The LCD shield we use is a 16 character by 2 row LCD that contains five buttons as input

- By sending it data (i.e. ASCII characters one at a time) that it will display for us
- By sending it special commands to do thing
  - Move the cursor to a specific location
  - Clear the screen contents
  - Upload new fonts/special characters

- The LCD uses a "parallel" interface (4-bits sent per transfer) to communicate with the μC
- Data is transferred 4 bits at a time and uses 2 other signals (Register Select and Enable) to control where the 4-bits go and when the LCD should capture them

Consider a program that checks two buttons

- When button 1 is pressed, blink an LED 10 times at 2 HZ
- When button 2 is pressed, blink an LED 15 times at 5 HZ
- Formulate the design as state machine and do NOT use additional loops

To specify a state machine, we must specify 6 things:

- A set of possible input values: {0, 1}
- A set of possible states: {S0, S1, S2}
- A set of possible outputs: {False, True}
- An initial state = S0
- A transition function:
  - {States x Inputs} -> the Next state
- An output function:
  - {States x Inputs} -> Output value(s)