# Experiment-1

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## 1. Aim:

To analyze a user-input string by counting the number of vowels, consonants, digits, and special characters.

## 2. Objective

To understand string manipulation in Java.
To practice traversing strings and applying conditions.
To differentiate between alphabets, digits, and special characters.
To apply character classification in a real-world use case.
To develop logic-building skills in Java programming.

## 3. Procedure

Step1: Prompt the user to enter a string.
Step2: Traverse each character in the string.
Step3: Classify each character using conditions:
- If the character is a vowel (a, e, i, o, u), increment the vowel count.
- If it is a consonant (alphabetic and not a vowel), increment the consonant count.
- If it is a digit (0–9), increment the digit count.
- If it is none of the above and not a space, it is a special character.

Step4: Print the counts of vowels, consonants, digits, and special characters.

**4. JAVA Script :**

```
import java.util.Scanner;

public class Main {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter a string: ");
      String str = sc.nextLine();

      int vowels = 0, consonants = 0, digits = 0, specialChars = 0;

      str = str.toLowerCase();
      for (int i = 0; i < str.length(); i++) {
         char ch = str.charAt(i);

         if (ch >= 'a' && ch <= 'z') {
            if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u')
               vowels++;
            else
               consonants++;
         } else if (ch >= '0' && ch <= '9') {
            digits++;
         } else if (ch != ' ') {
            specialChars++;
         }
      }

      System.out.println("Vowels: " + vowels);
      System.out.println("Consonants: " + consonants);
      System.out.println("Digits: " + digits);
      System.out.println("Special Characters: " + specialChars);
   }
}
```

## 5. Output:

```
Enter a string: Manjot@2025
Vowels: 2
Consonants: 4
Digits: 4
Special Characters: 1

Process finished with exit code 0
```

## 6. Learning Outcomes:

- Successfully implemented string manipulation in Java.
- Gained practical knowledge of character classification.
- Developed understanding of loops and conditions.
- Practiced handling mixed input with letters, numbers, and special symbols.
- Enhanced problem-solving skills in Java programming.