```asm
;
; prelab-task1.asm
;
; Created: 10/2/2023 4:23:59 PM
; Author : CAD
;


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

wait_for_0:
    sbic VPORTE_IN, 0    ;wait for PE0 being 0
    rjmp wait_for_0
wait_for_1:
    sbis VPORTE_IN, 0    ;wait for PE0 being 1
    rjmp wait_for_1
    inc r16

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:
    com r16
    out VPORTD_OUT, r16
    com r16
    rjmp wait_for_0
```