OOJ LAB WEEK 6 PRACTICE PROGRAMS

Program and Output

Mallika Prasad

1BM19CS081

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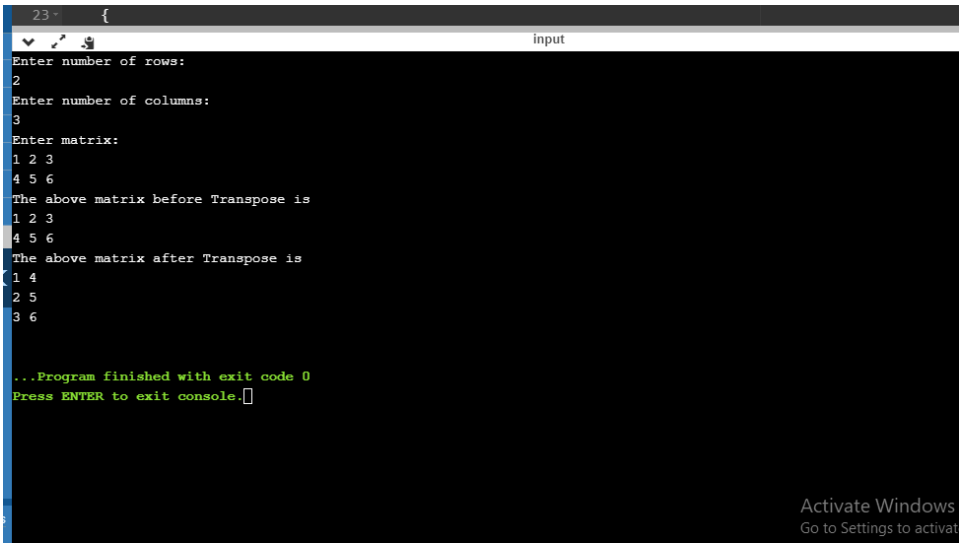
Program 1-

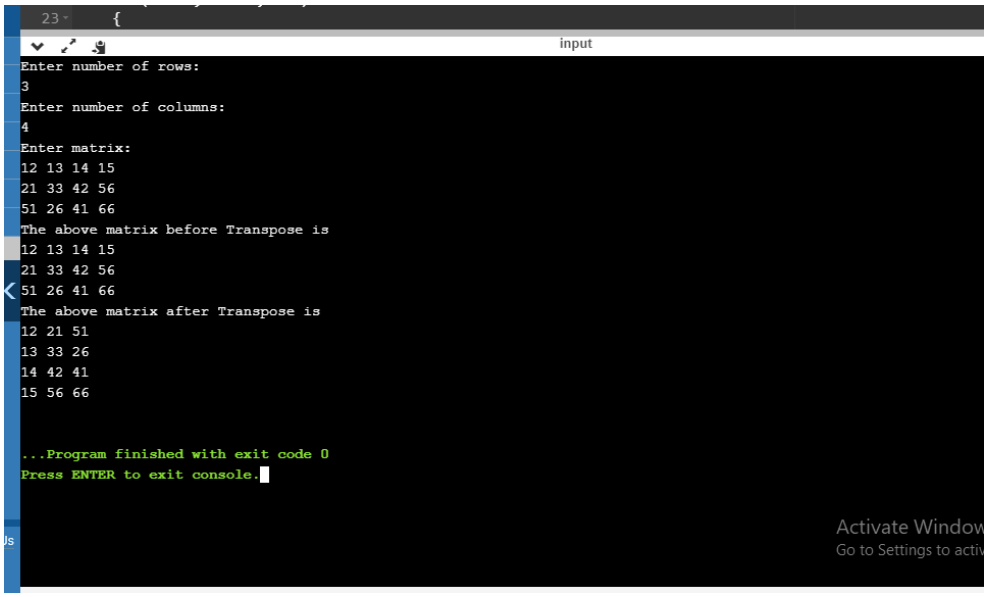
Develop a Java program to find the transpose of a given matrix of order MXN.

```
import java.util.Scanner;
public class Main
{
   public static void main(String args[])
   {
      Scanner s = new Scanner(System.in);
          int i, j;
          System.out.println("Enter number of rows: ");
          int m = s.nextInt();
          System.out.println("Enter number of columns: ");
          int n = s.nextInt();
          int array[][] = new int[m][n];
          System.out.println("Enter matrix:");
          for(i = 0; i < m; i++)
          {
             for(j = 0; j < n; j++)
             {
          array[i][j] = s.nextInt();
```

```
        }
          }
          System.out.println("The above matrix before Transpose is ");
          for(i = 0; i < m; i++)
          {
              for(j = 0; j < n; j++)
          {
          System.out.print(array[i][j]+" ");
          }
          System.out.println(" ");
       }
          System.out.println("The above matrix after Transpose is ");
          for(i = 0; i < n; i++)
          {
              for(j = 0; j < m; j++)
          {
             System.out.print(array[j][i]+" ");
          }
          System.out.println(" ");
       }
    }
}
```

Output-





Program 2-

Develop a Java program which has the (only) class CircleDemo that has members- radius, area and perimeter. Include methods to do the following.

a. accept the radius from the user

b. find the area of the circle

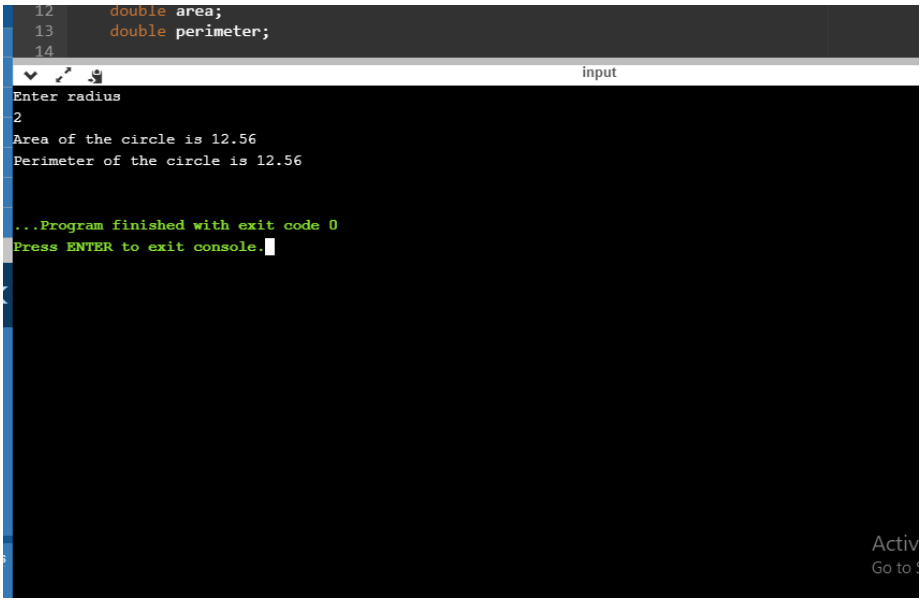
c. find the perimeter of the circle

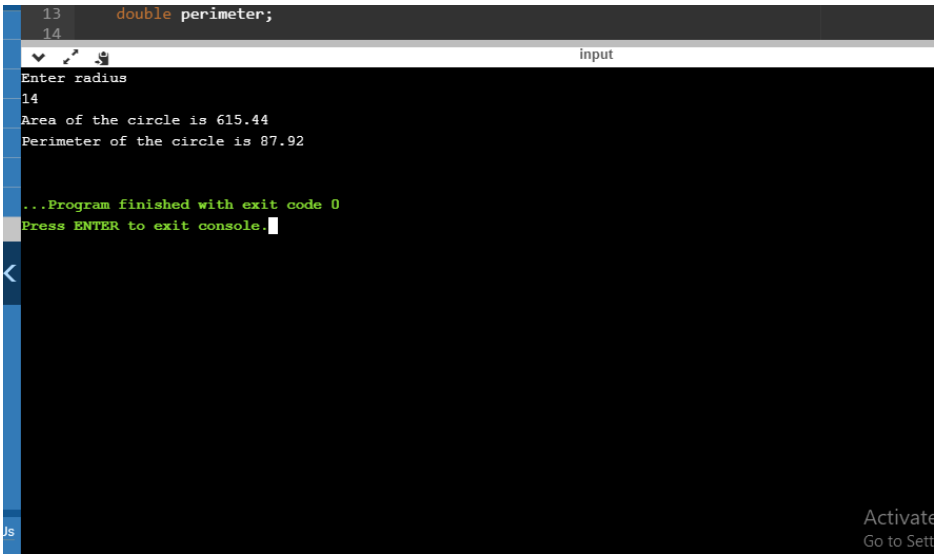
d. Display all the details

```
import java.util.Scanner;
class CircleDemo{
   double radius;
   double area;
   double perimeter;
    void accept()
   {
      Scanner xx=new Scanner (System.in);
      System.out.println("Enter radius");
      radius=xx.nextDouble();
   }
   double ar()
   {
      area=3.14*radius*radius;
      return area;
   }
   double pm()
   {
      perimeter=2*3.14*radius;
      return perimeter;
   }
   void display()
   {
      System.out.println("Area of the circle is "+area);
      System.out.println("Perimeter of the circle is "+perimeter);
   }
```

```
}
class Main{
   public static void main (String ss[]){
      CircleDemo c1=new CircleDemo();
      c1.accept();
      c1.ar();
      c1.pm();
      c1.display();
   }
}
```

Output-





Program 3-

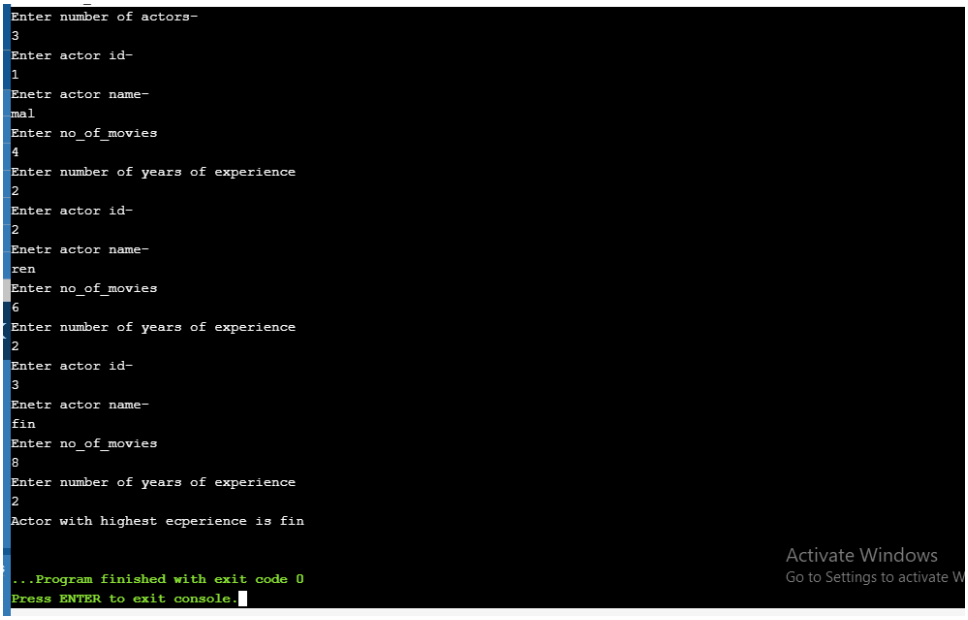
Develop a Java program to create a class Actor with id, name, no_of_movies, no_of_years_exp. Calculate the average_performance for each of the actor and print the name of the actor with highest average.

```
import java.util.Scanner;

class Actor{

   int id;

   String name;

   int no_of_movies;

   int no_of_years_exp;

   double avg_performance;

   static String highest_name;


   void accept()

   {

      Scanner xx=new Scanner(System.in);

      System.out.println("Enter actor id-");
```

```
        id=xx.nextInt();
        System.out.println("Enetr actor name-");
        name=xx.next();
        System.out.println("Enter no_of_movies");
        no_of_movies=xx.nextInt();
        System.out.println("Enter number of years of experience");
        no_of_years_exp=xx.nextInt();
    }
   double avg()
    {
      avg_performance=no_of_movies/no_of_years_exp;
      return avg_performance;
    }

}

class Main{
    public static void main(String args[]){
        Scanner xx=new Scanner(System.in);
        double highest=0;

        System.out.println("Enter number of actors-");
        int n=xx.nextInt();
        Actor a[]=new Actor[n];
        for(int i=0;i<n;i++)
        {
```

```
        a[i]=new Actor();
        a[i].accept();
        a[i].avg();
         if(a[i].avg()>highest)
        {
           highest=a[i].avg();
           Actor.highest_name=a[i].name;
        }
         }
    System.out.println("Actor with highest ecperience is "+Actor.highest_name);
    }
 }
```

Output-



Program 4-

Develop a Java program to accept the values of a double array through command line.

Display the sorted array.

```
class Main{
   public static void main(String ss[]){
      double[] a = new double[ss.length];
      for(int i = 0;i<ss.length;i++){
          a[i] = Double.parseDouble(ss[i]);
      }
      System.out.println("Original array:");
      for( int i=0;i<a.length;i++)
      {
         System.out.println(a[i]+" ");
      }
      System.out.println();
      double temp=0.0;
      for(int i=0;i<a.length;i++){
         for(int j=0;j<a.length;j++){
            if(a[j]>a[j+1]){
               temp = a[j];
               a[j] = a[j+1];
               a[j+1] = temp;
            }
            }
      }
System.out.println("sorted array:");
```

```
    for(int i=0;i<a.length;i++){
      System.out.println(a[i] + " ");

    }
 }
}
```

Program 5-

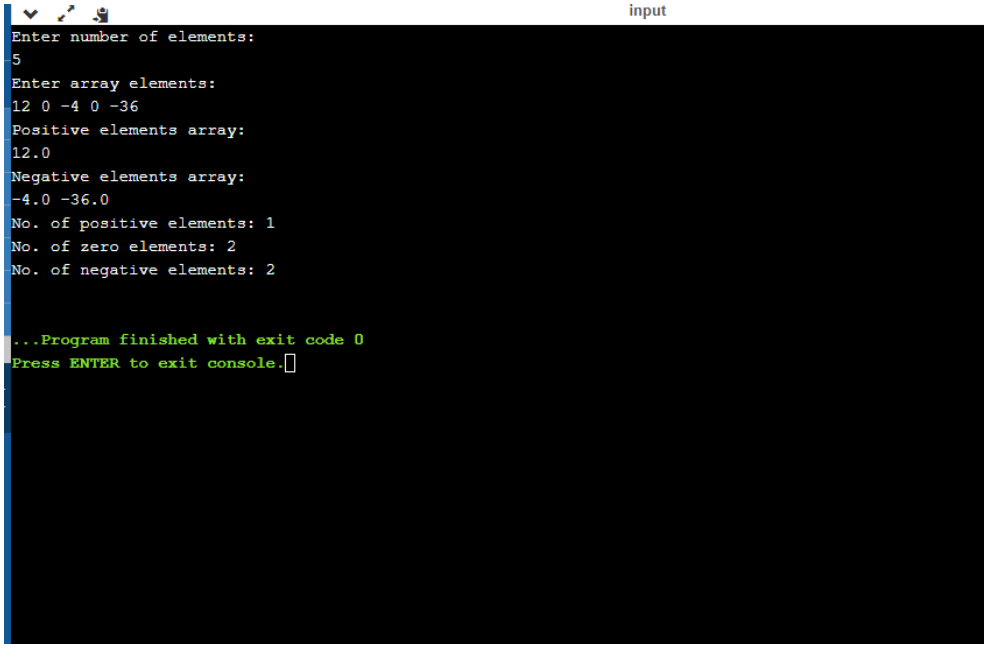
Design a Java program to accept a double array- Full. create two more arrays pos, neg. Check every element of Full array and push the positive numbers to pos array and negative numbers to neg. Count the number of positives, negatives and zeros and display.

```
import java.util.Scanner;
class ArrayMain {
public static void main(String ss[]) {
Scanner s=new Scanner(System.in);
System.out.println("Enter number of elements: ");
int n=s.nextInt();
int i;
int p=0, ne=0, z=0;
double full[]=new double[n];
double pos[]=new double[n];
double neg[]=new double[n];
System.out.println("Enter array elements: ");
for(i=0;i<n;i++)
{
full[i]=s.nextDouble();
```

```
}
for(i=0;i<n;i++)
{
if(full[i]>0)
{
pos[p]=full[i];
p++;
}
else if(full[i]==0)
z++;
else
{
neg[ne]=full[i];
ne++;
}
}
System.out.println("Positive elements array:");
for(i=0;i<p;i++)
{
System.out.print(pos[i]+" ");
}
System.out.println();
System.out.println("Negative elements array:");
for(i=0;i<ne;i++)
{
System.out.print(neg[i]+" ");
```

```
}
System.out.println();
System.out.println("No. of positive elements: "+p);
System.out.println("No. of zero elements: "+z);
System.out.println("No. of negative elements: "+ne);
}
}
```

Output-



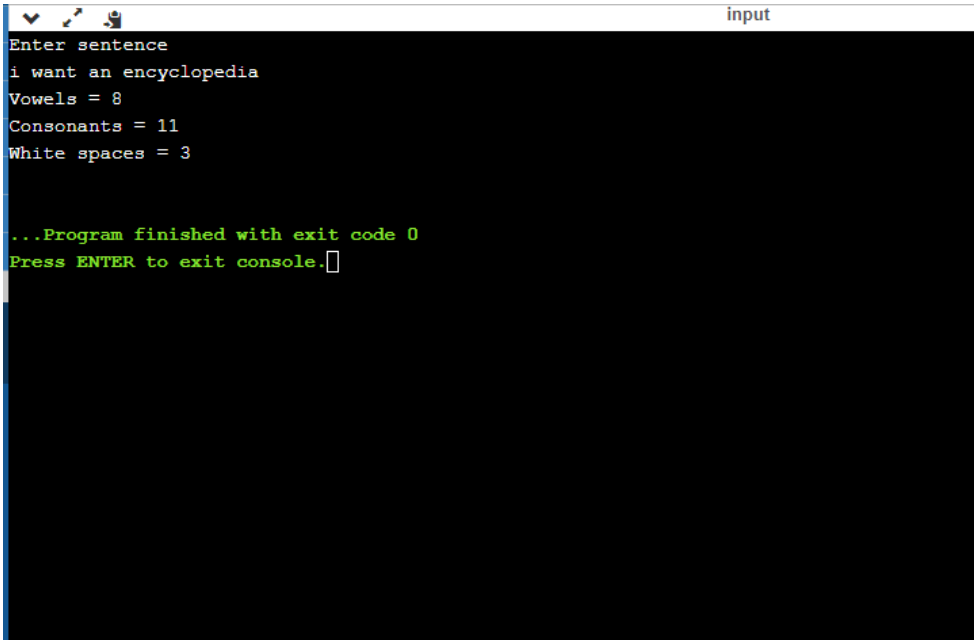
Program 6-

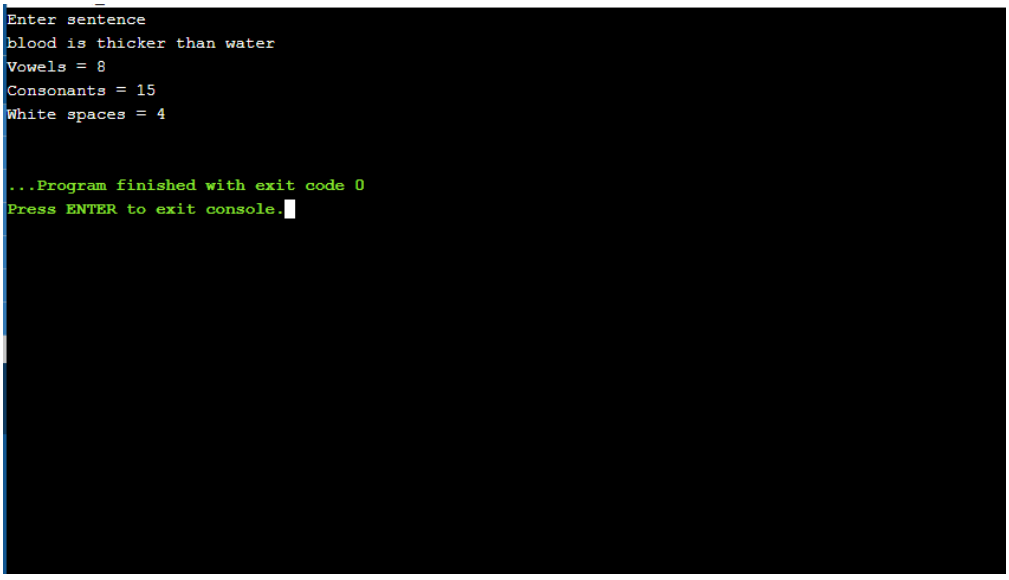
Design a Java program to accept a string. Count and display the number of vowels, consonants and spaces in the string

```
import java.util.Scanner;
class CountMain {
 public static void main(String args[])
```

```
{
 int i,vowels=0,consonants=0,spaces=0;
 Scanner sc = new Scanner(System.in);
 System.out.println("Enter sentence");
 String s=sc.nextLine();
 char str[] = s.toCharArray();
 int n= str.length;
    for(i=0;i<n;i++)
    {
      if(str[i]=='a' || str[i]=='e' || str[i]=='i' ||str[i]=='o' || str[i]=='u' || str[i]=='A' ||str[i]=='E' ||
str[i]=='I' || str[i]=='O' ||str[i]=='U')
       {
         vowels++;
       }
       else if((str[i]>='a'&& str[i]<='z') || (str[i]>='A'&& str[i]<='Z'))
       {
          consonants++;
       }
        else if (str[i]==' ')
       {
          spaces++;  }
 }
    System.out.println("Vowels = "+vowels);
    System.out.println("Consonants = "+consonants);
    System.out.println("White spaces = "+spaces);
 }
}
```

Output-


input
Enter sentence
i want an encyclopedia
Vowels = 8
Consonants = 11
White spaces = 3
...Program finished with exit code 0
Press ENTER to exit console.


Enter sentence
blood is thicker than water
Vowels = 8
Consonants = 15
White spaces = 4
...Program finished with exit code 0
Press ENTER to exit console.