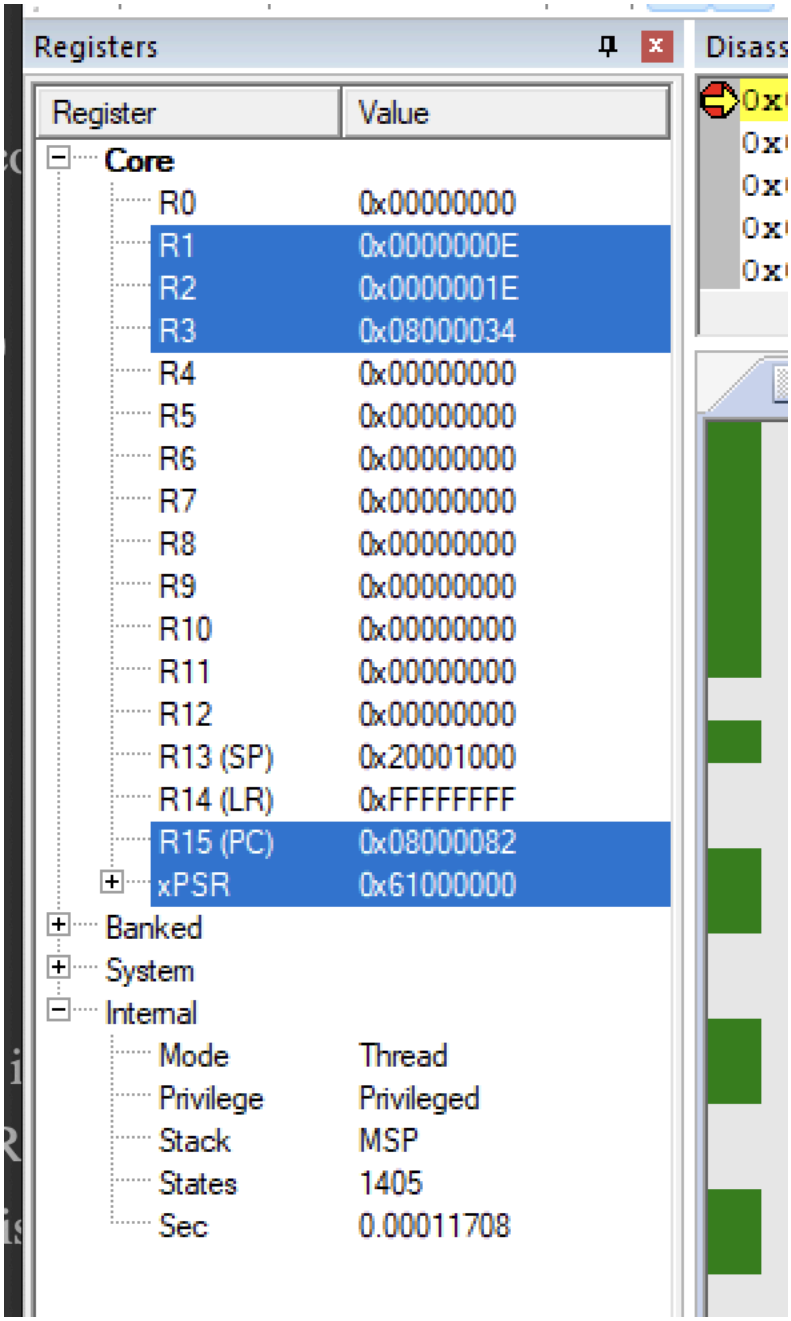
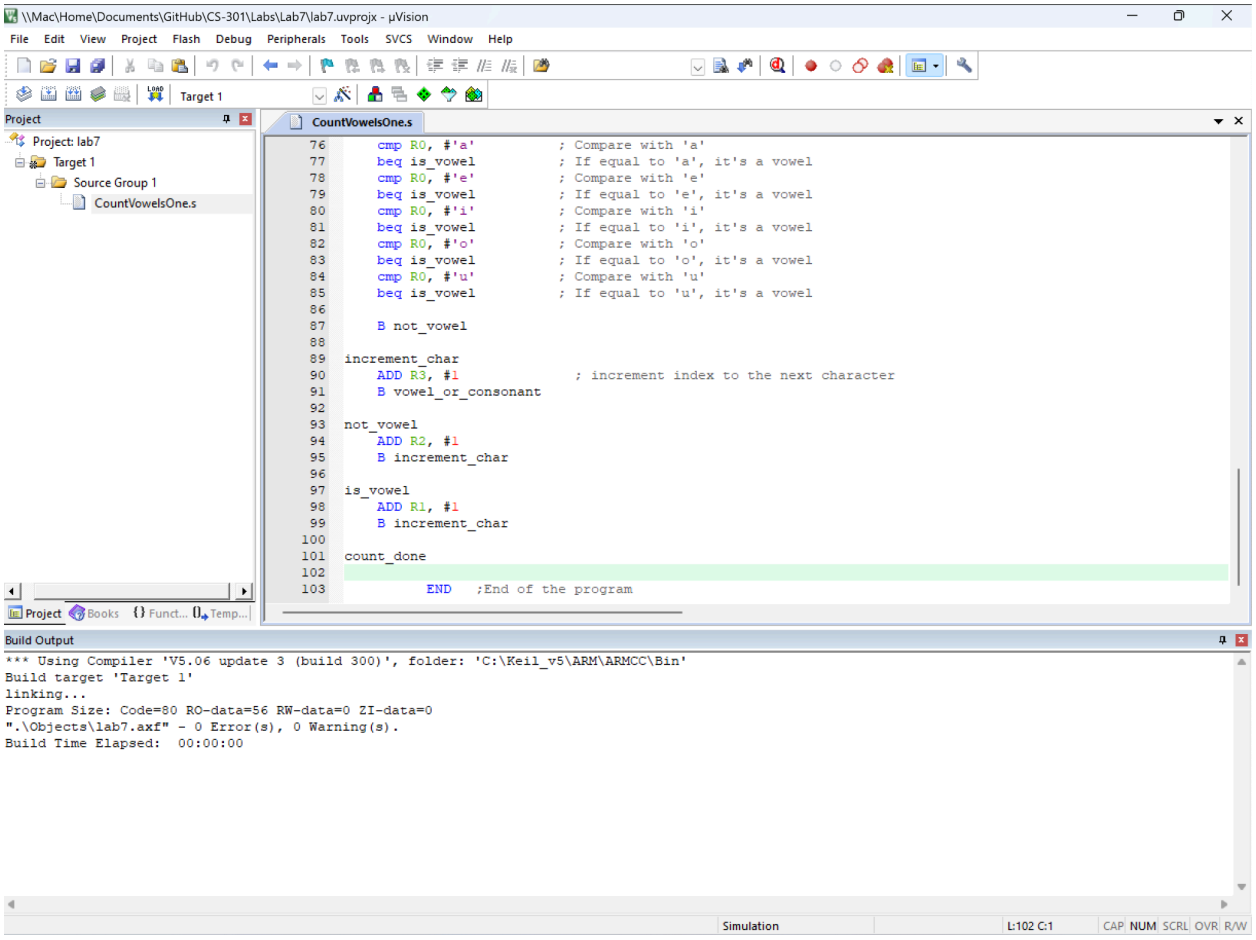
Lab 7
Owen Monus
CS 301
200482797
Mar 7, 2024

Registers at the end of execution



Successful build



Code

```
    ; Count how many vowels and how many non-vowels are in the following string
    ; "ARM assembly language is important to learn!",0

    MOV R1, #0      ; Initialize vowel count to 0
    MOV R2, #0      ; Initialize non-vowel count to 0
    LDR     R3, = string1  ; Load the address of string1 into the register R3

vowel_or_consonant

    LDRB    R0, [R3]    ; Load the character from string1

    CMP     R0, #0     ; check if value is 0
    beq     count_done ; null terminated, exit

    ; uppercase
    cmp R0, #'A'          ; Compare with 'A'
    beq is_vowel          ; If equal to 'A', it's a vowel
    cmp R0, #'E'          ; Compare with 'E'
    beq is_vowel          ; If equal to 'E', it's a vowel
    cmp R0, #'I'          ; Compare with 'I'
    beq is_vowel          ; If equal to 'I', it's a vowel
    cmp R0, #'O'          ; Compare with 'O'
    beq is_vowel          ; If equal to 'O', it's a vowel
    cmp R0, #'U'          ; Compare with 'U'

    ; lowercase
    cmp R0, #'a'          ; Compare with 'a'
    beq is_vowel          ; If equal to 'a', it's a vowel
    cmp R0, #'e'          ; Compare with 'e'
    beq is_vowel          ; If equal to 'e', it's a vowel
    cmp R0, #'i'          ; Compare with 'i'
    beq is_vowel          ; If equal to 'i', it's a vowel
    cmp R0, #'o'          ; Compare with 'o'
    beq is_vowel          ; If equal to 'o', it's a vowel
    cmp R0, #'u'          ; Compare with 'u'
    beq is_vowel          ; If equal to 'u', it's a vowel

    B not_vowel

increment_char
    ADD R3, #1             ; increment index to the next character
    B vowel_or_consonant

not_vowel
    ADD R2, #1
    B increment_char

is_vowel
    ADD R1, #1
    B increment_char

count_done

        END   ;End of the program
```