ECE 372/3
LAB 3

Display and Cursor Manipulation

Objective:
To be able to display a table in a grid and accept user input to move the cursor around the grid and keep track of where you are.

The output of this lab should look like the following:

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

M[$300D] = $E

Where the numbers 1 to 16 are **8-bit hexadecimal** numbers stored in memory. The memory address and the data in it must be updated every time the cursor moves to a new position. In this example, the cursor is under the '14' cell.

Also, the cursor must first be set at upper-left corner of the grid. A memory location or a register must also hold the memory address of the data at that position. When the user hits a key, the cursor must move to the designated location. And, the pointer to the current memory location must be updated.

Required Tasks:
- The grid must be printed using nested loops.
- The cursor manipulation must be done using "escape sequences".
- Use the built-in subroutine "INPUT" to check the user's input. Use the keys A, S, D and W to move around the grid. These keys must not be case sensitive, and all other keys must be disregarded.
- Each time the cursor is moved the output should be updated.
- When the user hits the Q key (also non case-sensitive) the program must stop.
- Start your data at $3000 (the address of the upper left corner).
- The values must be stored in memory as hex numbers but converted to 2-digit binary coded decimal (BCD) as they are printed on the table.

To be turned in:
A full lab report as discussed in the syllabus.

This project must be demonstrated on an HC11, and not on a simulator.