Python Lab Assignment 6

1. Write a Python program that takes two strings as input and concatenates them
2. Write a Python program that takes a string as input and prints its reverse.
3. Write a Python program that takes a string as input and counts the number of vowels in it.
4. Write a Python program that checks if a given string is a palindrome (reads the same backward as forward).
5. Write a Python program that takes a sentence as input and counts the number of words in it.
6. Write a Python program that takes a string as input and prints it in uppercase.
7. Write a Python program that checks if two given strings are anagrams (contain the same characters with the same frequency).
8. Write a Python program to perform basic string compression using the counts of repeated characters. For example, the string "**aabccccccaaa**" would become "**a2b1c5a3**".
9. Write a Python program that takes a sentence as input and capitalizes the first letter of each word.
10. Write a Python function that takes a string as input and determines if it has all unique characters.

```
Input: "hello"
Output: False

Input: "world"
Output: True
```

11. Write a Python program that takes a sentence as input and prints the frequency of each word.

```
Input: "the quick brown fox jumps over the lazy dog"
Output:
the: 2
quick: 1
brown: 1
fox: 1
jumps: 1
over: 1
lazy: 1
dog: 1
```

12. Write a Python function that takes two strings as input and determines if the first string is a substring of the second string.

```
Input: "abc", "abcdef"
Output: True

Input: "xyz", "abcdef"
Output: False
```

13. Write a Python program that takes a list of numbers as input and prints their sum.
14. Write a Python program that takes a list as input and prints its reversed order.
15. Write a Python function that takes a list as input and returns a new list containing only the unique elements in the original list.
16. Write a Python program that takes two lists as input and prints their intersection (common elements).
17. Write a Python program that takes a list of numbers as input and prints the elements from the third to the sixth (inclusive).
18. Write a Python program that takes two lists as input and uses the **extend** method to combine them into a single list.
19. Write a Python program that takes a list of strings as input and prints the strings at even indices in reverse order.
20. Write a Python program that takes a list and a number **n** as input and repeats the elements of the list **n** times.
21. Write a Python program that takes a list of strings as input and sorts them in alphabetical order.
22. Write a Python program that takes a list and an element as input and removes all occurrences of that element from the list.
23. Write a Python program that takes a list of numbers as input and uses list comprehension to create a new list containing the squares of even numbers.
24. Write a Python function that takes a list of strings as input and uses list comprehension to count the total number of vowels in all the strings combined.
25. Write a Python program that takes two sorted lists as input and merges them into a single sorted list. Avoid using built-in functions or libraries for sorting.

```
List 1: [1, 3, 5, 7, 9]
List 2: [2, 4, 6, 8, 10]
Merged List: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```