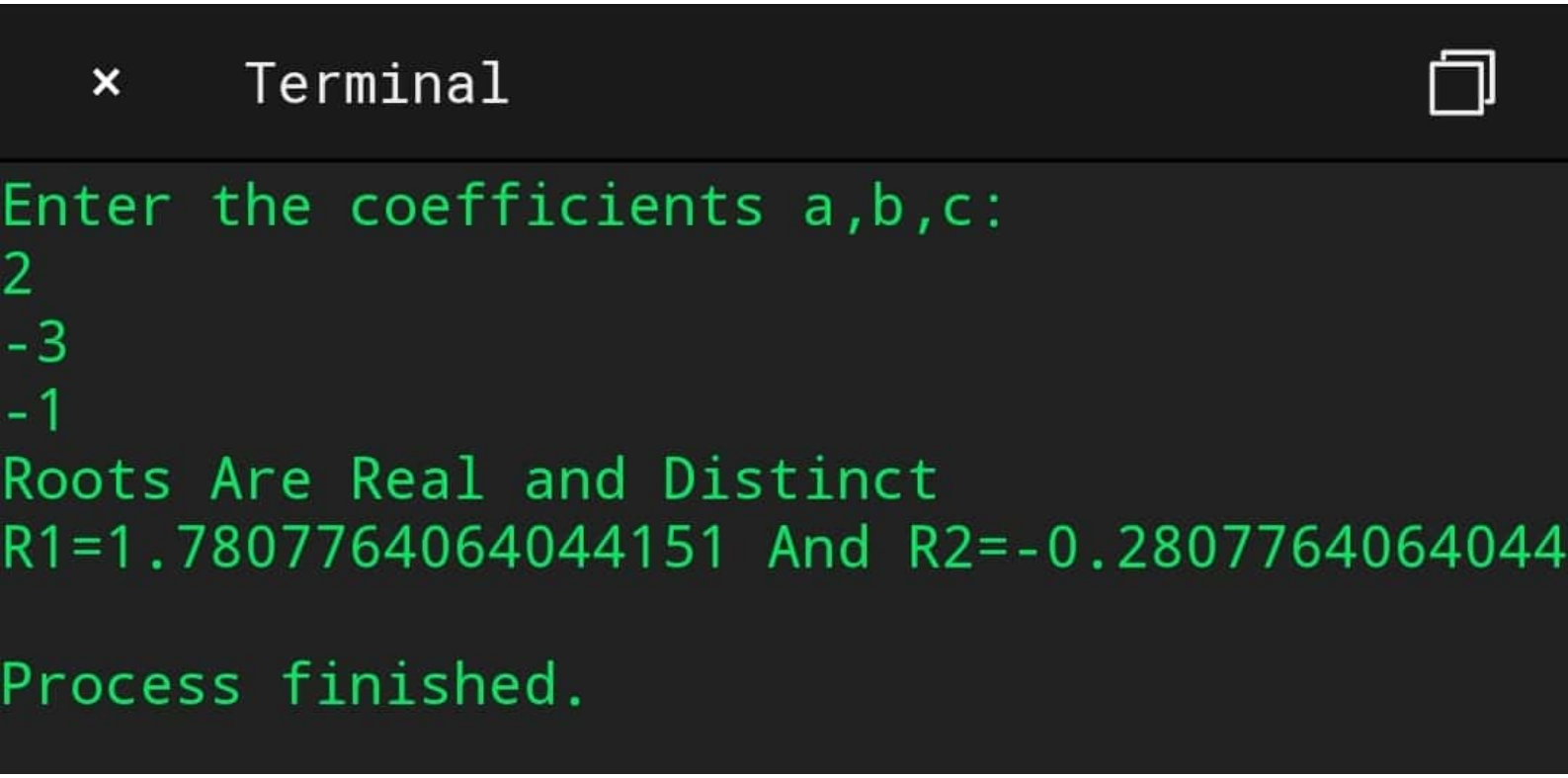
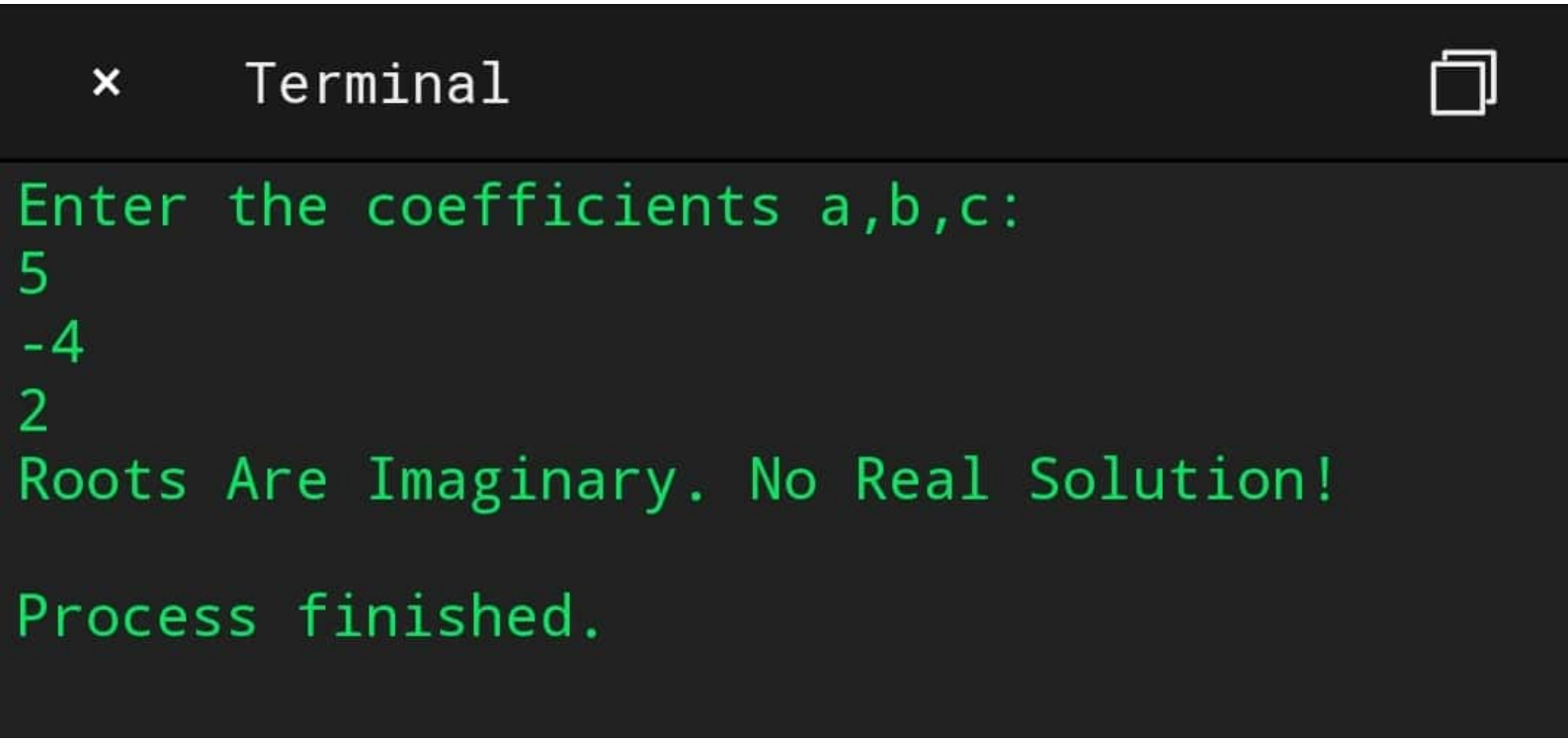
```







ArrPosNeg.java

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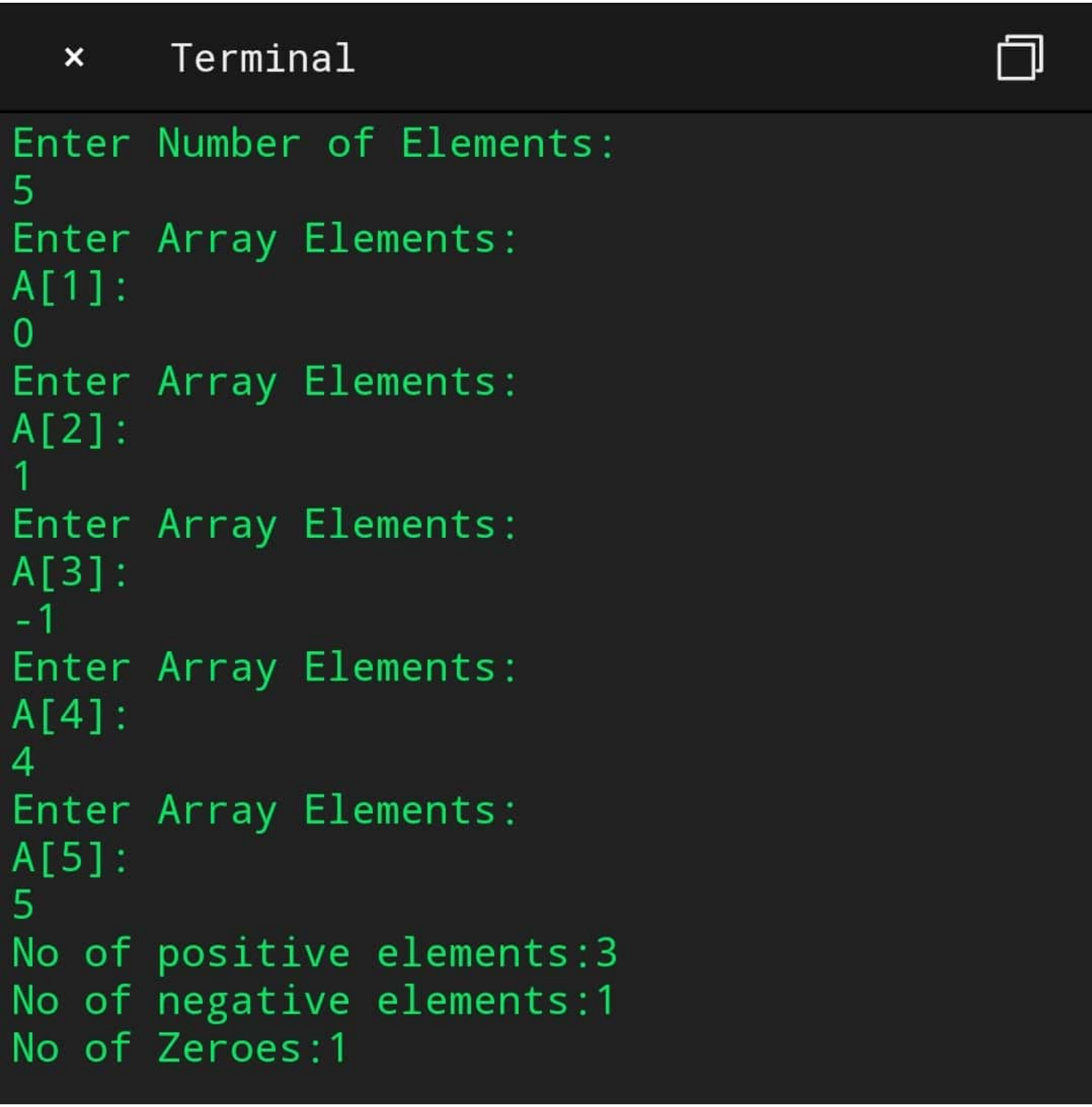
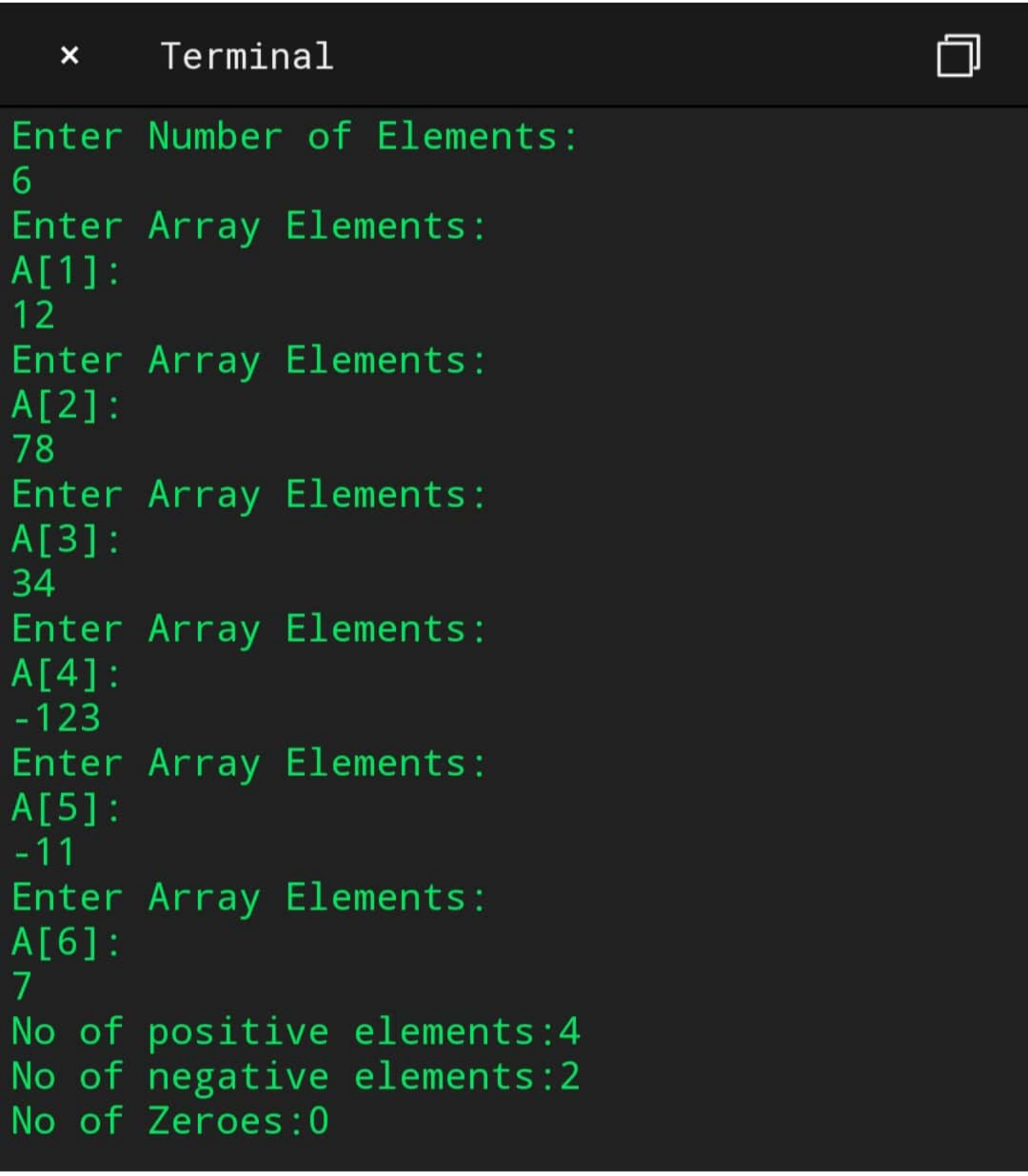
```java
import java.util.*;

class ArrPosNeg
{
  public static void main(String args[])
  {
  int n,a[],p=0,neg=0,z=0;
  System.out.println("Enter Number of Elements:");
  Scanner s=new Scanner(System.in);
  n=s.nextInt();
  a=new int[n];
  for(int i=0;i<n;i++)
  {
     System.out.println("Enter Array Elements:");
     System.out.println("A["+(i+1)+"]:");
     a[i]=s.nextInt();
     if(a[i]>0)
     p++;
     else if(a[i]<0)
     neg++;
     else
     z++;
  }
  System.out.println("No of positive elements:"+p);
  System.out.println("No of negative elements:"+neg);
  System.out.println("No of Zeroes:"+z);
  }
}
```





EvnOddArray.java

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```java
public class Odd_even_array {
    public static void main(String[] args){
    int n, j = 0, k = 0, sum = 0, avg, max , min;
    Scanner s = new Scanner(System.in);
    System.out.print("Enter the number of elements in array:");
    n=s.nextInt();
    int[] a = new int[n];
    int[] b = new int[n];
    int[] c = new int[n];
    System.out.println("Enter the elements of the array:");
    for(int i = 0;i<n;i++){
        a[i] = s.nextInt();
    }
    for(int i = 0;i<n;i++){
        if (a[i] % 2 == 0) {
            c[j] = a[i];
            sum += a[i];
            j++;
        } else {
            b[k] = a[i];
            k++;
        }
    }
    //avg = sum / j;
    max = c[0];
    min = c[0];
    for(int i = 0; i<j;i++){
        if (c[i] > max){
            max = c[i];
        }
        if (c[i] < min){
            min = c[i];
        }
    }
    System.out.println("For the even array sum is "+sum+" average is "+(sum/j)+" maximum is "+max+" minimum is "+

}
}
```