LAB # 2:

"Basics of Python"

Tasks

Task 1: Dictionary Manipulation

1.1 Create a dictionary representing a student's information with keys like 'name', 'age', 'grade', and 'subjects'. Perform the following operations:
1.2 Add a new subject to the 'subjects' list.
1.3 Update the student's age.
1.4 Print the student's name and all the subjects they are studying.

ASSIGNMENT

Task 2: List Operations

2.1 Create a list of numbers and perform the following operations:
2.2 Calculate the sum and average of the numbers.
2.3 Find the maximum and minimum values in the list.
2.4 Remove all duplicate values from the list.

Task 3: Looping and Lists

3.1 Create a list of names and use a for loop to print a personalized greeting message for each name. For example, "Hello, John!" for the name 'John'.
3.2 Use a while loop to find the first name in the list that starts with a vowel.

Task 4: Numpy Array Manipulation

4.1 Import the NumPy library and create a NumPy array with random values.
4.2 Calculate the mean, median, and standard deviation of the array.
4.3 Reshape the array into a 2D matrix and perform matrix multiplication with another 2D matrix.
4.4 Filter the array to get values greater than a certain threshold.

Task 5: Looping and Dictionaries

5.1 Create a dictionary that represents a simple inventory of items and their quantities.
5.2 Use a for loop to iterate through the dictionary and print a message for each item, including its name and quantity.
5.3 Write a function that takes a quantity as input and updates the quantities of all items in the dictionary to that value.
5.4 Use a while loop to continuously ask the user for an item name and quantity and update the dictionary until the user decides to exit.