

# CS384 2024 Lab 2 - July Dec 2024

You cant use any inbuilt functions of Python

Learn if and for loop yourself.

## 1. Unitary Sum of Digits

Write a program that takes an integer as input and calculates the sum of its digits using a loop. The program should repeatedly sum the digits until a single digit is obtained. Do not use Python's built-in functions for string manipulation.

Here's an example to illustrate how the program works:

Input:

- Suppose the user inputs the number '942'.

Step-by-Step Execution:

### 1. First Iteration:

- Initial 'n': 942
- Sum of digits:
  - $9 + 4 + 2 = 15$
- Update 'n': 15 (since 942 is not a single digit)

### 2. Second Iteration:

- New 'n': 15
- Sum of digits:
  - $1 + 5 = 6$
- Update 'n': 6 (since 15 is not a single digit)

### 3. Result:

- Now 'n' is 6, which is a single digit.
- The digital root of '942' is 6.

### Output:

Enter an integer: 942

The Unitary Sum of Digits of 942 is: 6

## 2. String Compression

Implement a basic string compression algorithm where consecutive identical characters in a string are replaced by the character followed by the count of repetitions. For example, the input "aaabbc" should be compressed to "a3b2c1". Do not use Python's built-in functions for string manipulation.