

# IBM Programs & It's Output

## i) WAP to print next to last word of a sentence

A).

```
import java.util.*;
import java.util.Scanner;
import java.io.*;

public class NextToLastWord
{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        String str = scan.nextLine();
        String[] string = str.split(" ");
        System.out.println(string[string.length-2]);
    }
}
```

## Output:-

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\dhanraj.wanjare>cd desktop/Desktop/java/IBM

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>set Path=C:\Program Files\Java\jdk1.8.0_102\bin

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>javac NextToLastWord.java

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>java NextToLastWord
Hi Darling I Love You
Love

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>
```

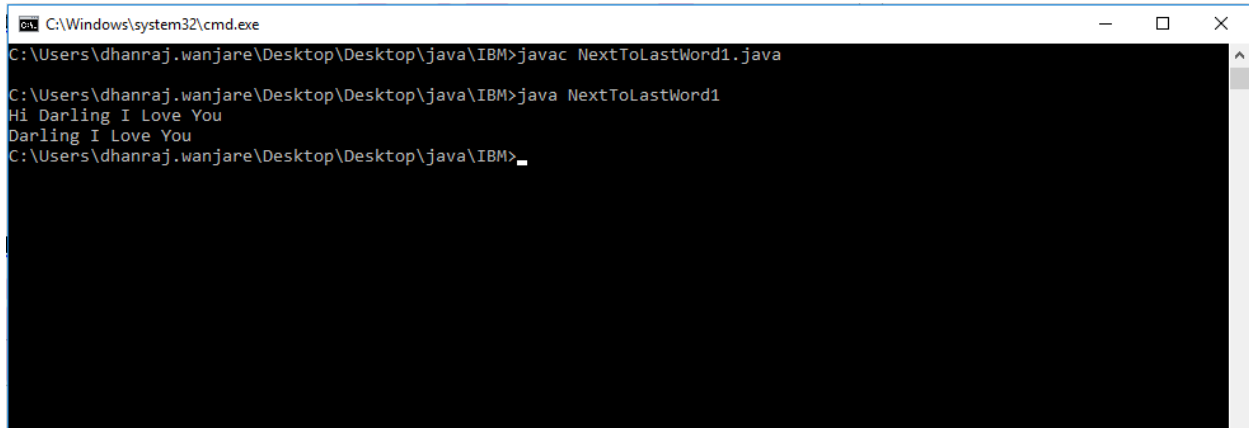
B).

```
import java.util.*;
import java.util.Scanner;
import java.io.*;

public class NextToLastWord1
{
    public static void main(String[] args)
    {
        Scanner scan = new Scanner(System.in);
        String str = scan.nextLine();
        String[] string = str.split(" ");
        for(int i=1;i<string.length;i++)
            System.out.print(string[i]+" ");
    }
}
```

```
}
```

### Output:-



```
C:\Windows\system32\cmd.exe
C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>javac NextToLastWord1.java
C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>java NextToLastWord1
Hi Darling I Love You
Darling I Love You
C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>
```

### ii)WAP to remove the vowels from the input string

A).

```
import java.util.*;
import java.util.Scanner;
import java.io.*;

public class VowelRemove
{
    public static void main(String args[])
    {
```

```
Scanner scan = new Scanner(System.in);

String string, vowelRmvStr;

System.out.print("Enter a String : ");

string = scan.nextLine();

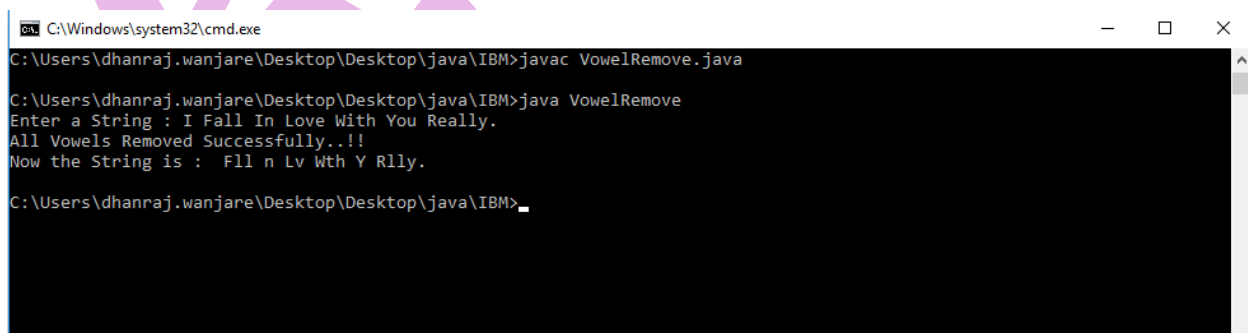

vowelRmvStr = string.replaceAll("[aeiouAEIOU]", "");
//replaceAll(regex pattern, change_string) using regex pattern.


System.out.println("All Vowels Removed Successfully..!!\nNow the String is :
"+vowelRmvStr);

}

}
```

### Output:-



```
C:\Windows\system32\cmd.exe
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>javac VowelRemove.java
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>java VowelRemove
Enter a String : I Fall In Love With You Really.
All Vowels Removed Successfully..!!
Now the String is : Fll n Lv Wth Y Rlly.
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>
```

B).

```
import java.util.*;

class RemoveVowels
{
    public static void main(String args[])
    {
        System.out.print("Please Enter the Sentence :");

        Scanner scan=new Scanner(System.in);
        String word=scan.nextLine();
        char[] array=word.toLowerCase().toCharArray();
        char array2[]=new char[100];
        int j=0;
        for(int i=0;i<array.length;i++)
        {
            if(array[i]=='a' || array[i]=='e' || array[i]=='i' || array[i]=='o'
|| array[i]=='u')
            {
                continue;
            }
            else
            {
                array2[j]=array[i];
                j++;
            }
        }
    }
}
```

```

    }
}

System.out.print("After Removeing Vowels from a Sentence
:");

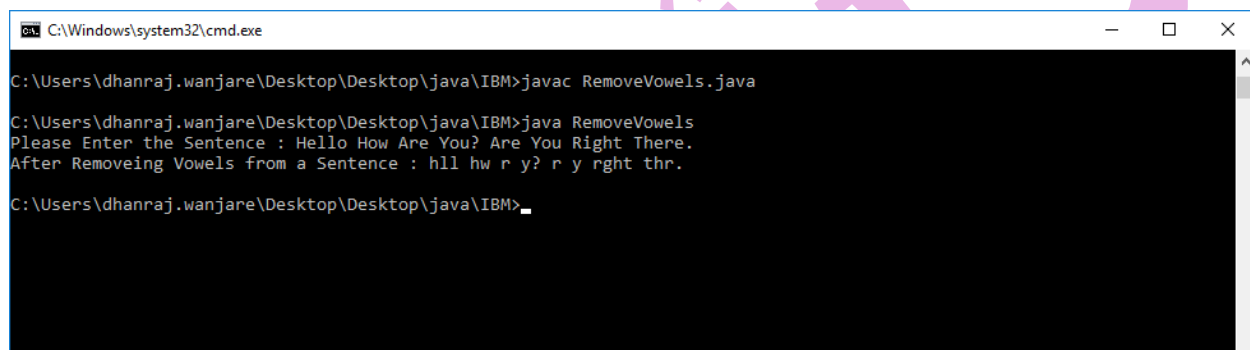
System.out.print(array2);

}

}

```

### Output:-



```

C:\Windows\system32\cmd.exe
C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>javac RemoveVowels.java
C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>java RemoveVowels
Please Enter the Sentence : Hello How Are You? Are You Right There.
After Removeing Vowels from a Sentence : hll hw r y? r y rght thr.
C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>

```

### C). **Without using Any In-built method.**

```

import java.util.*;

class RemoveVowels
{
    public static void main(String args[])
    {
        System.out.print("Please Enter the Sentence : ");
    }
}

```

```

Scanner scan=new Scanner(System.in);

String word=scan.nextLine();

char[] array=word.toCharArray();

char array2[]=new char[100];

int j=0;

for(int i=0;i<array.length;i++)
{
    if(array[i]=='a' || array[i]=='e' || array[i]=='i' || array[i]=='o'
|| array[i]=='u' || array[i]=='A' || array[i]=='E' || array[i]=='I' || array[i]=='O' ||
array[i]=='U')
    {
        continue;
    }
    else
    {
        array2[j]=array[i];
        j++;
    }
}

System.out.print("After Removeing Vowels from a Sentence
:");

System.out.print(array2);

}

}

```

## Output:-

```
C:\Windows\system32\cmd.exe

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>javac RemoveVowels.java

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>java RemoveVowels
Please Enter the Sentence : Hello How Are You? Are You Right There.
After Removeing Vowels from a Sentence : Hll Hw r Y? r Y Rght Thr.

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>_
```

## iii) WAP a Program that moves characters in n steps to the next character

A).

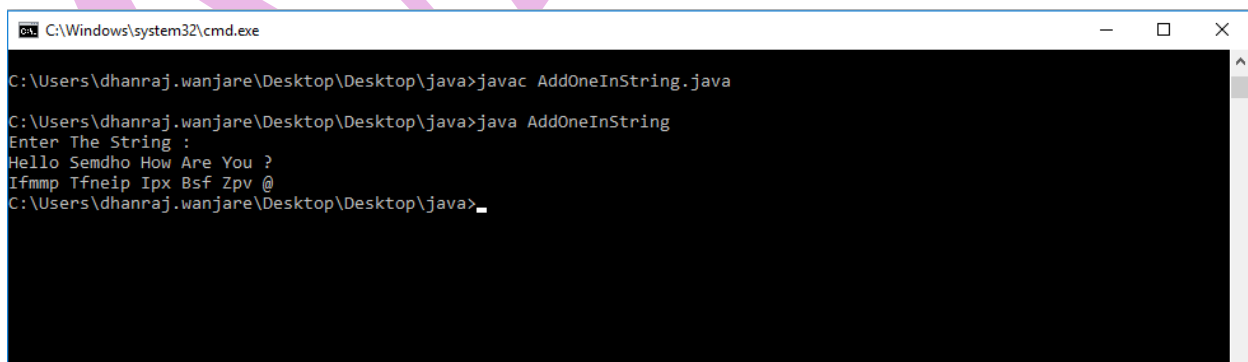
```
import java.util.*;
import java.io.*;

class AddOneInString
{
    public static void main(String args[])
    {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter The String : ");
```



```
String str = scan.nextLine();  
char[] array = str.toCharArray();  
for (char c : array)  
{  
    if(c != ' ')  
        c = (char) (c + 1);  
    System.out.print(c);  
}  
}
```

Output:-



```
C:\Windows\system32\cmd.exe  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java>javac AddOneInString.java  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java>java AddOneInString  
Enter The String :  
Hello Semdho How Are You ?  
Ifmmp Tfneip Ipx Bsf Zpv @  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java>
```

**iv) WAP to convert uppercase to lower case and vice versa of a given string or sentence.**

**A).**

```
import java.io.*;
```

```
class CaseChange
```

```
{
```

```
    static String n;
```

```
    static int l;
```

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

```
    {
```

```
        BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
```

```
        System.out.print("Enter a String : ");
```

```
        n = br.readLine();
```

```
        l = n.length();
```

```
        changeCase();
```

```
    }
```

```
    public static void changeCase()
```

```
    {
```

```
        char c;
```

```
        String b = "";
```

```
        for(int i=0;i<l;i++)
```

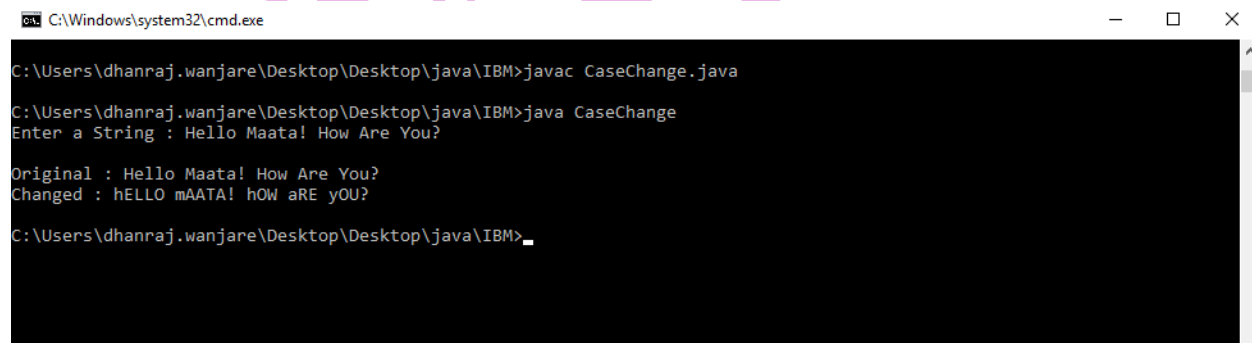
```
        {
```

```
            c = n.charAt(i);
```

```
            if(c>=65 && c<=90)
```

```
        b+=(char)(c+32);
    else if(c>=97 && c<=122)
        b+=(char)(c-32);
    else
        b+=c;
}
System.out.println("\nOriginal : " +n);
System.out.println("Changed : " +b);
}
}
```

### Output:-



```
C:\Windows\system32\cmd.exe
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>javac CaseChange.java
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>java CaseChange
Enter a String : Hello Maata! How Are You?

Original : Hello Maata! How Are You?
Changed : hELLO mAATA! hOW aRE yOU?
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>
```

**v) WAP to print the reverse.**

## A). Reverse Array.

```
import java.io.*;
import java.util.*;

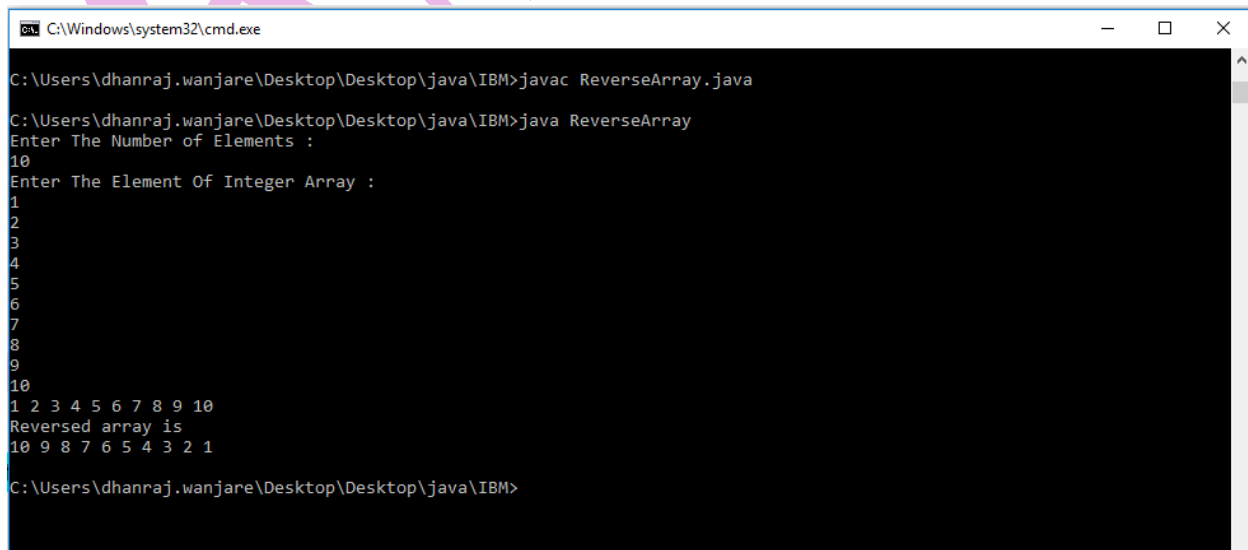
class ReverseArray
{
    static void rvereseArray(int arr[], int start, int end)
    {
        int temp;
        if (start >= end)
            return;

        temp = arr[start];
        arr[start] = arr[end];
        arr[end] = temp;
        rvereseArray(arr, start+1, end-1);
    }

    static void printArray(int arr[], int size)
    {
        int i;
        for (i=0; i < size; i++)
            System.out.print(arr[i] + " ");
        System.out.println("");
    }
}
```

```
public static void main (String[] args)
{
    Scanner scan = new Scanner(System.in);
    System.out.println("Enter The Number of Elements : ");
    int n = scan.nextInt();
    System.out.println("Enter The Element Of Integer Array : ");
    int arr[] = new int[n];
    for(int i=0;i<n;i++)
    {
        arr[i]=scan.nextInt();
    }
    printArray(arr, n);
    rverseArray(arr, 0, n-1);
    System.out.println("Reversed array is ");
    printArray(arr, n);
}
}
```

Output:-



```
C:\Windows\system32\cmd.exe
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>javac ReverseArray.java
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>java ReverseArray
Enter The Number of Elements :
10
Enter The Element Of Integer Array :
1
2
3
4
5
6
7
8
9
10
1 2 3 4 5 6 7 8 9 10
Reversed array is
10 9 8 7 6 5 4 3 2 1
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>
```

## B). Reverse Number & String.

```
import java.util.*;
```

```
public class RevNumString
```

```
{
```

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

```
    {
```

```
        Scanner scanner = new Scanner(System.in);
```

```
        System.out.println("Please enter a number: ");
```

```
        int num = scanner.nextInt();
```

```
        System.out.println("Please enter a string: ");
```

```
        String str1 = scanner.nextLine();
```

```
        String str = scanner.nextLine();
```

```
        RevNumString rns = new RevNumString();
```

```
        int revNum = rns.reverse(num);
```

```
        String revStr = rns.reverse(str);
```

```
        System.out.printf("\n The reverse of number is : \"%d\" ",revNum);
```

```
        System.out.printf("\n The reverse of string is : \"%s\" ",revStr);
```

```
    }
```

```
// Method to return the reverse of a number
```

```
public int reverse(int num)
```

```
{
```

```

    int revNum = 0;
    while (num > 0)
    {
        int rem = num % 10;
        revNum = (revNum * 10) + rem;
        num = num / 10;
    }
    return revNum;
}

// Method to return the reverse of a string
public String reverse(String str)
{
    StringBuilder revStr = new StringBuilder();
    for (int i = str.length()-1; i >= 0; i--)
    {
        revStr.append(str.charAt(i));
    }
    return revStr.toString();
}
}

```

**Output:-**

```

C:\Windows\system32\cmd.exe
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>javac RevNumString.java
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>java RevNumString
Please enter a number:
1234567890
Please enter a string:
Some Peoples Talk So Much! After That They Are Loveable.

The reverse of number is :  "987654321"
The reverse of string is :  ".elbaevOl erA yehT tahT retfA !hcuM oS klaT selpoeP emos"
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>_

```

### C). Reverse Words.

```
import java.util.*;
import java.io.*;

class StringRev
{
    public static void main(String args[]){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter The String :");
        String str = scan.nextLine();
        String temp = "";
        String finalString = "";
        for(int i =str.length()-1;i>=0;i--){
            {
                temp +=i!=0?str.charAt(i):str.charAt(i)+" ";
                if(str.charAt(i) == ' ' || i==0)
                {
                    for(int j=temp.length()-1;j>=0;j--){
                        {
                            finalString += temp.charAt(j);
                        }
                    }
                    temp = "";
                }
            }
        }
        System.out.println(finalString);
    }
}
```



## Output:-

```
C:\Windows\system32\cmd.exe

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>javac StringRev.java

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>java StringRev
Enter The String :
Hey Smile Please! There is no tax for smile.
smile. for tax no is There Please! Smile Hey

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>_
```

## D). 2<sup>nd</sup> Reverse Words.

```
import java.util.*;
import java.io.*;

class StringRev2{
    public static void main(String args[])
    {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter The String :");
        String str[] = scan.nextLine().split(" ");
        String finalStr="";
        for(int i = str.length-1; i>= 0 ;i--)
        {
            finalStr += str[i]+" ";
        }
        System.out.println(finalStr);
    }
}
```

## Output:-

```
C:\Windows\system32\cmd.exe

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>javac StringRev2.java

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>java StringRev2
Enter The String :
Hey see down, & laugh.
laugh. & down, see Hey

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>java StringRev2
Enter The String :
teju ke papa ke jute
jute ke papa ke teju

C:\Users\dhanraj.wanjare\Desktop\Desktop\java\IBM>
```

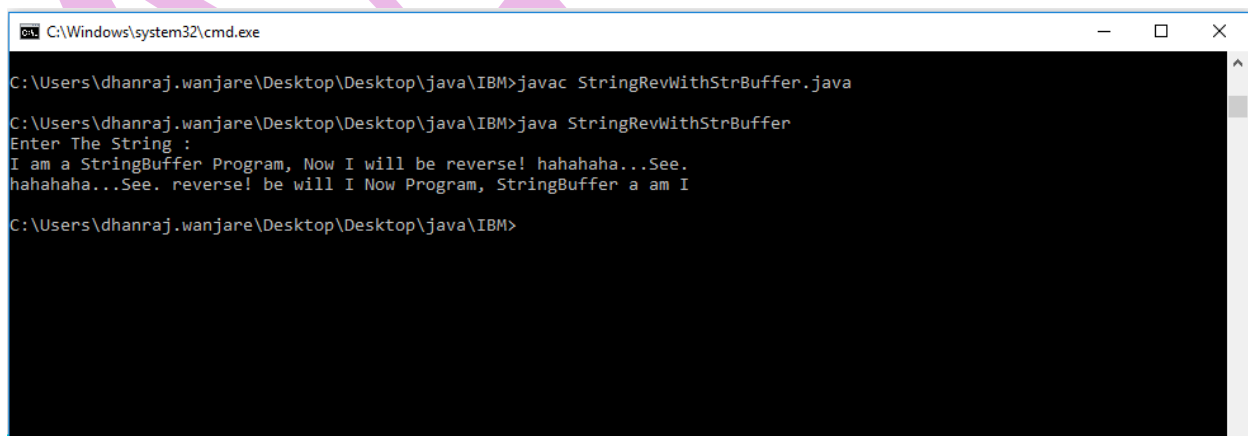
## E). 3<sup>rd</sup> Reverse Words Using StringBuffer.

```
import java.util.*;
import java.io.*;

class StringRevWithStrBuffer
{
    public static void main(String args[])
    {
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter The String :");
        String str = scan.nextLine();
        String rvsString = reverseWords(str);
        System.out.println(rvsString);
    }
}
```

```
}  
  
public static String reverseWords(String sentence)  
{  
  
    StringBuilder sb = new StringBuilder(sentence.length() + 1);  
    String[] words = sentence.split(" ");  
    for (int i = words.length - 1; i >= 0; i--)  
    {  
        sb.append(words[i]).append(' ');  
    }  
    sb.setLength(sb.length() - 1); // Strip trailing space  
    return sb.toString();  
}  
}
```

Output:-



```
C:\Windows\system32\cmd.exe  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>javac StringRevWithStrBuffer.java  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>java StringRevWithStrBuffer  
Enter The String :  
I am a StringBuffer Program, Now I will be reverse! hahahaha...See.  
hahahaha...See. reverse! be will I Now Program, StringBuffer a am I  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>
```

vi) WAP to print the desired character from a string or search a char in a string

A). Find number of character occurrences in String.

```
import java.util.Scanner;
```

```
public class CountCharacters
```

```
{
```

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

```
    {
```

```
        Scanner in = new Scanner(System.in);
```

```
        char letter;
```

```
        String sentence = "";
```

```
        System.out.println("Enter the string : ");
```

```
        sentence = in.nextLine();
```

```
        System.out.println("Enter a character for which to search");
```

```
        letter = in.next().charAt(0);
```

```
        int count = 0;
```

```
        for (int i = 0; i < sentence.length(); i++)
```

```
        {
```

```
            char ch = sentence.charAt(i);
```

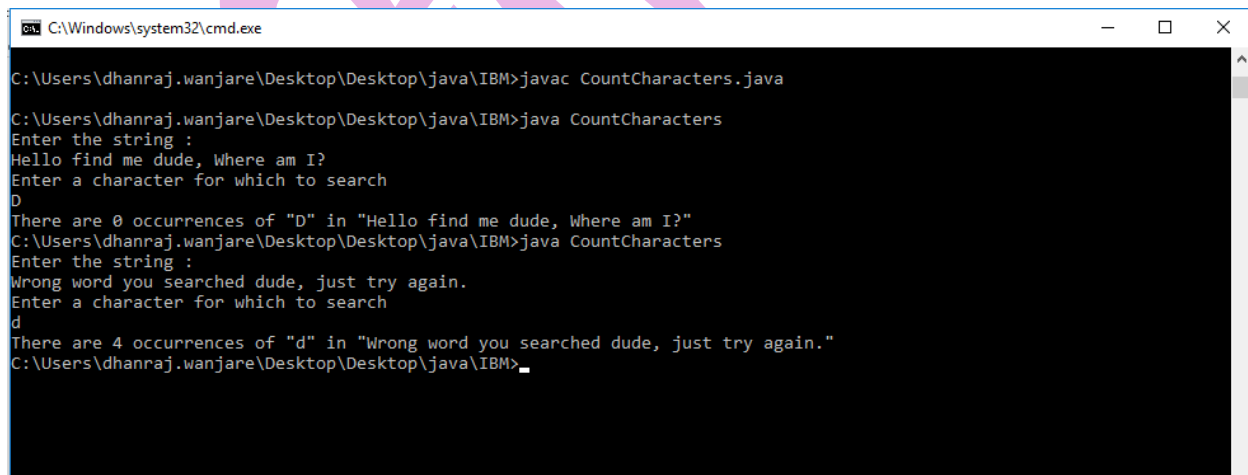
```
        if (ch == letter)
        {
            count++;
        }
    }

    System.out.printf("There are %d occurrences of \"%s\" in \"%s\\",
count, letter, sentence);

}

}
```

### Output:-



```
C:\Windows\system32\cmd.exe
C:\Users\dhannraj.wanjare\Desktop\Desktop\java\IBM>javac CountCharacters.java
C:\Users\dhannraj.wanjare\Desktop\Desktop\java\IBM>java CountCharacters
Enter the string :
Hello find me dude, Where am I?
Enter a character for which to search
D
There are 0 occurrences of "D" in "Hello find me dude, Where am I?"
C:\Users\dhannraj.wanjare\Desktop\Desktop\java\IBM>java CountCharacters
Enter the string :
Wrong word you searched dude, just try again.
Enter a character for which to search
d
There are 4 occurrences of "d" in "Wrong word you searched dude, just try again."
C:\Users\dhannraj.wanjare\Desktop\Desktop\java\IBM>
```

B).

```
import java.util.Scanner;
```

```
import java.io.*;
```

```
public class CountCharacters2
```

```
{
```

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

```
    {
```

```
        Scanner in = new Scanner(System.in);
```

```
        System.out.println("Enter the string :");
```

```
        String sentence = in.nextLine();
```

```
        System.out.println("Enter a character for which to search");
```

```
        String string = in.next();
```

```
        int j=0,letter=0;
```

```
        for (int i = 0; i < sentence.length(); i++)
```

```
        {
```

```
            char searchLet=string.charAt(j);
```

```
            char ch = sentence.charAt(i);
```

```
            if (searchLet== ch)
```

```
            {
```

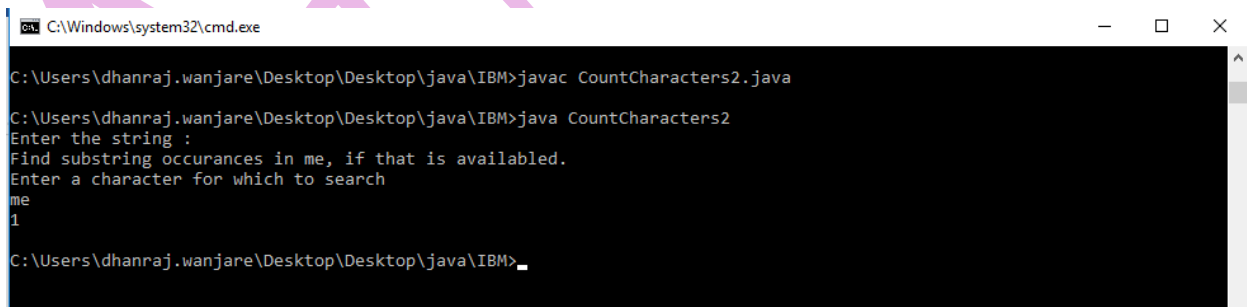
```
                // Check the occurrence of desired letter.
```

```
                j++;
```

```
                if(j==string.length()-1)
```

```
        {  
            letter++;  
            j=0;  
        }  
    }  
    else  
        j=0;  
}  
  
System.out.println(letter);  
}  
}
```

**Output:-**



```
C:\Windows\system32\cmd.exe  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>javac CountCharacters2.java  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>java CountCharacters2  
Enter the string :  
Find substring occurrences in me, if that is available.  
Enter a character for which to search  
me  
1  
C:\Users\ghanraj.wanjare\Desktop\Desktop\java\IBM>_
```

**Name :- Dhanraj Wanjare**

**Email :- drwanjareafnt@gmail.com**

**Contact :- 8989413284.**