

# Python Fundamentals (Assignment3)

## Assignment Problems

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**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]

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**Q10.** Ask the user for a string and print:

- All unique characters
- The count of unique characters