Simon Game
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Basic Simon Game

- Random sequence of 4 lights
- Player repeats back to machine
- Sequence lengthened
- Repeat until mistake
Physical Layout

- LCD screen
- 4 pushbuttons
- 4 LEDs
Pseudocode: Initialization

Initialize ports and LCD
Create an array of 8 integers to represent the number of lives each player has. Set each integer to 0
Display “This game will have 2 players.” on LCD
Until button 2 is pressed:
  If button 1 is pressed and number of players is greater than 2:
    Decrease number of players by 1
  If button 4 is pressed and number of players is less than 8:
    Increase number of players by 1
  Display “This game will have %d players.” (%d = current number of players)
Set the first (number of players) values of the lives array to 3
Pseudocode: Core Simon Game

Create an array “pattern” of one integer, set to a random value from 1 to 4
Make an integer madeError and set to 0
While (madeError equals 0):
    Display “Player (currentPlayer)’s turn” and all player’s lives on LCD
    For each integer in pattern:
        Turn on LED (current value in pattern) and play its corresponding sound for 1 second
    Set currentPosition=1
    While(currentPosition is less than or equal to the number of values in pattern) and (madeError equals 0):
        Wait until a button is pushed
        If the number of the button pushed equals pattern(currentPosition):
            Turn on LED(same number) and play its sound for 1 second
            currentPosition increments by 1
        Else:
            Turn on LED(same number) and play error sound for 1 second
            Set madeError=1
    If madeError=0:
        Add a new integer (randomly chosen from 1-4) to end of pattern array
Move to next player with non-zero lives
Pseudocode: Main

Set currentPlayer=1
While more than one player has lives:
   Play LED game
   Subtract 1 life from the current player (the one that caused the LED game to exit)
   While (current player has 0 lives):
      Move to next player
   Display “Player (current player) wins with (current player's remaining life) lives remaining!”
Wait 5 seconds
Display “Play again?”
If button 1 is pressed:
   Replay game with same number of players
If button 2 is pressed:
   Replay game from beginning, choosing the new number of players
Thanks for listening

Any questions?