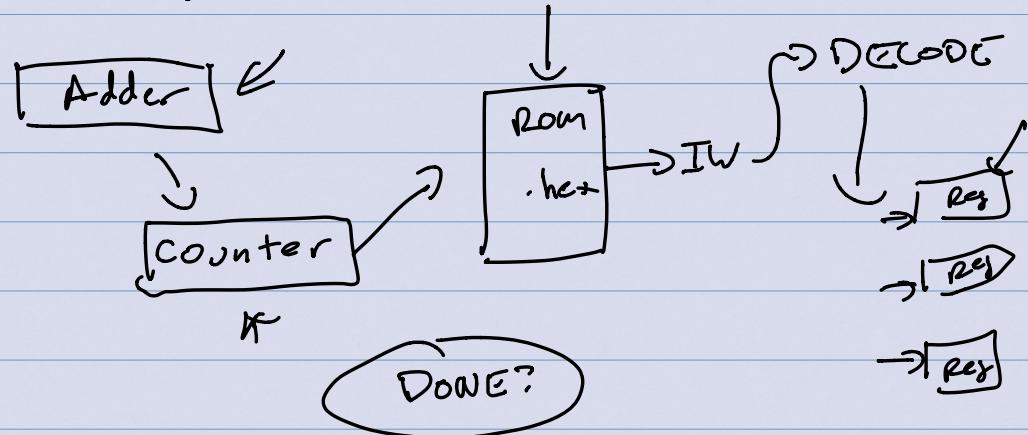
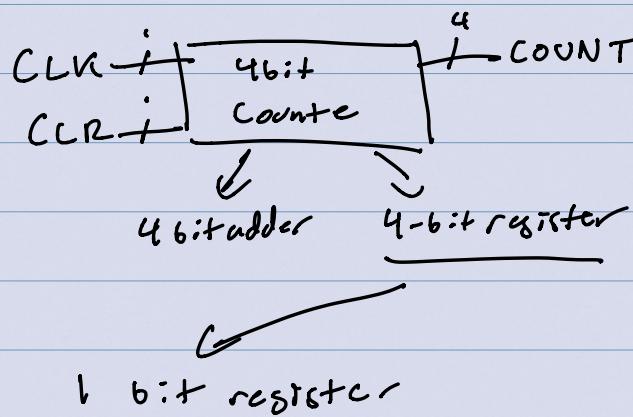


Project OS - Goal ? Count instructions  
count instruction types

Digital Logic

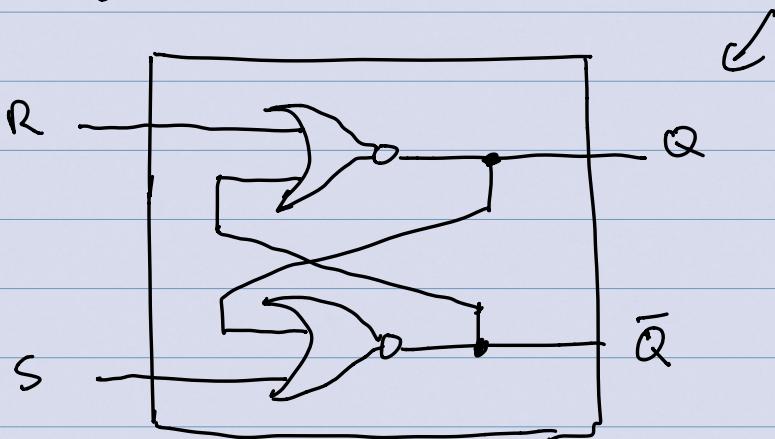


4 bit Counter



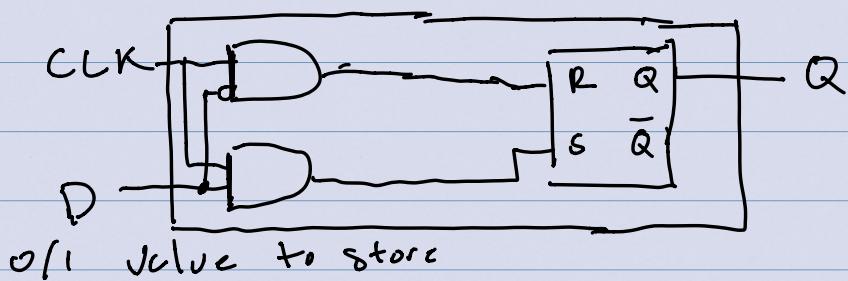
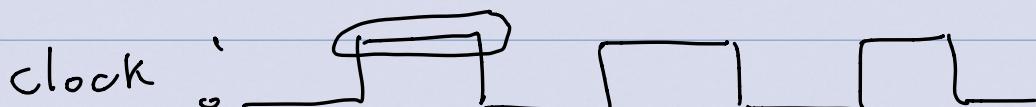
SR Latch  $\rightarrow$  D Latch  $\rightarrow$  D flip flop  
Add support for CLR(Clear)  $\uparrow$   
16-bit register

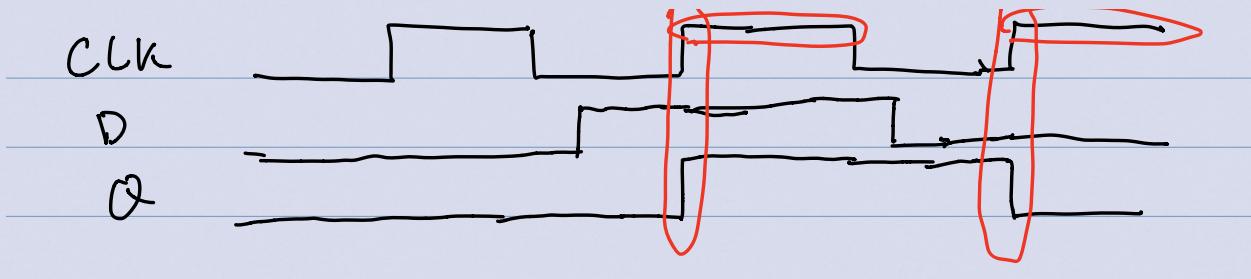
## S R Latch Set/Reset Latch



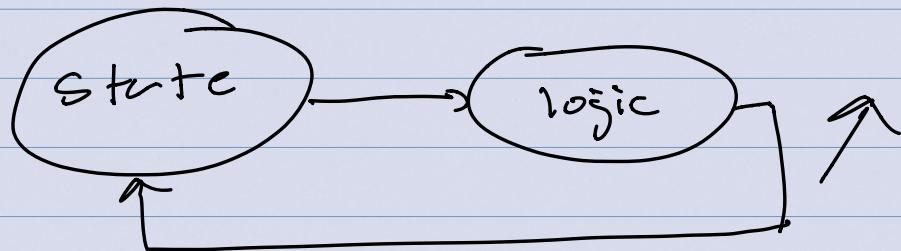
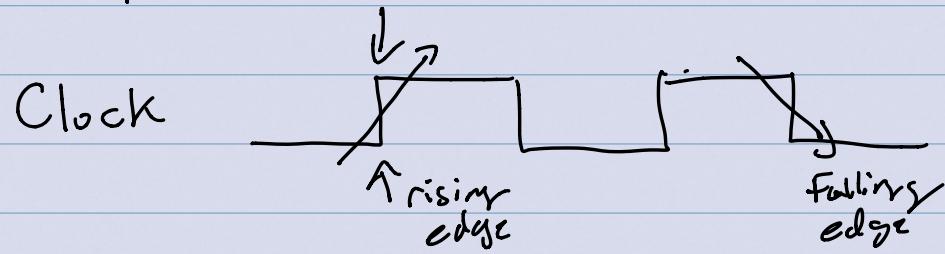
| R | S | Q | $\bar{Q}$ |
|---|---|---|-----------|
| 0 | 0 | 0 | 1         |
| 0 | 1 | 1 | 0         |
| 0 | 0 | 1 | 0         |
| 1 | 0 | 0 | 1         |
| 0 | 0 | 0 | 1         |
| 1 | 1 | X | X         |

## D Latch

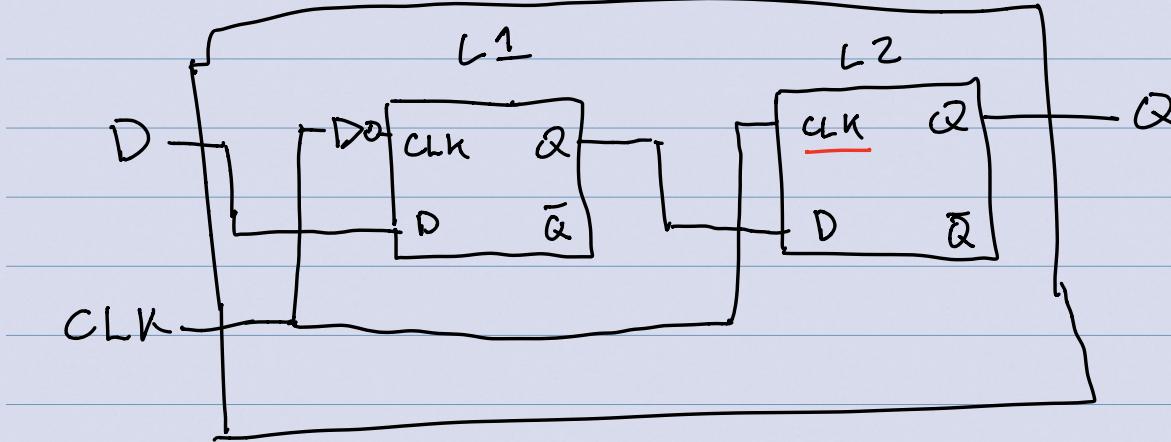


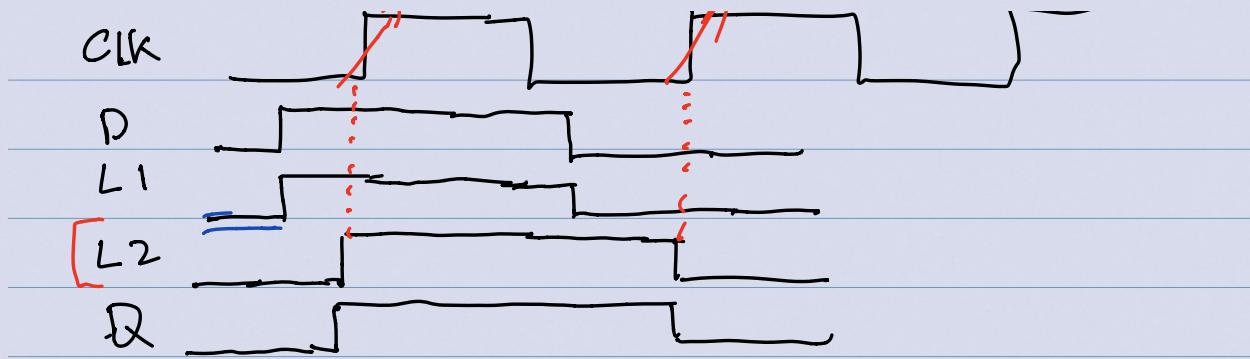


D flip flop      *transition*

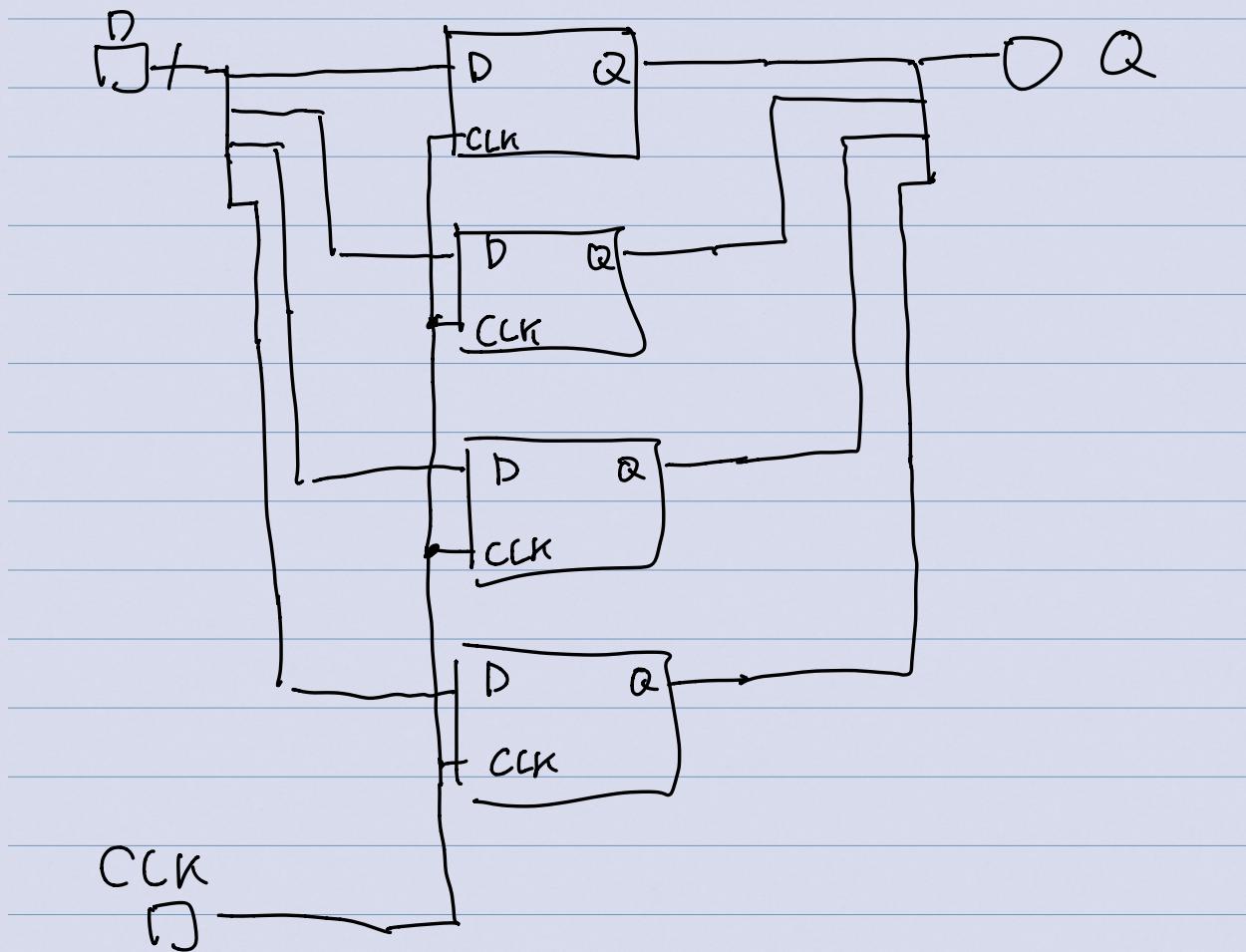


D flip flop : two D latches

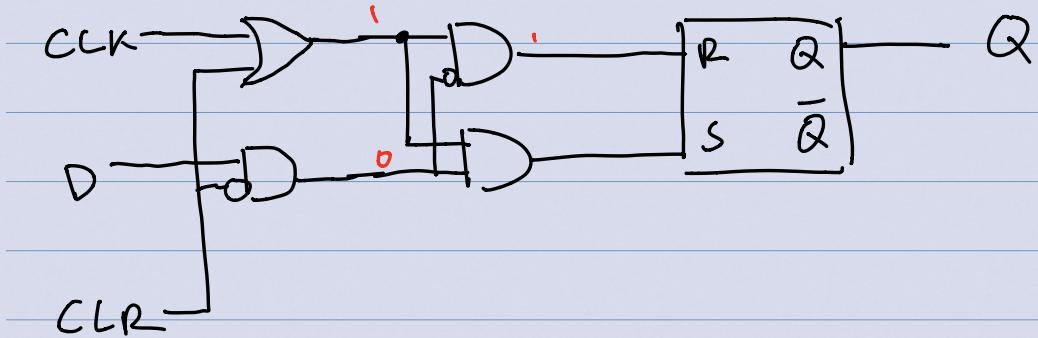




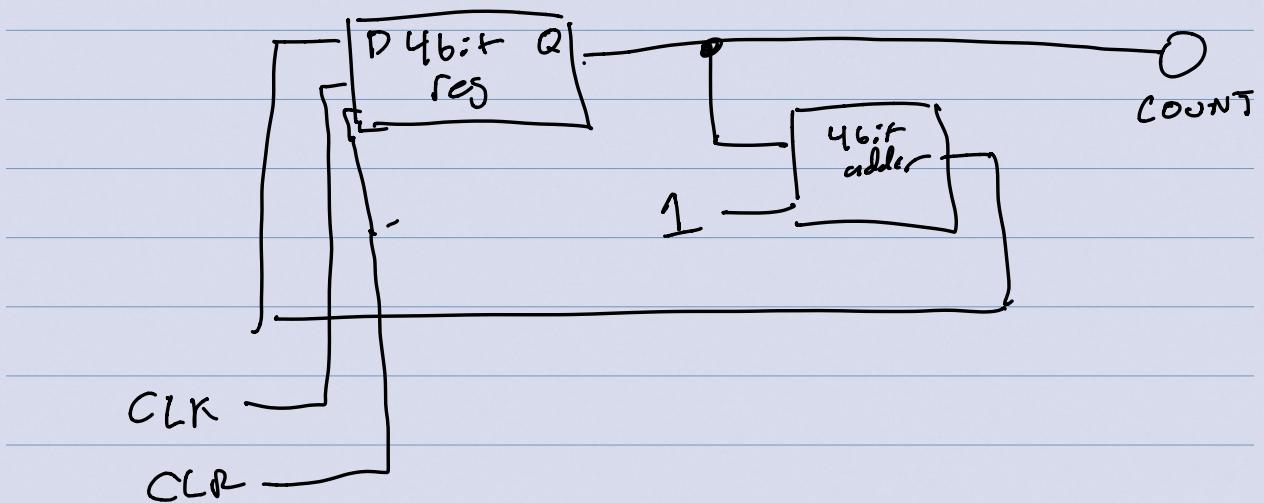
4 bit Register



## D latch with CLR



## Counter



## ProjectOS Components

Adder

Registers

ROM

Splitters

Decoder

Encoder

Multiplexor

Comparator (EQ)

