Quiz 3
CMPE 364
Spring 2017

Name:
Student ID:

Write an ARM assembly language subroutine called find_max, which searches an array of words for the maximum value, and returns that value. Your subroutine should follow the conventions specified by the AAPCS. Your answer should include only the subroutine.

Parameters:
1. The address of the array
2. The number of entries in the array

Returns:
- The maximum value found in the array

b

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; r0 is in the number of entries in the array
; r4 is the address of the array
find:
        ; I change r4, so I need to save it.
        stmfd sp!, {r4}

        ; r1 is the counter for my loop
        mov r1, #0

        ; r2 stores the largest number seen so far
        mov r2, #0

s_loop:
        ; Check if I'm done going through the loop
        cmp r1, r0
        bge s_done

        ; Load the item from the array
        ldr r3, [r4], #4

        ; Check if the item is bigger than the my current largest
        ; update r2 if so
        cmp r2, r3
        bgt skip
        mov r2, r3
skip:
        ; Update the counter
        add r1, r1, #1
        b s_loop

s_done:
        ; Restore the modified registers
        ldmfd sp!, {r4}

        ; Put the return value in r0
        mov r0, r2

        ; Return from subroutine
        bx lr
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b