Python Fundamentals (Assignment3)

Assignment Problems

Q1. Ask the user for a string and check whether it is a palindrome or not.

A **palindrome** is a string which is same when we read it forward & backward. Eg - “madam”, “racecar” etc.

[**Hint** - A palindrome string is equal to the reversed version of the string. We can use a loop to reverse the string manually.]

Q2. Given a list of integers compute the average of all numbers in the list.

Q3. Input two lists of integers from the user. Merge them into one list and sort the result.

Eg - `list1 = [1, 2, 7]` , `list2 = [2, 4, 5]`

`result = [1, 2, 3, 54, 5, 7]`

Q4. Given a tuple of integers, create:

- A tuple of all even numbers
- A tuple of all odd numbers

Q5. Create a dictionary where:

- Keys = student names
- Values = marks (integer)

Write a menu-based program where user presses a key ('A', 'B', 'C', 'D') depending on the operation they want to perform on the dictionary:

1. `A` - Add a student
2. `B` - Update marks
3. `C` - Search for a student
4. `D` - Display all students and marks

Q6. Given a list of words:

```
words = ["apple", "banana", "kiwi", "cherry", "mango"]
```

Create a dictionary that maps each word to its length.

Example:

`{"apple": 5, "banana": 6, "kiwi": 4, ...}`

Q7. Write a program that takes a string from the user and prints the number of spaces in the string.

Q8. Write a program to check whether two lists share no common elements.

```
# share no common elements list1 = [1, 2, 3, 4] list2 = [5, 6, 7, 8]
# share common elements list1 = [1, 2, 3] list2 = [3, 4]
```

[**Hint** - use sets]

Q9. Given a list, print all elements that appear more than once in the list.

[**Hint** - use sets]

Q10. Ask the user for a string and print:

- All unique characters
- The count of unique characters