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//
// Ezekiel Kim
// Lab 13
// Program to malloc and print
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//
        .global _start // Provide program starting address

        .data
            szX:    .asciz  "Cat"
            szY:    .asciz  "in the hat."
            ptrString:      .quad   0

        .text

_start:
        mov     x0,     #18     // Bytes needed to store Cat in the hat
        bl      malloc          // Create memory allocation
        ldr     x1,     =ptrString      // Pointer value
        str     x0,     [x1]    // Put it in pointer string
        ldr     x1,     =szX    // Set pointer
        ldr     x1,     [x1]    // Dereference
        str     x1,     [x0], #3        // Store cat in x0
        mov     w1,     #' '    // Store 20 immediate value for " "
        strb    w1,     [x0], #1        // Store space after cat
        ldr     x1,     =szY    // Load in the hat
        ldr     x2,     [x1], #8        // Load first 32 bits
        ldr     x3,     [x1]    // Dereference hat
        stp     x2,     x3,     [x0]    // Store in pointer
        ldr     x0,     =ptrString      // Get string pointer
        ldr     x0,     [x0]            // Get value for pointer
        mov     x1,     #0              // Clear x1
        bl      putstring       // Print the string


// Setup the parameters to exit the program and then call Linux to do it.
        mov     x0,     #0      // Sets return code to 0
        mov     x8,     #93     // Service command code 93 terminates
        svc     0       // Call linux to terminate the program
        .end
```