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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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