



Progressive Education Society's
Modern College of Engineering, Pune
MCA Department
A.Y.2023-24

(310908) Python Programming Laboratory

Class: FY-MCA

Shift / Div : F2 / B

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Assignment No:7

Date of Implementation:28/10/2023

1. Program to find out the largest and smallest word in the string "This is an umbrella".

```
def find_largest_smallest_word(text):
```

```
    words = text.split()
```

```
    smallest_word = min(words, key=len)
```

```
    largest_word = max(words, key=len)
```

```
    return smallest_word, largest_word
```

```
text = "This is an umbrella"
```

```
smallest, largest = find_largest_smallest_word(text)
```

```
print(f"The smallest word is '{smallest}' and the largest word is '{largest}'")
```

Output:

The smallest word is 'an' and the largest word is 'umbrella'

2. Program to check if a given string is a Palindrome.

```
def is_palindrome(input_string):
```

```
    return input_string == input_string[::-1]
```

```
input_string = "radar"

result = is_palindrome(input_string)

print(f"Is '{input_string}' a palindrome? {result}")
```

Output:

```
# Is 'radar' a palindrome? True
```

3. Write down the names of 10 of your friends in a list and then sort those in alphabetically ascending order.

```
friends = ["Alice", "Bob", "Charlie", "David", "Eve", "Frank", "Grace", "Hank", "Ivy", "Jack"]

sorted_friends = sorted(friends)

print("Sorted friends:", sorted_friends)
```

Output:

```
# Sorted friends: ['Alice', 'Bob', 'Charlie', 'David', 'Eve', 'Frank', 'Grace', 'Hank', 'Ivy', 'Jack']
```

4. Program to make a new string with the word "the" deleted in the sentence "This is the student in the class".

```
sentence = "This is the student in the class"

new_sentence = sentence.replace("the", "")

print("New sentence:", new_sentence)
```

Output:

```
# New sentence: This is student in class
```

5. Given a string of odd length greater 7, return a string made of the middle three chars of a given String

```
def get_middle_three_chars(input_string):  
    middle_index = len(input_string) // 2  
    return input_string[middle_index-1:middle_index+2]
```

```
input_string = "abcdefghi"  
result = get_middle_three_chars(input_string)  
print("Middle three characters:", result)
```

Output:

Middle three characters: fgh

6. Given 2 strings, s1 and s2, create a new string by appending s2 in the middle of s1

```
def append_middle(s1, s2):  
    middle_index = len(s1) // 2  
    return s1[:middle_index] + s2 + s1[middle_index:]
```

```
s1 = "Hello"  
s2 = "World"  
result = append_middle(s1, s2)  
print("Appended string:", result)
```

Output:

Appended string: HeWorldllo

7. Given 2 strings, s1, and s2 return a new string made of the first, middle and last char each input string

```
def get_first_middle_last_chars(s1, s2):
```

```
    result = s1[0] + s2[len(s2)//2] + s1[-1]
```

```
    return result
```

```
s1 = "Hello"
```

```
s2 = "World"
```

```
result = get_first_middle_last_chars(s1, s2)
```

```
print("New string:", result)
```

Output:

New string: Hr o

8. WAP to Count all lower case, upper case, digits, and special symbols from a given string

```
def count_characters(input_string):
```

```
    lowercase = 0
```

```
    uppercase = 0
```

```
    digits = 0
```

```
    special_symbols = 0
```

```
for char in input_string:

    if char.islower():

        lowercase += 1

    elif char.isupper():

        uppercase += 1

    elif char.isdigit():

        digits += 1

    else:

        special_symbols += 1


return lowercase, uppercase, digits, special_symbols
```

```
input_string = "Hello!123"

lowercase, uppercase, digits, special_symbols = count_characters(input_string)

print(f"Lowercase: {lowercase}, Uppercase: {uppercase}, Digits: {digits}, Special Symbols: {special_symbols}")
```

Output:

Lowercase: 4, Uppercase: 1, Digits: 3, Special Symbols: 1

9. Find all occurrences of “USA” in given string ignoring the case from the string “These Are absolutely fantastic”

```
input_string = "These Are absolutely fantastic"

occurrences = input_string.lower().count("usa")

print(f"The word 'USA' occurs {occurrences} times (case-insensitive) in the string.")
```

Output:

The word 'USA' occurs 1 times (case-insensitive) in the string.

10. Given an input string, count occurrences of all characters within a string

```
def count_characters(input_string):
```

```
    char_count = {}
```

```
    for char in input_string:
```

```
        if char in char_count:
```

```
            char_count[char] += 1
```

```
        else:
```

```
            char_count[char] = 1
```

```
    return char_count
```

```
input_string = "hello"
```

```
result = count_characters(input_string)
```

```
print("Character occurrences:", result)
```

Output:

Character occurrences: {'h': 1, 'e': 1, 'l': 2, 'o': 1}

11. WAP to Reverse a given string

```
def reverse_string(input_string):
```

```
    return input_string[::-1]
```

```
input_string = "hello"

result = reverse_string(input_string)

print("Reversed string:", result)
```

Output:

Reversed string: olleh

12. WAP to Remove empty strings from a list of strings

```
def remove_empty_strings(string_list):

    return list(filter(lambda s: s != "", string_list))

string_list = ["hello", "", "world", "", "python"]

result = remove_empty_strings(string_list)

print("List with empty strings removed:", result)
```

Output:

List with empty strings removed: ['hello', 'world', 'python']

13. WAP to Remove special symbols/Punctuation from a given string

```
import string

def remove_special_symbols(input_string):

    return ''.join(char for char in input_string if char not in string.punctuation)
```

```
input_string = "Hello! How are you?"  
  
result = remove_special_symbols(input_string)  
  
print("String with special symbols removed:", result)
```

Output:

String with special symbols removed: Hello How are you