



## Lab 7 : Strings

### Exercise 1:

Write a program that asks the user to enter a string of characters and displays the most frequent letter (lowercase or uppercase).

#### Example output:

```
Enter a string of characters: this is a strings of characters
The most frequent letter is s (5 times)
```

### Exercise 2:

Write a C program that finds the longest and shortest words in a string of characters entered by the user.

#### Example output:

```
Enter a string of characters: code to manipulate strings
The shortest word is: to (2 characters)
The longest word is: manipulate (10 characters)
```

### Exercise 3:

Write a C program that reads two strings of characters and removes all common letters.

#### Example output:

```
Enter the 1st string of characters: shoping
Enter the 2nd string of characters: books
The strings without the common letters: hping bok
```

### Exercise 4:

A string of characters containing delimiters '(', ')', '{', '}', '[', and ']', is considered valid if the number of opening delimiters is equal to the number of closing delimiters of the same type.

Write a C program that checks if a string of characters entered by the user is valid or not.

**Example :** the string "{ printf(T[ i ] ) ; }" is valide

### Exercise 5:

Write a C function that replaces the sequence of characters word1 in a string of characters S with the sequence word2. S, word1, and word2 are received as parameters.

#### Example:

```
S = "hqab ab jkl"
word1 = "ab"
word2 = "zer"
The function must return the sequence:
S = "hqzer zer jkl"
```

Verify that your function also handles the case of word2 = "abc" for this example.

**Exercise 6:**

Write a C program with the following functions:

- A function to read a list of N strings. The strings must occupy just the necessary size in memory.
- A function to display a list of N strings.
- A function to sort (bubble sort algorithm) a list of N strings.
- Use your functions in a main program to read, sort, and display a list of N strings entered by the user. N is given by the user.

Example:

```
Give the number of strings to read : 5
give string 1 : One
give string 2 : Two
give string 3 : Three
give string 4 : Four
give string 5 : Five
La liste triée
Five    Four    One    Three    Two
```