**JAVA PROGRAM**

**DAY 4:ASSIGNMENT**

**1. Palindrome Check**

Problem: Check if a string is a palindrome.

Input Format: A single string (no spaces)

Output Format: "Palindrome" or "Not Palindrome"

Constraints: 1 <= length <= 1000

Sample Input:

madam

Sample Output:

Palindrome

**SOLN:**

**package** java1;

**import** java.util.\*;

**public** **class** String {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

String str=sc.nextLine();

String temp="";

**for**(**int** i=str.length()-1;i>=0;i--)

{

temp+=str.charAt(i);

}

**if**(str.equals(temp))

{

System.***out***.println(temp +" It is a palindrome");

}

**else**

{

System.***out***.println(temp+" It is not a palindrome");

}

}

}

1. **Count Vowels and Consonants**

Problem: Count the number of vowels and consonants in the input string.

Input Format: A single line containing a string (may have spaces)

Output Format: Vowels: X, Consonants: Y

Constraints: Input will only contain alphabetic characters and spaces

Sample Input:

Java Programming

Sample Output:

Vowels: 5, Consonants: 10

**package** Practice;

**import** java.util.\*;

**public** **class** String {

**public** **static** **void** main(java.lang.String[] args) {

Scanner sc=**new** Scanner(System.***in***);

**int** total1=0;

**int** total2=0;

java.lang.String s1=sc.nextLine();

**for**(**int** i=0;i<s1.length();i++)

{

**char** c=s1.charAt(i);

**if**(c=='a'||c=='e'||c=='i'||c=='o'||c=='u')

{

total1++;

}

**else**

{

total2++;

}

}

System.***out***.println("Vowel: "+total1 );

System.***out***.println("Consonant: "+total2);

}}

**3. Remove Duplicates**

Problem: Remove all duplicate characters from a string while preserving order.

Input Format: A single string

Output Format: A string with duplicates removed

Constraints: Lowercase letters only

Sample Input:

programming

Sample Output:

Progamin

**Soln:**

**package** Practice;

**import** java.util.\*;

**public** **class** String {

**public** **static** **void** main(java.lang.String[] args) {

Scanner sc=**new** Scanner(System.***in***);

java.lang.String s1=sc.nextLine();

java.lang.String result="";

**for**(**int** i=0;i<s1.length();i++)

{

**char** c=s1.charAt(i);

**if**(result.indexOf(c)==-1)

{

result+=c;

}

}

System.***out***.println(result);

}

}

**4. Reverse a String Using StringBuilder**

Problem: Reverse the input string using StringBuilder.

Input Format: A single string

Output Format: Reversed string

Constraints: 1 <= length <= 1000

Sample Input:

Hello

Sample Output:

olleH

Soln:

**package** Practice;

**import** java.util.\*;

**public** **class** String {

**public** **static** **void** main(java.lang.String[] args) {

StringBuffer sb=**new** StringBuffer("Hello");

System.***out***.println(sb.reverse());

}}

**5. Anagram Check**

Problem: Check if two strings are anagrams of each other.

Input Format: Two strings on separate lines

Output Format: “Anagrams”or “Not Anagrams”

Constraints: Only lowercase letters, no spaces

Sample Input:

listen\nsilent

Sample Output:

Anagrams

**Soln:**

**package** Practice;

**import** java.util.\*;

**public** **class** String {

**public** **static** **void** main(java.lang.String[] args) {

java.lang.String s1=sc.nextLine();

java.lang.String s2=sc.nextLine();

**if**(s1.length()!=s2.length())

{

**return** ;

}

**char**[] c1=s1.toCharArray();

**char**[] c2=s2.toCharArray();

Arrays.*sort*(c1);

Arrays.*sort*(c2);

**if**(Arrays.*equals*(c1, c2))

{

System.***out***.println("Anagrams");

}

**else**

{

System.***out***.println("Not Anagrams");

}

}

}

**6. Capitalize First Letter of Each Word**

Problem: Capitalize the first letter of every word in a sentence.

Input Format: A sentence (multiple words)

Output Format: Sentence with each word capitalized

Constraints: Input contains only lowercase letters and spaces

Sample Input:

java is fun

Sample Output:

Java Is Fun

**Soln:**

import java.util.Scanner;

public class Main

{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter your sentence:");

String str = sc.nextLine();

String result = "";

boolean capital = true;

for (int i = 0; i < str.length(); i++) {

char c = str.charAt(i);

if (c == ' ') {

result += c;

capital = true;

} else if (capital) {

result += Character.toUpperCase(c);

capital = false;

} else {

result += c;

}

}

System.out.println("Output: " + result);

}

}

**7. Count Word Occurrences**

**Problem: Count how many times a given word appears in the sentence.**

Input Format: First line: Sentence

Second line: Word to search

Output Format: An integer (count)

Constraints: Case-sensitive match

Sample Input:

Java is simple. Java is powerful.\nJava

Sample Output:

2

**Program:**

import java.util.Scanner;

public class Main

{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

String Sentence=sc.nextLine();

String word=sc.nextLine();

Sentence=Sentence.toLowerCase();

word=word.toLowerCase();

String[] words=Sentence.split(" ");

int count=0;

for(String w:words)

{

w=w.replaceAll("[^a-z]", " ");

if(w.equals(word))

{

count++;

}

}

System.out.println(count);

}

}

**8. Toggle Case**

Problem: Convert lowercase letters to uppercase and vice versa.

Input Format: A single string

Output Format: The toggled string

Constraints: Input contains only alphabetic characters

Sample Input:

HeLLo

Sample Output:

hEllO

**Soln:**

import java.util.Scanner;

public class Main

{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

String s1=sc.nextLine();

String result="";

for(int i=0;i<s1.length();i++)

{

char c=s1.charAt(i);

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

{

result+=Character.toLowerCase(c);

}

else

{

result+=Character.toUpperCase(c);

}

}

System.out.println(result);

}

}