**Bangladesh-Bharot Digital Service for Employment & Training (BDSET)**

**Module: Python Programming**

**Lab 05  
Problem Solving using Basics of Python for Artificial Intelligence**

**String Functions**

**1. String Input Methods**

1. **Basic Input**
   * Prompt the user to enter their full name and display it.

name = input("Enter your full name: ")

print("You entered:", name)

1. **Using strip() to Remove Extra Spaces**
   * Accept user input with leading/trailing spaces and clean it.

raw\_input = input("Enter a word with spaces: ")

clean\_input = raw\_input.strip()

print("Cleaned input:", clean\_input)

1. **Converting Input to Different Cases**
   * Prompt for a string and display it in uppercase and lowercase.

text = input("Enter a string: ")

print("Uppercase:", text.upper())

print("Lowercase:", text.lower())

**2. String Manipulation**

1. **Concatenation**
   * Combine two strings entered by the user.

first = input("Enter the first string: ")

second = input("Enter the second string: ")

result = first + " " + second

print("Concatenated string:", result)

1. **String Slicing**
   * Extract specific portions of a string.

text = input("Enter a sentence: ")

print("First 5 characters:", text[:5])

print("Last 5 characters:", text[-5:])

print("Characters from index 2 to 6:", text[2:7])

1. **Replacing Substrings**
   * Replace a specific word in a sentence.

sentence = input("Enter a sentence: ")

modified = sentence.replace("bad", "good")

print("Modified sentence:", modified)

1. **Reversing a String**

text = input("Enter a string: ")

reversed\_text = text[::-1]

print("Reversed string:", reversed\_text)

**3. Built-in String Functions**

1. **len()**
   * Find the length of a string.

text = input("Enter a string: ")

print("Length of the string:", len(text))

1. **split() and join()**
   * Split a string into words and join them back.

sentence = input("Enter a sentence: ")

words = sentence.split()

print("List of words:", words)

joined\_sentence = " ".join(words)

print("Joined back:", joined\_sentence)

1. **startswith() and endswith()**
   * Check if a string starts or ends with a specific substring.

text = input("Enter a string: ")

print("Starts with 'Hello':", text.startswith("Hello"))

print("Ends with 'world':", text.endswith("world"))

1. **count()**
   * Count occurrences of a specific character or substring.

text = input("Enter a string: ")

char = input("Enter a character to count: ")

print(f"The character '{char}' occurs {text.count(char)} times.")

1. **find() and index()**
   * Locate a substring in a string.

text = input("Enter a string: ")

word = input("Enter a word to find: ")

print(f"'{word}' found at index:", text.find(word))

1. **isalpha(), isdigit(), isalnum()**
   * Validate string content.

text = input("Enter a string: ")

print("Contains only letters:", text.isalpha())

print("Contains only digits:", text.isdigit())

print("Contains only alphanumeric characters:", text.isalnum())

1. **capitalize(), title(), and swapcase()**
   * Modify string case styles.

text = input("Enter a sentence: ")

print("Capitalized:", text.capitalize())

print("Title Case:", text.title())

print("Swap Case:", text.swapcase())

**Challenges (Optional):**

1. **Palindrome Checker**  
   Write a program to check if a given string is a palindrome.

text = input("Enter a string: ")

if text == text[::-1]:

print("The string is a palindrome.")

else:

print("The string is not a palindrome.")

1. **Word Frequency Counter**  
   Count the frequency of each word in a given sentence.

sentence = input("Enter a sentence: ")

words = sentence.split()

frequency = {word: words.count(word) for word in set(words)}

print("Word frequencies:", frequency)

1. **Anagram Checker**  
   Check if two strings are anagrams of each other.

str1 = input("Enter the first string: ")

str2 = input("Enter the second string: ")

if sorted(str1) == sorted(str2):

print("The strings are anagrams.")

else:

print("The strings are not anagrams.")