

Source Code

```
import java.util.*;

/*Q1. Write a Java program to find the longest common prefix string amongst an
array of strings.If there is no common prefix, return an empty string "". */

public class Q1 {

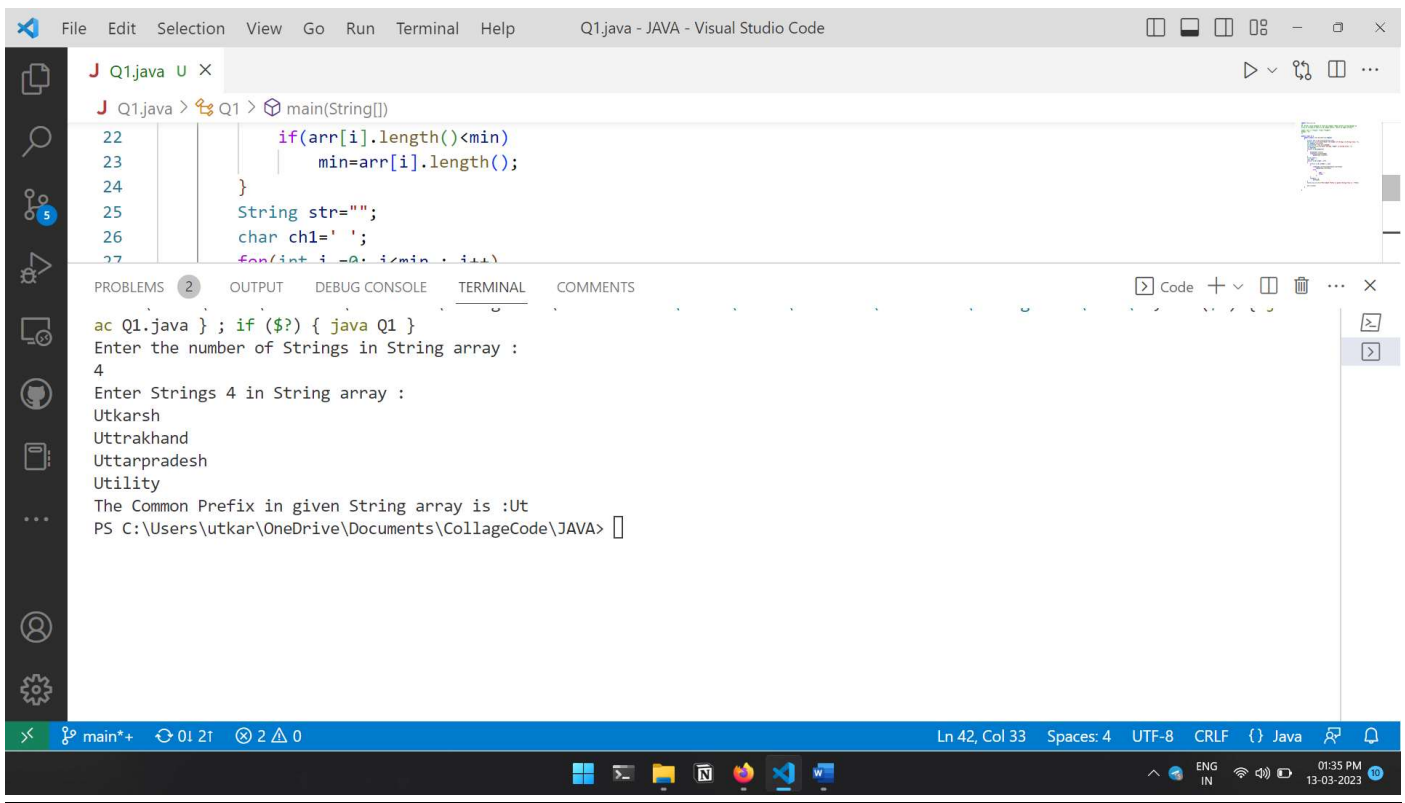
    public static void main(String args[])
    {
        Scanner scr = new Scanner(System.in);
        System.out.println("Enter the number of Strings in String array :");
        int num=scr.nextInt();
        String arr[] = new String[num];
        System.out.println("Enter Strings "+num+" in String array :");
        int min=100;
        for(int i =0;i<num;i++)
        {
            arr[i]=scr.next();
            if(arr[i].length()<min)
                min=arr[i].length();
        }
        String str="";
        char ch1=' ';
        for(int i =0; i<min ; i++)
        {
            for(int j =0; j<num-1 ; j++)
            {
                if(arr[j].charAt(i)==arr[j+1].charAt(i))
                    ch1=arr[j].charAt(i);
                else
                {
                    ch1=' ';
                }
            }
        }
    }
}
```

```
        break;
    }
}
if(ch1!=' ')
    str+=ch1;
}
System.out.println("Common Prefix in given String array is :"+str);

scr.close();
}

}
```

Output



The screenshot displays the Visual Studio Code interface with a Java file named `Q1.java` open. The code in the editor is as follows:

```
22     if(arr[i].length()<min)
23         min=arr[i].length();
24     }
25     String str="";
26     char ch1=' ';
27     for(int i=0; i<min; i++)
```

The `OUTPUT` pane at the bottom shows the execution results:

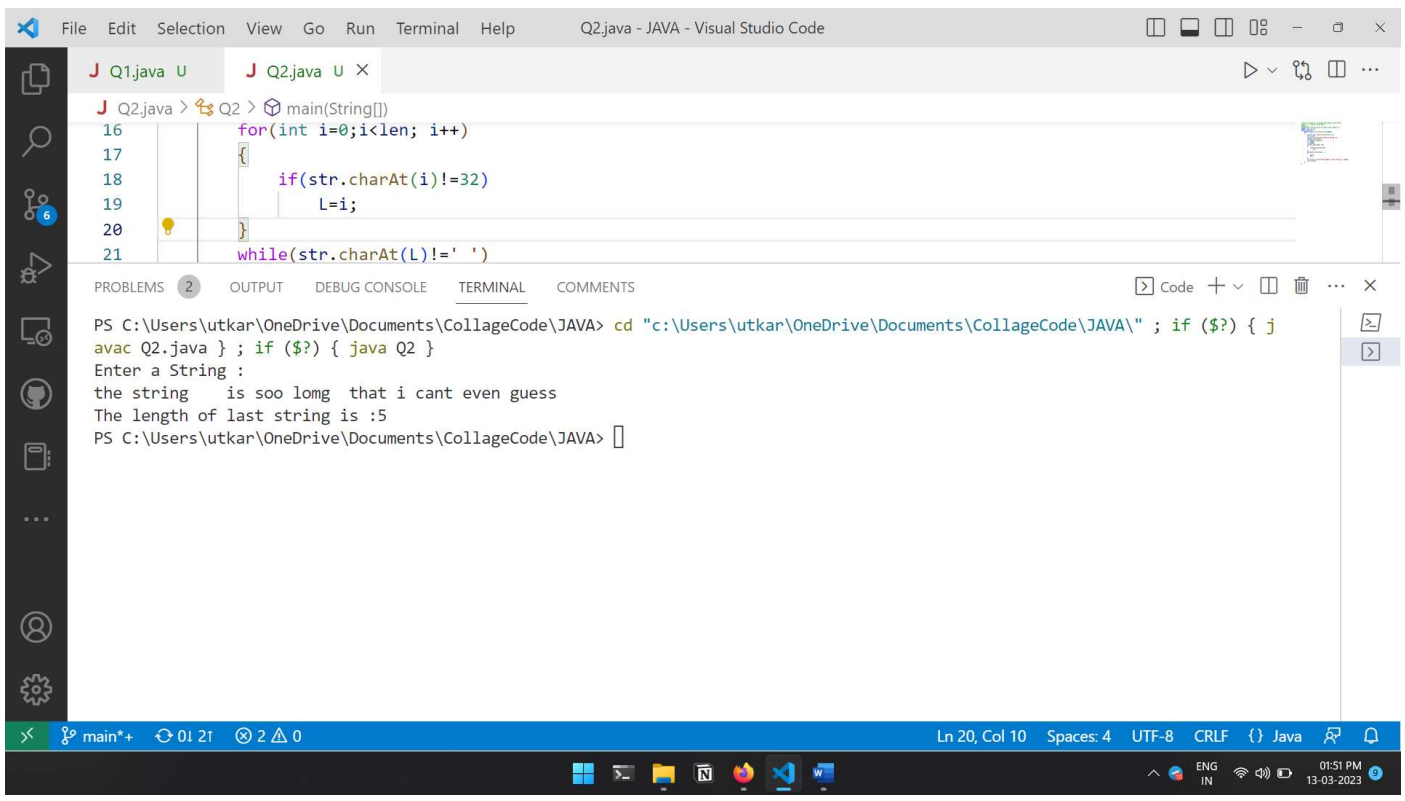
```
ac Q1.java } ; if ($?) { java Q1 }
Enter the number of Strings in String array :
4
Enter Strings 4 in String array :
Utkarsh
Uttrakhand
Uttarpradesh
Utility
The Common Prefix in given String array is :Ut
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA>
```

The status bar at the bottom indicates the current position is Line 42, Column 33, with 4 spaces, UTF-8 encoding, and CRLF line endings. The system tray shows the date and time as 01:35 PM on 13-03-2023.

Source Code

```
/*Write a program to calculate the length of Last Word .*/  
import java.util.*;  
public class Q2 {  
    public static void main(String args[])  
    {  
        Scanner scr = new Scanner(System.in);  
        String str;  
        System.out.println("Enter a String :");  
        str=scr.nextLine();  
        int len=str.length();  
        int L=len;  
        int ans=0;  
        for(int i=0;i<len; i++)  
        {  
            if(str.charAt(i)!=32)  
                L=i;  
        }  
        while(str.charAt(L)!=' ')  
        {  
            ans++;  
            L--;  
        }  
        System.out.println("The length of last string is :"+ans);  
        scr.close();  
    }  
}
```

Output



The screenshot displays the Visual Studio Code interface. The editor window shows a Java file named `Q2.java` with the following code:

```
16 for(int i=0;i<len; i++)
17 {
18     if(str.charAt(i)!=32)
19         L=i;
20 }
21 while(str.charAt(L)!=' ')
```

The output window at the bottom shows the execution of the program. The command prompt shows the following steps:

```
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { j
avac Q2.java } ; if ($?) { java Q2 }
Enter a String :
the string is soo long that i cant even guess
The length of last string is :5
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA>
```

The status bar at the bottom indicates the current line is 20, column 10, with 4 spaces, UTF-8 encoding, CRLF line endings, and the file is in Java format.

Source Code

/*Write a program to return corresponding column title as it appears in an Excel sheet for a given number

*/

```
import java.util.*;

public class Q3 {

    public static void main(String args[])

    {

        Scanner scr = new Scanner (System.in);

        int x=0;

        System.out.println("Enter the Excel Column num: ");

        x=scr.nextInt();

        int temp=x;

        String str="";

        while(temp>26)

        {

            int a = x%26;

            char ch =(char)(a+64);

            str+=ch;

            temp=temp/26;

        }

        temp+=64;

        char ch= (char)temp;

        str=ch+str;

        System.out.println(str);

        scr.close();

    }

}
```

Output

The screenshot displays the Visual Studio Code interface with a Java file named `Q3.java` open. The code defines a `main` method that prompts the user to enter an Excel column number and reads the input using a `Scanner`.

```

7 public static void main(String args[])
8 {
9     Scanner scr = new Scanner (System.in);
10    int x=0;
11    System.out.println(x: "Enter the Excel Column num: ");
12    x=scr.nextInt();

```

The **TERMINAL** panel at the bottom shows the command prompt output:

```

PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { javac Q3.java } ; if ($?) { java Q
3 }
Enter the Excel Column num:
701
ZY
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { javac Q3.java } ; if ($?) { java Q
3 }
Enter the Excel Column num:
1000
ALL
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA>

```

The status bar at the bottom indicates the current cursor position is at line 20, column 26, with 4 spaces, UTF-8 encoding, CRLF line endings, and the Java language selected.

Source Code

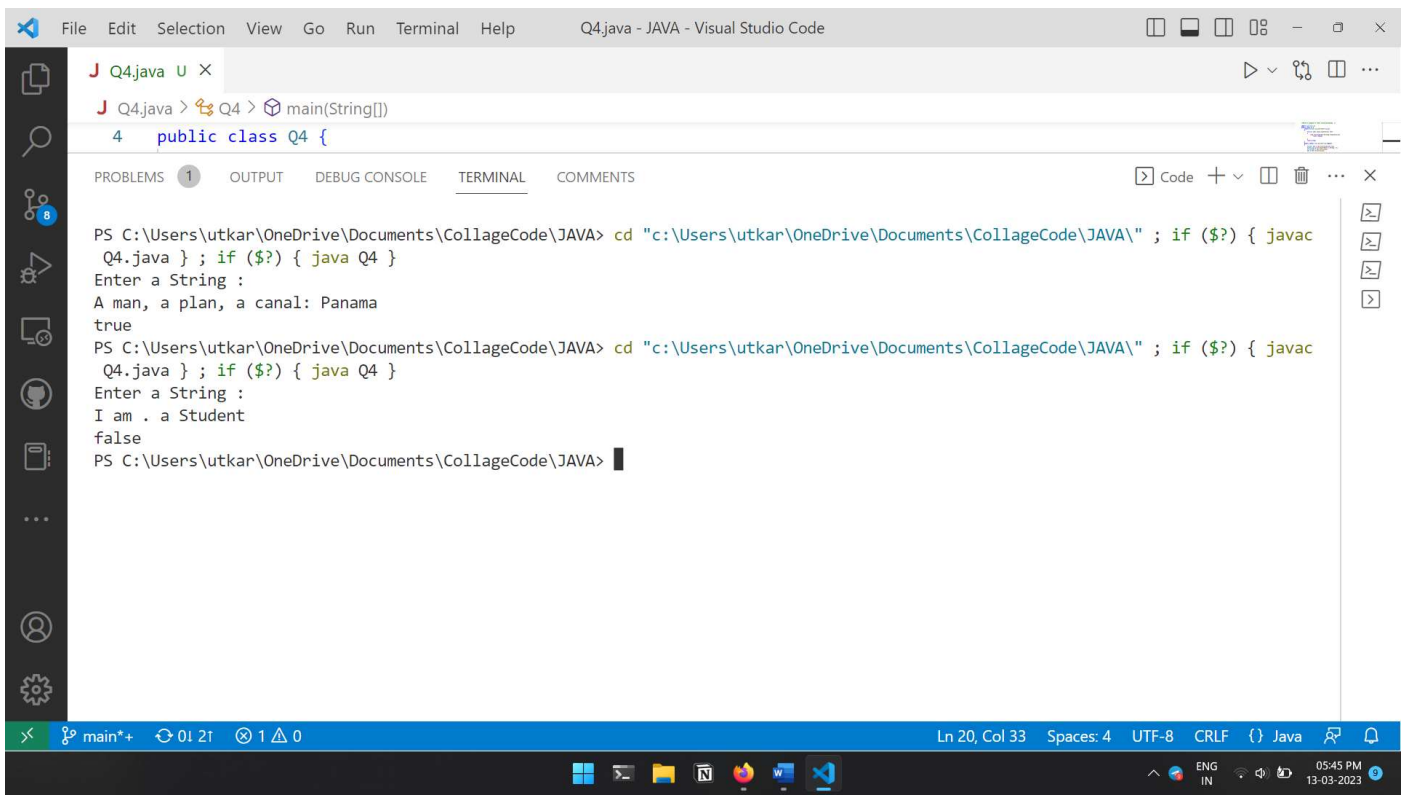
```
/*Write a program to check valid palindrome. */
```

```
import java.util.*;

public class Q4 {
    static boolean palindrome(String a)
    {
        for(int i=0; i<(a.length()/2); i++)
        {
            if(a.charAt(i)!=a.charAt(a.length()-i-1))
                return false;
        }
        return true;
    }

    public static void main(String args[])
    {
        Scanner scr = new Scanner(System.in);
        System.out.println("Enter a String :");
        String str = scr.nextLine();
        str = str.toLowerCase();
        String a="";
        for(int i=0; i<str.length(); i++)
        {
            if(str.charAt(i)>=97 && str.charAt(i)<=122)
                a+=str.charAt(i);
        }
        System.out.println(palindrome(a));
        scr.close();
    }
}
```


Output



The screenshot displays the Visual Studio Code interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar indicates the active file is Q4.java - JAVA - Visual Studio Code. The editor window shows the following Java code in Q4.java:

```
1 public class Q4 {  
2     main(String[] args) {  
3         // ...  
4     }  
5 }
```

The bottom panel shows the TERMINAL tab with the following output:

```
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { javac  
Q4.java } ; if ($?) { java Q4 }  
Enter a String :  
A man, a plan, a canal: Panama  
true  
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { javac  
Q4.java } ; if ($?) { java Q4 }  
Enter a String :  
I am . a Student  
false  
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA>
```

The status bar at the bottom shows the current cursor position as Ln 20, Col 33, with 4 spaces, UTF-8 encoding, and CRLF line endings. The system tray at the bottom right shows the date and time as 05:45 PM on 13-03-2023.

Source Code

//Write a program to check if any value appears at least twice in an array.

```
import java.util.*;

public class Q5 {

    static boolean twice(int arr[])
    {
        for(int i=0; i<arr.length-1; i++)
        {
            for(int j=i+1; j<arr.length; j++)
            {
                if(arr[i]==arr[j])
                    return true;
            }
        }
        return false;
    }

    public static void main(String []args)
    {
        Scanner scr = new Scanner(System.in);
        System.out.println("Enter size of array");
        int n =scr.nextInt();
        int arr[]= new int [n];
        System.out.println("Enter Elements in array");
        for(int j=0; j<n; j++)
        {
            arr[j]=scr.nextInt();
        }
        System.out.println(twice(arr));
        scr.close();
    }
}
```

}

Output

The screenshot displays the Visual Studio Code interface with a Java file named `Q5.java` open. The code implements a method `twice(int[] arr)` that checks if an array contains two identical elements. The code is as follows:

```
9   for(int j=i+1;j<arr.length;j++)
10  {
11      if(arr[i]==arr[j])
12          return true;
13  }
```

The bottom panel shows the `TERMINAL` output, which includes the command to compile and run the program, followed by user input for array size and elements, and the resulting output.

```
Q5.java } ; if ($?) { java Q5 }
Enter size of array
5
Enter Elements in array
1
2
3
4
5
false
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { javac
Q5.java } ; if ($?) { java Q5 }
Enter size of array
4
Enter Elements in array
1 2 3 1
true
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA>
```

The status bar at the bottom indicates the current cursor position is at Line 10, Column 14, with 4 spaces, using UTF-8 encoding and CRLF line endings.

Source Code

//Write a program to sort the people according to their height.

```
import java.util.*;

public class Q6 {

    static void Sort(int[] arr , String []str) {

        int n = arr.length;

        int temp = 0; String tmp="";

        for(int i=0; i < n; i++)

        {

            for(int j=1; j < (n-i); j++)

            {

                if(arr[j-1] > arr[j])

                {

                    temp = arr[j-1];

                    tmp = str[j-1];

                    arr[j-1] = arr[j];

                    str[j-1]=str[j];

                    arr[j] = temp;

                    str[j]=tmp;

                }

            }

        }

    }

    public static void main(String args[])

    {

        int n=0;

        Scanner scr = new Scanner(System.in);

        System.out.println("Enter the number of People :");
```

```
n=scr.nextInt();

int height[]= new int[n];
String name[]= new String[n];

for(int i =0; i <n ; i++)
{
    System.out.println("Enter Name of :"+i);
    name[i]=scr.next();
    System.out.println("Enter Height of "+i);
    height[i]=scr.nextInt();
}
Sort(height, name);
for(int i =0; i <n ; i++)
{
    System.out.println(name[i]);
}
scr.close();
}
}
```

Output

```
File Edit Selection View Go Run Terminal Help Q6.java - JAVA - Visual Studio Code
```

```
J Q6.java U X
```

```
J Q6.java > Q6 > main(String[] args) {
```

```
34     String name[] = new String[n];
```

```
35 }
```

```
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL COMMENTS
```

```
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { javac
```

```
Q6.java } ; if ($?) { java Q6 }
```

```
Enter the number of People :
```

```
3
```

```
Enter Name of :0
```

```
Utkarsh
```

```
Enter Height of 0
```

```
172
```

```
Enter Name of :1
```

```
Rohit
```

```
Enter Height of 1
```

```
166
```

```
Enter Name of :2
```

```
Suraj
```

```
Enter Height of 2
```

```
180
```

```
Rohit
```

```
Utkarsh
```

```
Suraj
```

```
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA>
```

```
main*+ 01 21 1 0 Ln 37, Col 10 Spaces: 4 UTF-8 CRLF {} Java
```

```
ENG IN 06:58 PM 13-03-2023
```

Source Code

//Write a program to count pairs of similar Strings

```
import java.util.Scanner;

public class Q7 {

    static boolean IsSimilar(String s1, String s2)

    {
        int arr1[]=new int[26];
        int arr2[]=new int[26];
        int i=0;int temp;
        while(i<s1.length()||i<s2.length())
        {
            if(i<s1.length())
            {
                temp = ((int)s1.charAt(i))-97;
                arr1[temp]++;
            }
            if(i<s2.length())
            {
                temp = ((int)s2.charAt(i))-97;
                arr2[temp]++;
            }
            i++;
        }
        for(i =0; i<26; i++)
        {
            if((arr1[i]>0&&arr2[i]==0)||((arr1[i]==0&&arr2[i]>0))
                return false;
            }
        }
        return true;
    }

    public static void main(String[]args)
```



```

{
    Scanner scr = new Scanner(System.in);
    System.out.println("Enter the Size of array:");
    int n = scr.nextInt();
    String str[] = new String[n];
    System.out.println("Enter "+n+" Strings in array:\n");
    for(int i=0; i<n ;i++)
    {
        str[i]=scr.next();
    }

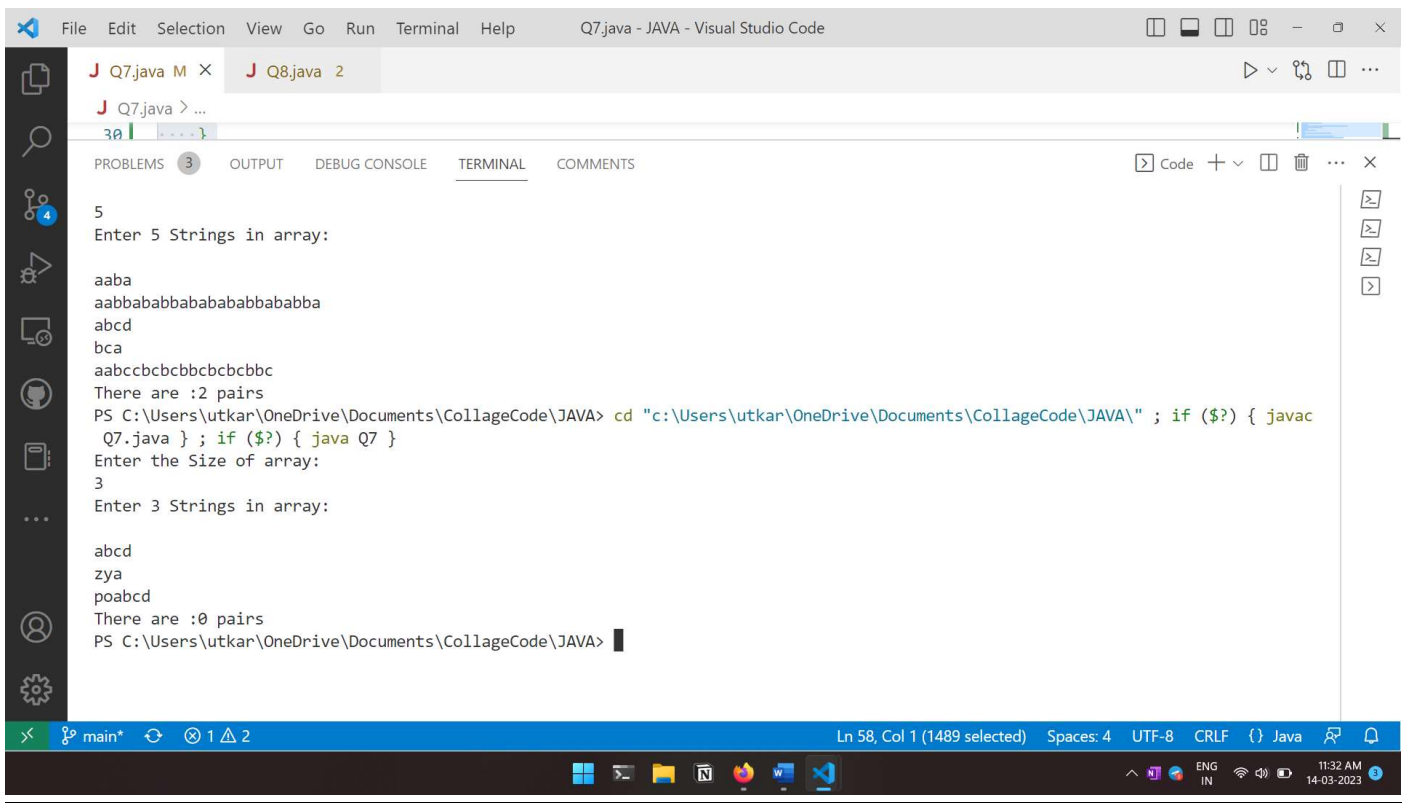
    int pairs=0;

    for(int i=0; i<n ;i++)
    {
        for(int j=i+1; j<n ;j++)
        {
            if(IsSimilar(str[i], str[j]))
                pairs++;
        }
    }
    System.out.println("There are :"+pairs+" pairs");

    scr.close();
}
}

```

Output



The screenshot shows the Visual Studio Code interface with a terminal window open. The terminal displays the output of a Java program. The program prompts the user to enter the size of an array (5) and then 5 strings (aaba, aabbababbabababababababba, abcd, bca, aabccbcbbcbcbcbcbcb). It then prints "There are :2 pairs". The user then enters the size of another array (3) and 3 strings (abcd, zya, poabcd). It prints "There are :0 pairs". The terminal also shows the command prompt (PS) and the directory path (C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA).

```
5
Enter 5 Strings in array:

aaba
aabbababbabababababababba
abcd
bca
aabccbcbbcbcbcbcbcbcb
There are :2 pairs
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { javac
  Q7.java } ; if ($?) { java Q7 }
Enter the Size of array:
3
Enter 3 Strings in array:

abcd
zya
poabcd
There are :0 pairs
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> 
```

Source Code

```
//Write a program to find the missing number

import java.util.Scanner;

public class Q8 {

    public static void main(String[]args)

    {

        Scanner scr = new Scanner(System.in);

        System.out.println("Enter size of array");

        int n =scr.nextInt();

        int arr[]= new int [n];

        int sum=0;

        System.out.println("Enter Elements in array");

        for(int j=0;j<n;j++)

        {

            arr[j]=scr.nextInt();

            sum+=arr[j];

        }

        int len =arr.length;

        int ap = len*(len+1)/2;

        System.out.println("Missing number is : "+ (ap-sum));

        scr.close();

    }

}
```

Output

The screenshot displays the Visual Studio Code interface with a Java file named `Q8.java` open. The code in the editor is as follows:

```
17 .....int len = arr.length;
18 .....int ap = len*(len+1)/2;
19 .....System.out.println("Missing number is : "+ (ap-sum));
20 .....
21 .....scr.close();
22 .....}
```

The `OUTPUT` pane at the bottom shows the execution of the program. It starts with the command prompt path `PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA>` followed by the command `cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if ($?) { javac Q8.java } ; if ($?) { java Q8 }`. The program prompts for the size of the array, which is entered as `2`. It then prompts for elements in the array, which are entered as `0 1`. The output shows `Missing number is : 2`. The process is repeated for an array size of `5` with elements `0 4 2 5 1`, resulting in `Missing number is : 3`.

The status bar at the bottom indicates the current position is `Ln 24, Col 1 (678 selected)` with `Spaces: 4`, `UTF-8` encoding, `CRLF` line endings, and the file is saved. The system clock shows `11:42 AM 14-03-2023`.

Source Code

/*Write a program to move all 0's to the end of it while maintaining the relative order of the non-zero elements*/

```
import java.util.Scanner;

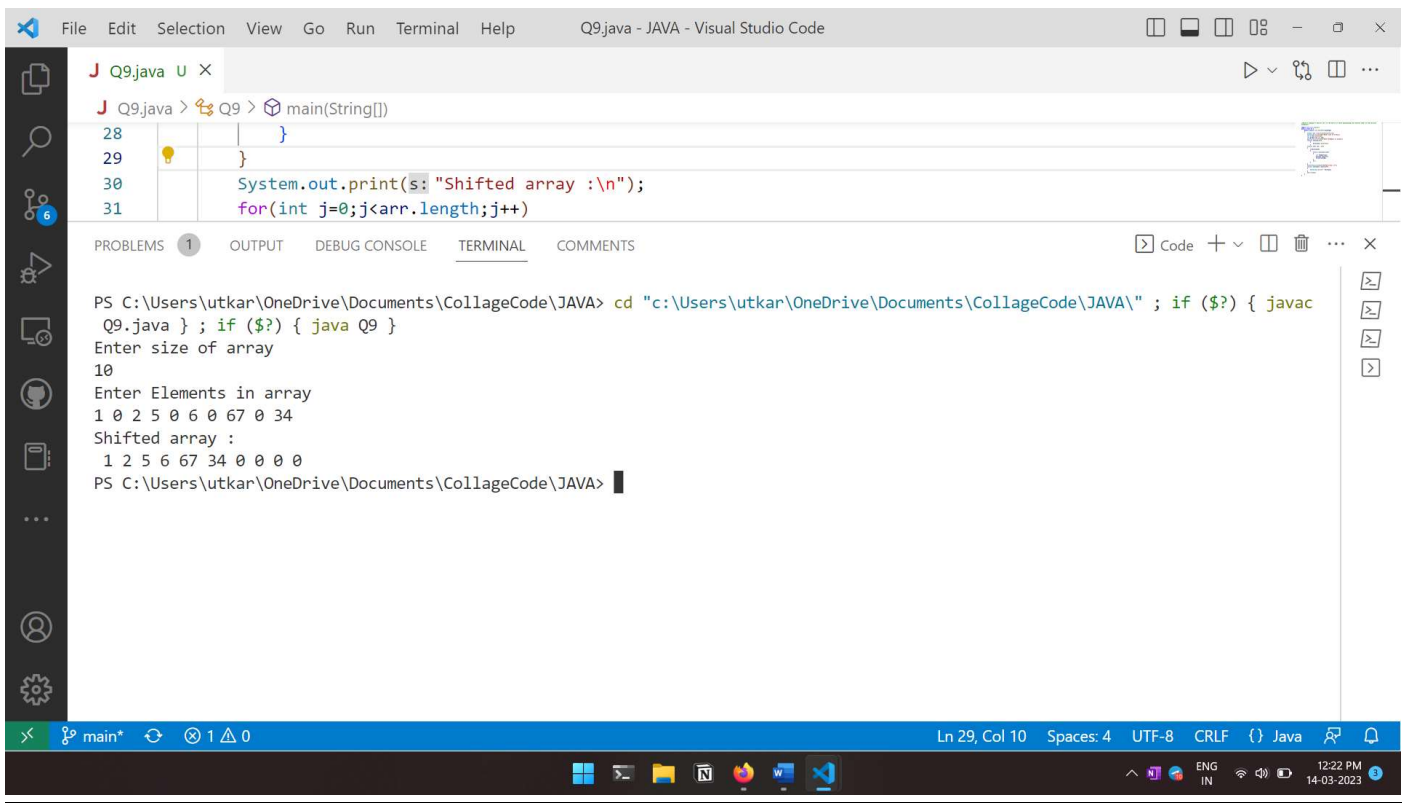
public class Q9 {

    public static void main(String[]args)
    {
        Scanner scr = new Scanner(System.in);
        System.out.println("Enter size of array");
        int n =scr.nextInt();
        int arr[]= new int [n];
        System.out.println("Enter Elements in array");
        for(int j=0;j<n;j++)
        {
            arr[j]=scr.nextInt();
        }
        for(int i=0; i<n ; i++)
        {
            if(arr[i]==0)
            {
                for(int j=i;j<n-1;j++)
                {
                    int temp=arr[j];
                    arr[j]= arr[j+1];
                    arr[j+1]=temp;
                }
                n--;
            }
        }

        System.out.print("Shifted array :\n");
```

```
for(int j=0;j<arr.length;j++)  
{  
    System.out.print(" "+arr[j]);  
}  
scr.close();  
}  
}
```

Output



The screenshot displays the Visual Studio Code interface with a Java file named `Q9.java` open. The code defines a `main` method that prompts the user for an array size and elements, then prints the shifted array. The output window shows the execution results, including the input size (10), the input array (1 0 2 5 0 6 0 67 0 34), and the resulting shifted array (1 2 5 6 67 34 0 0 0 0).

```
Q9.java > Q9 > main(String[])
28     }
29     }
30     System.out.print(s: "Shifted array :\n");
31     for(int j=0;j<arr.length;j++)
```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL COMMENTS

PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA> cd "c:\Users\utkar\OneDrive\Documents\CollageCode\JAVA\" ; if (\$?) { javac Q9.java } ; if (\$?) { java Q9 }

Enter size of array
10
Enter Elements in array
1 0 2 5 0 6 0 67 0 34
Shifted array :
1 2 5 6 67 34 0 0 0 0
PS C:\Users\utkar\OneDrive\Documents\CollageCode\JAVA>

Ln 29, Col 10 Spaces: 4 UTF-8 CRLF {} Java

12:22 PM 14-03-2023