[**HW#4 - due 3/25**](https://elearning.utdallas.edu/webapps/assignment/uploadAssignment?content_id=_4045036_1&course_id=_195918_1&group_id=&mode=view)

1. Write a MIPS assembly language program that

a. prompts the user for a zip code (as a 5-digits unsigned integer in decimal, or 0) with the string "Give me your zip code (0 to stop): ". No error checking is necessary, assuming that the user will give correct numbers.

b. if the input is 0 stops

c. otherwise, display the leading string  "The sum of all digits in your zip code is", calculate the sum of all digits by calling two functions (see below) one at a time and then display the result with the leading string "ITERATIVE:"  for the iterative version, and "RECURSIVE:"  for the recursive version of the function.

d. repeats from a.

For example, if the user gave the input 75081 the program will print out

The sum of all digits in your zip code is

ITERATIVE: 21

RECURSIVE: 21

This program should make use of a function that calculates and returns the sum of digits in the input argument **zip**. Implement two versions of this function, one is iterative (named int\_digits\_sum)  and the other is recursive (named rec\_digits\_sum). The main program should call each of these two functions to calculate and then display the sum after the user has input a ZIP code.

2. What are the MIPS assembly language statements that are represented in memory as the following hexadecimal numbers, one statement per line. You must show how did you come up with the answers to get full credit.

Text

Description automatically generated

Hint:*You can use MARS to verify your work.*

Using the same file naming convention as HW#1 for your submission.