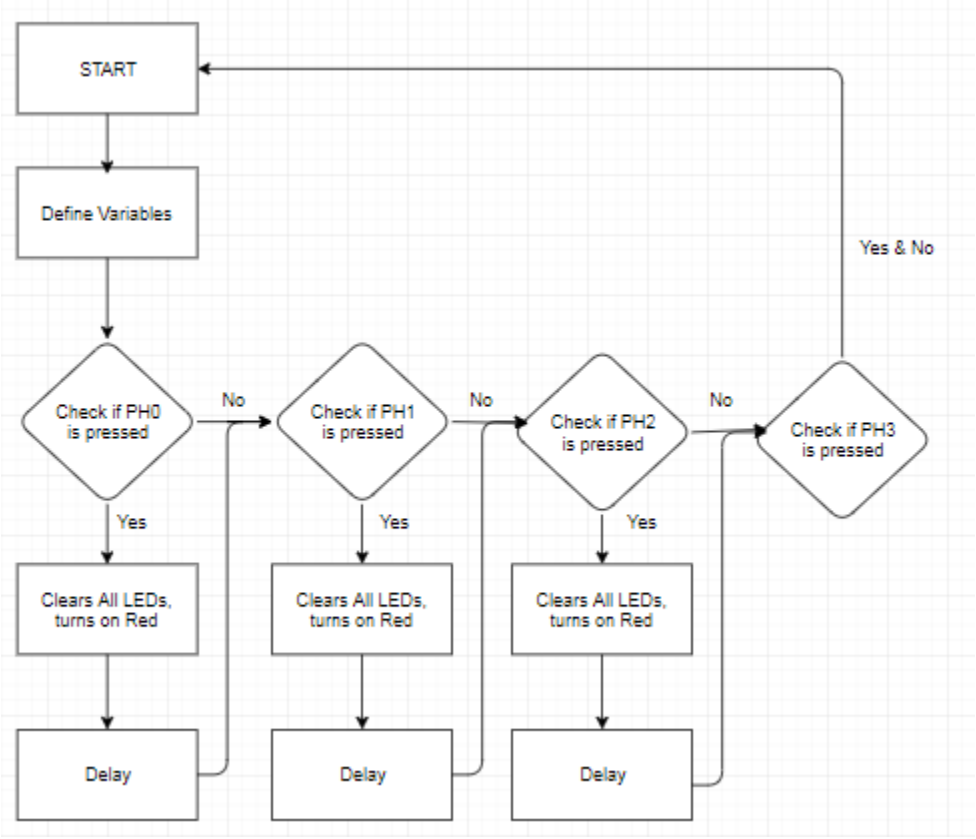
1. Code:

```
;---------------------------------------------------------
; Insert here your data definitions here
;---------------------------------------------------------
PROMPT     dc.b    $0A, $0D   ; CR LF
                        dc.b    "Enter a A to increment: "
                    dc.b    0    ; using zero terminated strings

COUNTVAR       dc.b    0
;---------------------------------------------------------
; Insert your code here
;---------------------------------------------------------
       LDS   #ROMStart ; load stack pointer
       JSR TermInit
       JSR   led_enable   ; enable PORTB for LED's
MAINLOOP
      LDD #PROMPT
      JSR  printf
      JSR  getchar     ;Get input from user
      JSR putchar     ;Print out letter

      CMPB #$41     ;Check if value is the hex value of A
      BEQ GOA  ;If so branch to GOA
      BRA CONTINUE  ;Always go to continue unless A is pressed
GOA
      JSR INCFCN
CONTINUE
      BRA MAINLOOP

; Note: main program is an endless loop and subroutines follow
; (Must press reset to quit.)

;---------------------------------------------------------
; FUNCTIONS CALLED BY MAIN LOOP
;---------------------------------------------------------

INCFCN
    LDAB COUNTVAR  ;load countvar
    CMPB #$10
    BLO  CECS     ;Check if below $10
    LDAB #$00      ;if not set to $00
CECS
    STAB PORTB     ;turn on the LEDs on board
    jsr out2hex    ;print current number
    INCB          ;increment countvar
    STAB COUNTVAR  ;Store new number back into countvar
    RTS           ;return to main
```

2. Flowchart


START
Define Variables
Check if PH0 is pressed
No
Check if PH1 is pressed
No
Check if PH2 is pressed
No
Check if PH3 is pressed
Yes & No
Yes
Clears All LEDs, turns on Red
Delay
Yes
Clears All LEDs, turns on Red
Delay
Yes
Clears All LEDs, turns on Red
Delay