

COMP 3350 Project #3

Anagram

Possible points: 100

Due: April 12, 2019 4:59pm

No homework will be accepted after the due date, so make sure to start as early as you can. You might face some issues and need the GTA help.

Assignment Goal:

1. Using critical thinking and problem solving.
2. Get you familiar with :
 1. Defining and accessing Arrays.
 2. Dealing with Registers and instructions.
 3. Dealing with Loops.
 4. Debugging and running your assembly code.

Deliverables:

Submit the source file (.asm) to Canvas before the due date. This should be the only file you should submit to Canvas.

The file should be named {USERNAME}_P{NUMBER}.asm

USERNAME is your auburn email without "@auburn.edu"

E.g. abc0003_P3.asm

Specifications:

The objective of this assignment is to create a program that will determine if two strings are anagrams. If the two strings are anagrams, then EAX will have the value 1 after the code has completed. If they are not anagrams, then EAX will have the value 0.

Two .java implementations are in the "files" section in Canvas. Feel free to use one of these or another method.

All "high level" directives are not allowed on this homework. (e.g. .IF .ENDIF .REPEAT, etc)

What is anagram ? From dictionary.com :

an·a·gram

/ˈanəˌgram/

noun

noun: **anagram**; plural noun: **anagrams**

a word, phrase, or name formed by rearranging the letters of another, such as cinema, formed from iceman.

You can read more about in wikipedia: <https://en.wikipedia.org/wiki/Anagram>

Design:

Create a BYTE array with the label 's1'. This array may be of any length between 2 and 100.

Create a BYTE array with the label 's2'. This array should be the same length as 's1'.

You may create any other values you deem necessary.

The program should compare the two strings to determine if they are anagrams.

Assume that each of the arrays (s1 and s2) will be the same length. Also assume that all characters in the array will be capital letters.

Program:

Assume that I am a programmer and I tried to implement the java program “AnagramCounter.java” In MASM, I wrote this program but I had some issues to make it running:

[illegible]

<pre> dec esi loop CounterLoop VerifyLoop: inc esi loop VerifyLoop mov eax, 10 NoAna: invoke ExitProcess, 0 main endp end main </pre>	<pre> ;Bs in 'index' 1, Cs in 'index' 2... ;(3)Do the same procedure for s2 ;(4) increment the counter at the value - 65 ;increment esi ;after this loop terminates our counter arrays will have the proper values ;(5)start checking the counter arrays at 'index' 100 ;(6) iterate length of c1 times ;(7) move value of c1 into bl ;(8)check bl vs the value of c2 ;(9) if they are not equal then we do not have an anagram. jump to NoAna ;increment esi ;if the loop terminates and we have not jumped then we know we have an anagram </pre>
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This program has been passed to you to complete and fix. Your job is to successfully implement the comments and fix any bugs in the program.

Hint: There are 4 bugs in the code, 1 mistake in the comments, 9 lines to implement “the comments starting with numbers from (1) to (9).”

Example:

s1 BYTE “GARDEN”

s2 BYTE “DANGER”

After the code completes EAX would have the **value 1**. (These are anagrams)

Another example:

s1 BYTE "CODE"

s2 BYTE "DOGS"

After the code completes EAX would have the **value 0**. (These are not anagrams)

Remember that your program must be flexible enough to handle a string of any length. I could test with a string of length 2 or 100 or any number in between.

Code Documentation:

At the top of your "asm" file, give a brief description of the program, author name and last modified date in the form of comments.

For the code, Use the comments provided find one mistake in the comment and fix it.

Late Submission Penalty:

- Late submissions will not be accepted and will result in a **ZERO** without valid excuses, in which case you should talk to Dr. Li to explain your situation.
- GTA/Instructor will **NOT** accept any late submission caused by Internet latency or internet issues.