SABUDH

PROGRAMMING ASSIGNMENT

Problem 1:

Read an integer N. For all non-negative integers i < N, print i^2 as a list.

Test Case 1

Input: 5
Output : [0, 1, 4, 9, 16]

Test Case 2

Input: 4
Output: [0, 1, 4, 9]

Problem 2:

You have been given a string. You need to remove all the duplicates from the string. The final output string should contain each character only once. The respective order of the characters inside the string should remain the same. You can traverse the string only once.

Test Case 1:

Input: abaabbbacd
Output: abcd

Test Case 2:

Input: ddeefggh
Output: defgh

Problem 3:

Write a program to display only those numbers from a list that satisfy the following conditions:

- The number must be divisible by 5
- If the number is greater than 150, then skip it and move to the next number
- If the number is greater than 500, then stop the loop

Test Case 1:

Input : 12, 75, 150, 180, 145, 525, 50
Output : [75, 150, 145]

Test Case 2:

Input : 14, 85, 625, 75
Output : [85]

Problem 4:

Write a program to count the total number of digits in a number using a while loop.

Test Case 1:

Input: 75869
Output: 5

Test Case 2:

Input: 654
Output: 3

Problem 5:

Write a program to calculate the sum of series up to n term.
For example, if n = 5 the series will become 2 + 22 + 222 + 2222 + 22222 = 24690. This series is formed by appending the digit 2 in each term.

Test Case 1:

Input : 5
Output : 24690

Test Case 2:

Input: 6
Output: 246912

Problem 6:

Write a program to reverse given numbers without slicing. Input will be a positive integer.

Test Case 1:

Input: 745633
Output: 336547

Test Case 2:

Input: 65346
Output: 64356

Problem 7:

Write a program to use a loop to display elements from a given list present at an odd index position. Odd index refers to index position (1, 3, 5, …), not odd numbers.

Test Case 1:

Input: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100
Output: [20, 40, 60, 80, 100]

Test Case 2:

Input: 23, 46, 69, 92, 115
Output: [46, 92]

Problem 8:

Write a Python program to find the median of three values. Median means the middle value after sorting the three numbers.

Test case 1:

Input first number: 15
Input second number: 26
Input third number: 29
Output : 26

Test case 2:

Input first number: 10
Input second number: 20
Input third number: 5
Output : 10

Problem 9:

Write a Python function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument.

Test case 1:

Input = 4
output = 24

Test case 2:

Input = 2
output = 2

Problem 10:

Define a function which counts vowels and consonants in a word. Assume the input contains only alphabetic characters. The program should correctly handle both uppercase and lowercase letters while counting vowels and consonants.

Test case 1:

Input : pythonlobby
Output : vowel = 2
Consonants = 9

Test case 2:

Input : sabudhfoundation
Output : vowel = 7
Constants= 9