Lab 1   
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Section: 112D

# Initial Pseudocode (Lab 2)

## Part B Pseudocode:

Initialize PORTA switches to be input

Initialize PORTC LED to be output

LOOP:

Load value at PORTA\_IN to Register 16

Transfer data at Register 16 to PORTC\_OUT

Jump back to LOOP for infinite loop

## Part C Pseudocode

Initialize stack pointer address at 0x3FFF

Load stack pointer address at Y register

Output Y register value to Stack Pointer register

Initialize the last LED at PORTC as output

LOOP ;to do the 10ms delay or multiples of 10ms delay

OUTTGL last LED at PORT C

Call Delay\_10ms or Delay\_Multiple subroutine

Back to LOOP (Delay\_10ms or Delay\_Multiple) ;the main code basically stop here.

; the rest are just subroutine

SUBROUTINE

1. three nested loop here

2. use two nested loop to do the 10ms delay.

3. use the third nested loop to do the multiple of the 10ms delay

4. If the Delay\_10ms is called. Use just two of the nested loop code. I used two loops to make sure it is long enough to be a 10ms delay. Push and pop at the beginning and end of this subroutine. Return to main code at the end of this subroutine.

5. If the Delay\_Mulitple is called. Use all three nested loop. The third nested loop is to do the multiple of the delay by loading a register with the number of multiples that you want to delay. Push and pop at the beginning and end of this subroutine. Return to main code at the end of this subroutine.

## Part D Pseudocode

Initialize Stack Pointer

Load Stack Pointer address into Y register

Output Y register value to Stack Pointer register

Initialize PORTC LED as output

Initialize S2 and S1 as input

Initialize Green and Red LED as output

Make sure that S2 runs at a slower speed ensure user is not holding it for a long time to win the game.

MAIN

while ( Green or Red LED not on) { ;while loop to continue game is green or red is not on

if ( (S2 = true) AND (LED 3,4 not on)) {

Turn on Red LED

}

else If ((S2=true) AND (LED 3,4 on))

Turn on Green LED

}

else {

Shift LED towards middle and then outward with delay of 100 ms. One goes 0,1,2,3,4,5,6,7,1,2.etc…… Another one goes 7,6,5,4,3,2,1,0,1,2,3,4,5.etc

}

}

RESET

Read input from S1 to reset game

Back to RESET if red and green LED is still on. ;to make sure user reset game.

Back to MAIN