

CST8134: In-lab Exercise 4

Read a Line program

You are to write a program that will read lines of ASCII characters from the keyboard and store each line in turn into a buffer in memory. Your program will also replace the return character (0x0D, also known as CR, from the ENTER key) with an end-of-string character (0x00, named NUL – note carefully the single 'L!'). It's an error if the return character is not received before the buffer is full (hint: check the length of the buffer and count the number of characters received).

A line is a sequence of ASCII characters that ends when you receive CR or if the buffer has been filled.

You will need something like the simulated end-of-file used with C and C++ programs. Under Windows, the Control-Q (0x11, also known as XON, originally used to turn a paper-tape reader on) is used, while under Unix and Linux the standard is Control-D (0x04, sensibly named EOT for end of transmission). Pick one or the other and define it in your source code with a .EQU with the name EOF.

Your program is to read a line and print it, possibly with some status information (line too long, EOF, invalid character, etc.). Read line after line until EOF is received, then stop and exit cleanly.

Your program will have both an inner loop and an outer loop. The inner loop will read characters with ConsoleIn until it reads CR or EOF, or the buffer becomes full. The outer loop will read lines until the EOF character is read, printing each line before reading the next. When you receive your EOF character, print a status message before exiting.

As soon as your program is complete and tested, demo it to your instructor. Since there will likely be a crowd wishing to demo near the end of the lab, try to demo early.

The PDL below is not guaranteed to be complete or accurate, or even the best solution to this problem; write your own. For example, it has no error checking.

```
PRINT start message
DO
    GET a character
    WHILE character read is not EOF
        PLACE character at end of line
        IF character is CR THEN
            REPLACE character with NUL
            PRINT line
        ENDIF
        GET a character
    ENDWHILE
WHILE character is NOT EOF
PRINT exit message
```