Assignment 2

Assigned: Tuesday 04/16/2019

Due: Friday 04/26/2019, 11:55pm

Turn in: Canvas.

File to turn in: assignment2.asm

** Be sure to add comments on the status of the code **

For this assignment, you are to write the **strconcat** function in 8051 assembly and test them in EdSim51. The purpose of this function is to concatenate two strings.

Here is the suggested template:

```
ORG 0H
        SJMP  MAIN:

STRING1:  DB "test string one" ;; string data

DB 0  ;; Null termination

STRING1_L: DB 15

STRING2:  DB "test string two" ;; string data

DB 0  ;; Null termination

STRING2_L:  DB  15

STRCPY:

        ;; the function copies from source (DPTR points to the source address) to destination(R0 points to the
        destination address):

        ;; Load each character from source string's memory.

        ;; Q: Which memory? MOV? MOVX? MOVC?

        ;; Check to make sure it is not the null character

        ;; If it is null, return the len in A; otherwise, increment count and save the character to the corresponding
        RAM location.

        ;; The caller expects return value in accumulator A

        ;; This function may safely use R1 without saving

STRCONCAT:
```

```
        ;; Load the address of STRING1 to DPTR
        Call STRCPY
        ;; Load the address of STRING2 to DPTR
        Call STRCPY
TESTSTRING:
        ;; The purpose is to call STRCONCAT, fetch the answer
        ;; and check whether it works right
        ;; If the length is different from the expected length
        ;; then jump to ERROR.
        ;; Else Compare the copied data with the string1 and then string 2
        ;; If one character does not match
        ;; then jump to ERROR.
        ;;else jump to SUCCESS
MAIN:
        Assign #60h to R0
        ;; Call TESTSTRING
        SUCCESS: SJMP SUCCESS
        ERROR: SJMP ERROR
END
```

You must provide *at least* the following three test cases to validate your code:
- Concatenating a null string to another non-null string
- Length of string1 is less than length of string2 and vice versa
- A long string with a short string (e.g. one character string)

You can take a look at the instruction set manual (on Keil's website) for reference.

Also take a look at the opcode section. It might be helpful:

http://www.keil.com/support/man/docs/is51/is51_opcodes.htm