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endwth.s

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/**
 * endwth.s
 * PARAMETERS: X0 (STRING)
 *              X1 (STRING TO CHECK)
 * OUTPUT      : X0 (BOOLEAN VALUE)
 * This routine checks whether the string in X0 ends with the suffix string in X1.
 * If the suffix is found at the end of the string, it returns true, otherwise it returns false.
 * ALL REGISTERS PRESERVED EXCEPT X0
 */

.text
.global endwth
endwth:
    // storing X0-X19 registers, as malloc will not preserve most of these
    str X1, [sp, -16]!
    stp X2, X3, [sp, -16]!
    stp X4, X5, [sp, -16]!
    stp X6, X7, [sp, -16]!
    stp X8, X9, [sp, -16]!
    stp X10, X11, [sp, -16]!
    stp X12, X13, [sp, -16]!
    stp X14, X15, [sp, -16]!
    stp X16, X17, [sp, -16]!
    stp X18, X19, [sp, -16]!
    str lr, [sp, -16]!

    // finding length of the suffix
    mov x2, #0
suffixLoop:
    ldrb w3, [x1, x2]
    cmp w3, #0
    b.eq stringEnd
    add x2, x2, #1
    b suffixLoop
stringEnd:
    mov x3, x0
    add x4, x0, x2

    // finding length of the string
    mov x2, #0
stringLoop:
    ldrb w3, [x0, x2]
    cmp w3, #0
    b.eq checkSuffix
    add x2, x2, #1
    b stringLoop
checkSuffix:
    sub x2, x2, x4
    cmp x2, #0
    b.lt false
    add x0, x0, x2

    // checking if suffix matches
suffixCheckLoop:
    ldrb w2, [x0], #1
    ldrb w3, [x1], #1
    cmp w2, w3
    b.ne false
    cmp w3, #0
    b.ne suffixCheckLoop

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    true:
        mov x0, #1
        b end
    false:
        mov x0, #0
end:
    // popping registers back from stack
    ldr lr, [sp], 16
    ldp X18, X19, [sp], 16
    ldp X16, X17, [sp], 16
    ldp X14, X15, [sp], 16
    ldp X12, X13, [sp], 16
    ldp X10, X11, [sp], 16
    ldp X8, X9, [sp], 16
    ldp X6, X7, [sp], 16
    ldp X4, X5, [sp], 16
    ldp X2, X3, [sp], 16
    ldr X1, [sp], 16
    ret lr

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