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org 0x7c00      ; Set beginning (where the original IBM machine loads boot)

; Print two newlines before the prompt
mov ah, 0Eh      ; BIOS teletype function
mov al, 0Ah      ; Newline character
int 10h         ; Display newline
mov al, 0Ah      ; Another newline character
int 10h         ; Display another newline

; Display the prompt
mov si, prompt   ; Point to the string to display

msgloop:
    mov al, [si]      ; Load the current character
    cmp al, 0          ; Check for null terminator
    je endmsgloop     ; If null, end the loop
    int 10h           ; Display the character
    inc si            ; Move to the next character
    jmp msgloop       ; Repeat for next character

endmsgloop:

; Print a newline and carriage return before starting to read input
mov ah, 0Eh      ; BIOS teletype function
mov al, 0Dh      ; Carriage return character (CR)
int 10h         ; Display carriage return
mov al, 0Ah      ; Newline character (LF)
int 10h         ; Display newline

; Now we start reading input from the keyboard
mov si, buffer   ; Point to the buffer where input will be stored
xor cx, cx       ; Clear the CX register

read_input:
    mov ah, 0          ; BIOS keyboard input function
    int 16h           ; Wait for a key press
    cmp al, 0Dh       ; Compare with Enter key (CR)
    je end_input      ; If Enter key is pressed, end input

    ; Echo the character to the screen
    mov ah, 0Eh      ; BIOS teletype function
    int 10h           ; Print the typed character

    ; Store in buffer and increment counters
    mov [si], al      ; Store the character in buffer
    inc si            ; Move to next buffer position
    inc cx            ; Increment number of characters typed
    jmp read_input    ; Repeat for next character

end_input:
    mov byte [si], 0  ; Null-terminate buffer

    ; Now send contents of buffer to COM1 (0x3F8)
    mov si, buffer    ; Point to buffer

send_to_serial:
    mov al, [si]      ; Load character from buffer
    cmp al, 0          ; Check for null terminator
    je done_sending   ; If null, end sending loop

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call send_char_to_com1 ;; Send char to COM1

inc si          ;; Move to next char in buffer
jmp send_to_serial    ;; Repeat for next charac

send_char_to_com1:
    ;; Wait for serial port ready (check if Transmit Holding Register is empty)
    mov dx, 0x3F8      ;; COM1 port base address

    out dx, al        ;; Send character in AL to COM1
    ret              ;; Return from subroutine

done_sending:

prompt db 'Type characters and press <ENTER>: ', 0
buffer db 80          ;; Reserve space for up to 80 characters of input

times 510-($-$$) db 0; Pad with zeros up to 510 bytes
dw 0xaa55            ;; Boot signature
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