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; prelab-task2.asm
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; Created: 10/2/2023 4:23:59 PM
; Author : CAD
;


; Replace with your application code
start:
    ldi r16, 0xFF       ; set PD output LED bargraph
    out VPORTD_DIR, r16
    ldi r16, 0x00       ;set PE input pushbutton
    out VPORTE_DIR, r16

wait_for_0:
    sbic VPORTE_IN, 0   ;wait for PE0 being 0
    rjmp wait_for_0     ;skips this line if PE0 is 0

wait_for_1:
    sbis VPORTE_IN, 0   ;wait for PE0 being 1
    rjmp wait_for_1     ;skip this line if PE0 is 1
    rjmp delay_make     ;jump to delay when PE0 is 1

delay_make:             ;delay label for make delay
outer_loop_make:
    ldi r17, 133
inner_loop_make:
    dec r17
    brne inner_loop_make
    dec r16
    brne outer_loop_make
    rjmp still_1        ; jump to still_1

wait_for_0_delay_after: ;comes here after output
    sbic VPORTE_IN, 0
    rjmp wait_for_0_delay_after ;skips this line if PE0 is 0
    rjmp delay_break

delay_break:            ;delay lable for break delay
outer_loop_break:
    ldi r17, 133
inner_loop_break:
    dec r17
    brne inner_loop_break
    dec r16
    brne outer_loop_break
    rjmp still_0

still_1:
    sbis VPORTE_IN, 0   ;check if PE0 is still 1
    rjmp wait_for_0     ; if PE0 is 0 then go jump to wait_for_0
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    rjmp output         ; outputs the value

still_0:
    sbic VPORTE_IN, 0   ;check if PE0 is still 0
    rjmp wait_for_0_delay_after
    rjmp wait_for_0     ;go back to start

check_full:
    cpi r16, 0xFF   ; check if r16 is 0xFF which is full
    breq reset      ; if it is true that r16 is equal to 0xFF, go to reset
    rjmp output

reset:
    ldi r16, 0x00
    rjmp wait_for_0

output:
    rcall check_full
    inc r16
    com r16
    out VPORTD_OUT, r16
    com r16
    rjmp wait_for_0_delay_after ; jump to wait for 0 but that has delay after
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