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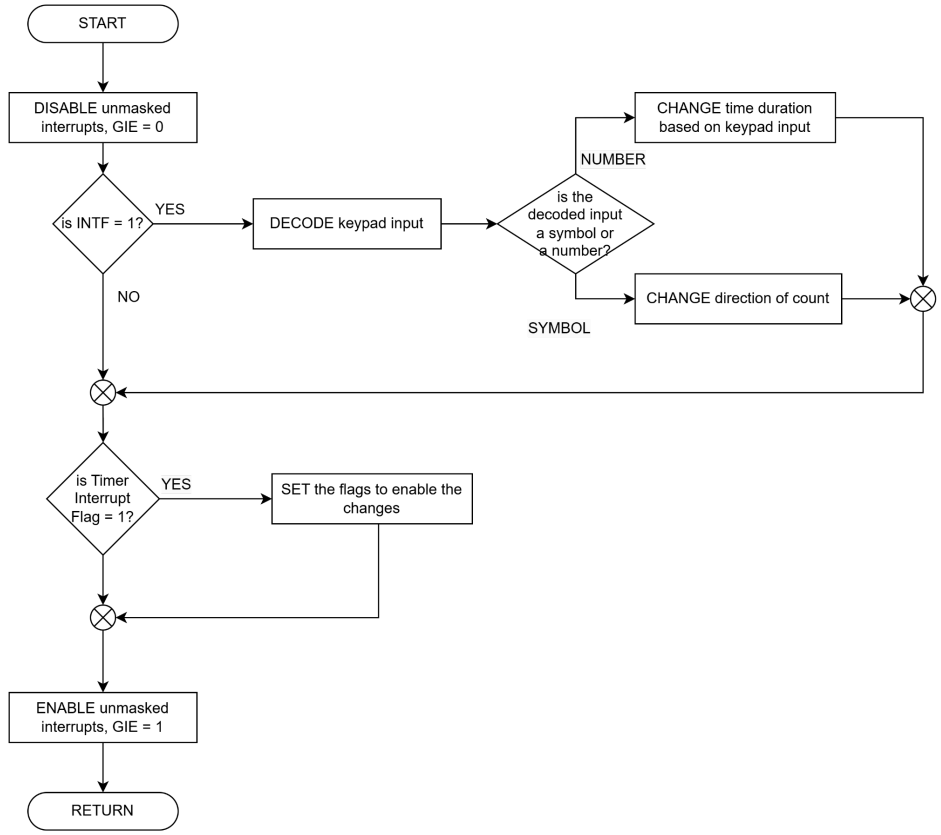
CPE 3201 | EMBEDDED SYSTEMS

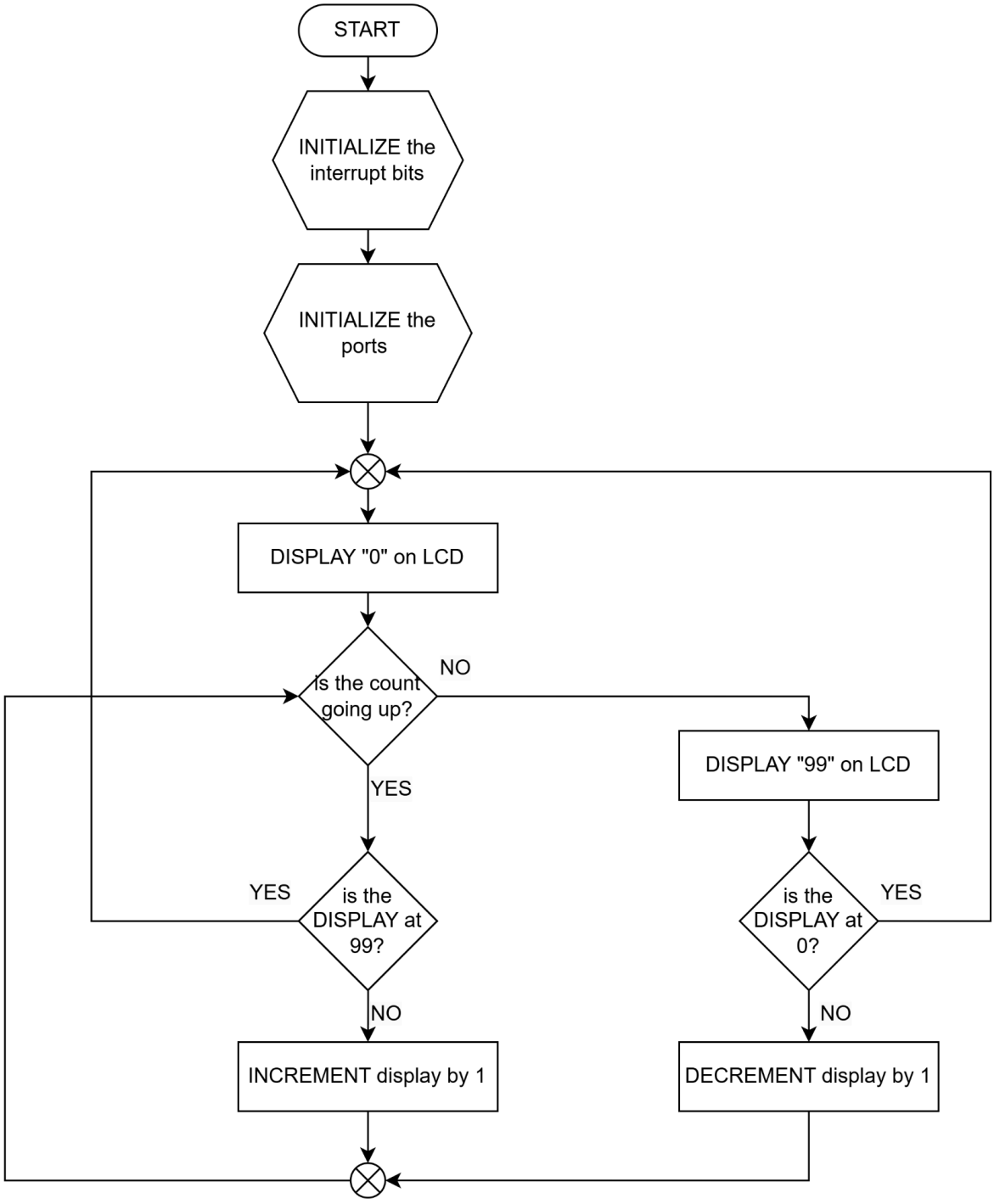
Given the schematic, *create an algorithm (flowchart or pseudocode) that will do the following:*

- *Start with a counter from 0 to 99 and goes back to 0. The interval will be at 1 second. This timing interval MUST use the Timer0 interrupt.*
- *Keypad processing MUST also use the RB0 Interrupt.*
- *When a number on the keypad is pressed, the following should change:*
    - *1 - 0.1 seconds*
    - *2 - 0.2 seconds*
    - *3 - 0.3 seconds*
    - *4 - 0.4 seconds*
    - *5 - 0.5 seconds*
    - *6 - 0.6 seconds*
    - *7 - 0.7 seconds*
    - *8 - 0.8 seconds*
    - *9 - 0.9 seconds*
    - *0 - 1 second*
- *When a symbol is pressed, '#' will do count-up and '*' will do count-down. For countdown, 0 will go back to 99.*
- *Additionally, place the calculations of the "rollovers" needed for your chosen Timer0 pre-scaler values. Place the calculation and values in the algorithm file you create.*

ISR INTERRUPT FUNCTION



MAIN PROGRAM



Formula = (# of required seconds) * [4MHZ / (4 x <prescaler> x 256)] = required # of overflows

No. Of Seconds	Required Number of Overflows
0.1	12
0.2	24
0.3	37
0.4	49
0.5	61
0.6	73
0.7	85
0.8	98
0.9	110
1.0	122