**Assignment No.A(3)**

**Write a Python program to compute following operations on String:**

**Task 1 - To display word with the longest length**

**Code ---**

def longest\_word(sentence):

# Split the sentence into words

words = sentence.split()

# Find the longest word

longest = max(words, key=len)

return longest

# Example usage

sentence = input("Enter a sentence: ")

result = longest\_word(sentence)

print(f"The longest word is: {result}")

**Task 2- To determines the frequency of occurrence of particular character in the string**

**Code ----**

def char\_frequency(string, char):

# Use the count() method to get the frequency of the character

frequency = string.count(char)

return frequency

# Example usage

string = input("Enter a string: ")

char = input("Enter the character to find its frequency: ")

result = char\_frequency(string, char)

print(f"The character '{char}' appears {result} time(s) in the string.")

**Task 3 -- To check whether given string is palindrome or not**

**Code –**

def is\_palindrome(string):

# Convert the string to lowercase and remove spaces for accurate comparison

cleaned\_string = string.replace(" ", "").lower()

# Check if the string is the same when reversed

return cleaned\_string == cleaned\_string[::-1]

# Example usage

string = input("Enter a string: ")

if is\_palindrome(string):

print(f"'{string}' is a palindrome.")

else:

print(f"'{string}' is not a palindrome.")

**Task 4 -- To display index of first appearance of the substring**

**Code ---**

def find\_substring\_index(main\_string, substring):

# Use the find() method to get the index of the first appearance of the substring

index = main\_string.find(substring)

if index != -1:

return index

else:

return "Substring not found"

# Example usage

main\_string = input("Enter the main string: ")

substring = input("Enter the substring to search for: ")

result = find\_substring\_index(main\_string, substring)

print(f"The first appearance of the substring '{substring}' is at index: {result}")

**Task 5 -- To count the occurrences of each word in a given string**

**Code –**

def count\_word\_occurrences(sentence):

# Convert the sentence to lowercase and split it into words

words = sentence.lower().split()

# Create an empty dictionary to store the word counts

word\_count = {}

# Iterate through each word in the sentence

for word in words:

# If the word is already in the dictionary, increment its count

if word in word\_count:

word\_count[word] += 1

# Otherwise, add the word to the dictionary with a count of 1

else:

word\_count[word] = 1

return word\_count

# Example usage

sentence = input("Enter a sentence: ")

result = count\_word\_occurrences(sentence)

# Display the word counts

for word, count in result.items():

print(f"The word '{word}' occurs {count} time(s).")