CSE 232 Spring 2021 Homework 4	
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Step 1: Define MUX size

Register will have following operations:

- Clear
- Load
- Swap

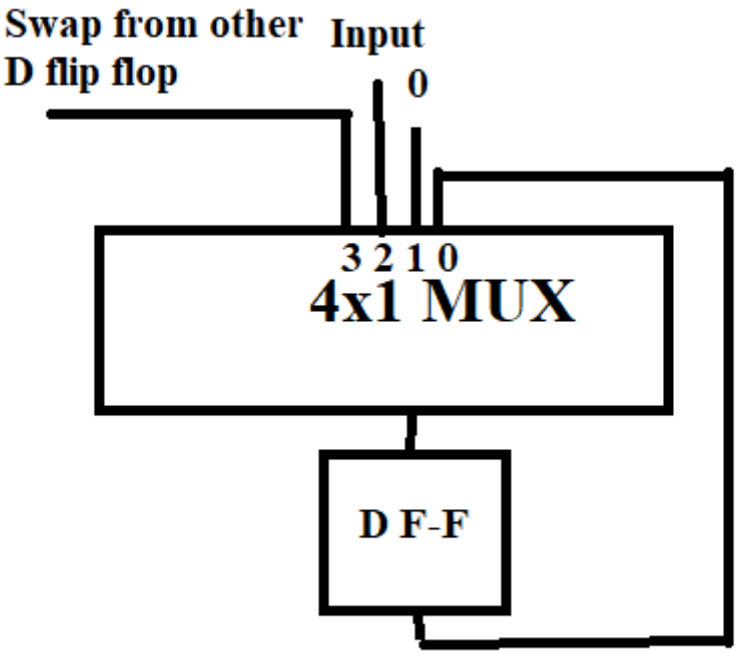
Hence there are 3 operations I am going to use

4x1 multiplexer

Step 2: Create MUX operation table

s1	s0	Operation
0	0	Maintain present value
0	1	Clear (cl)
1	0	Load (ld)
1	1	Swap (sw)

Step 3 : Connect MUX inputs



Step 4: Map control lines

The priority rank is clear, load, swap

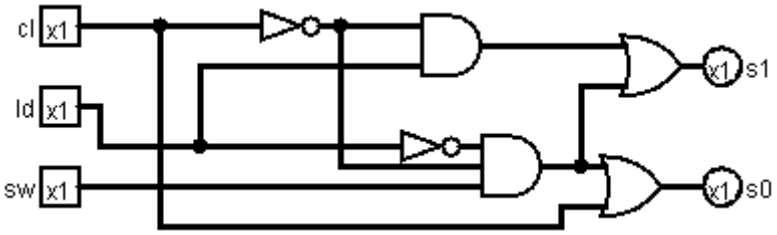
Inputs			Outputs		
cl	ld	sw	s1	s0	Operation
1	x	X	0	0	Maintain present value
1	x	X	0	1	Clear
0	1	x	1	0	Load
0	0	1	1	1	Swap

s1 = cl' * ld + cl' * ld' * sw

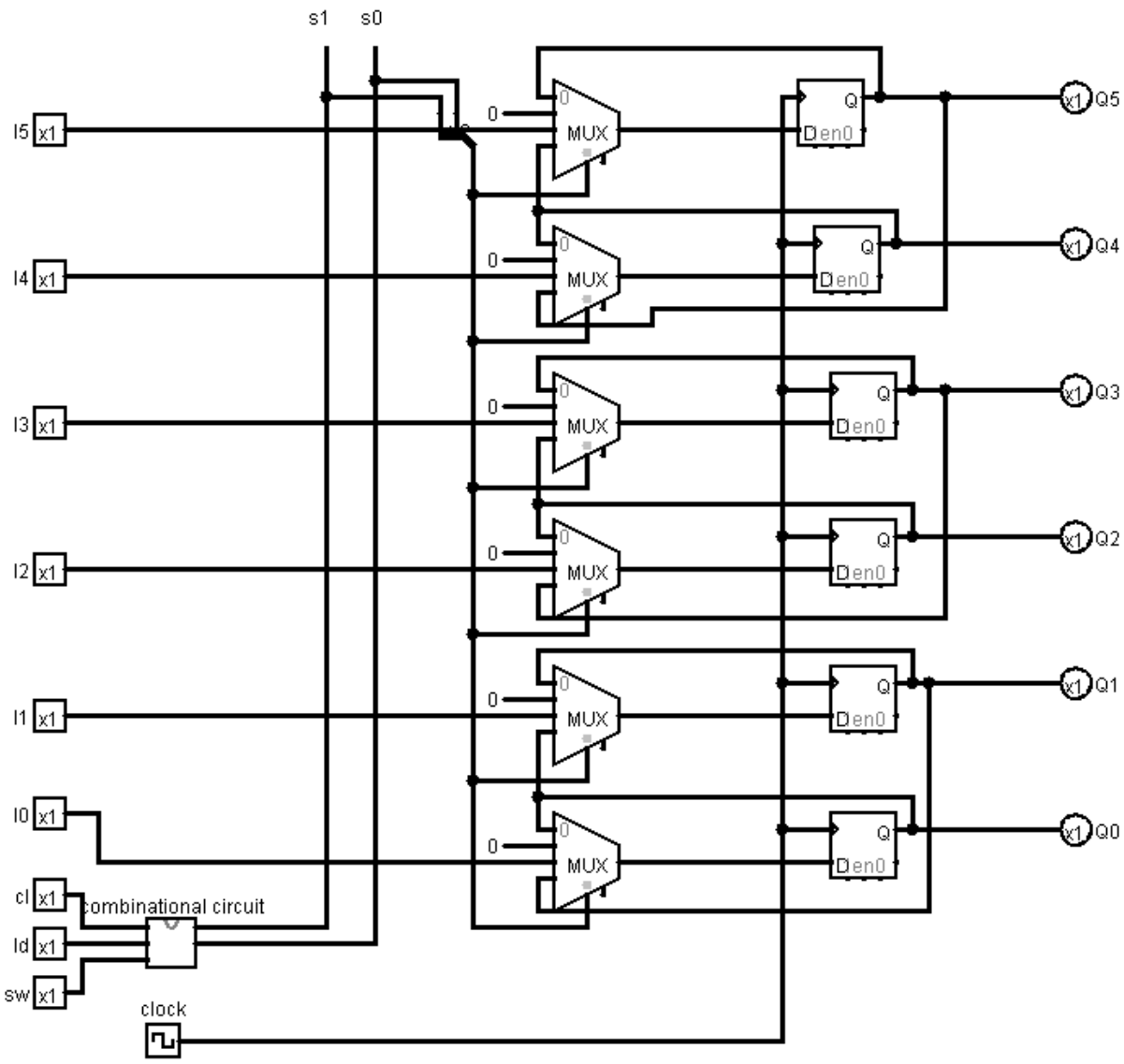
s0 = cl + cl' * ld' * sw

Step 5: Drawing Circuits

Combinational Circuit



Register on the next page


s1
s0
I5
I4
I3
I2
I1
I0
cl
ld
sw
x1
combinational circuit
clock
MUX
0
Q
Den0
Q5
Q4
Q3
Q2
Q1
Q0