COL216 Computer Architecture

Lab Assignment 3

ARMSim# simulator has a plug-in called "Embest Board Plug-in" which simulates a particular ARM processor board. It provides the following virtual input/output devices.

1. One 8-segment display (output).
2. Two red LED lights (output).
3. Two black buttons (input).
4. Sixteen blue buttons arranged in a keyboard 4 x 4 grid (input).
5. One LCD display screen, which is a grid of 40 columns by 15 rows.

The user guide already posted on moodle explains how to use these devices (section 9) and presents illustrative examples (section 11). This assignment involves creating a simple rectangular grid game using this plug-in. The games to be programmed by different groups are as given below.

Group 1: Mine sweeper (single player)
Group 2: Othello / Reversi (two players)
Group 3: Bejeweled (single player)
Group 4: Connect4 (two players)

Description of these games is widely available from many sources, including wikipedia. The lab session 3 is expected to be used for designing the user interface for the game (i.e., how the virtual devices will be used for interaction between the user(s) and the program) and for representing the logic of the game in a high level program. Suitable simplifications may be made so that an assembly program may be developed in the 4^{th} session.