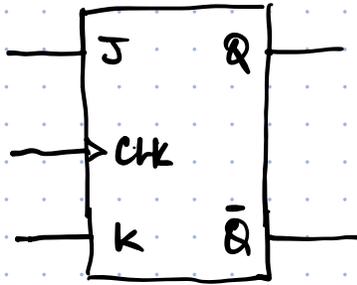
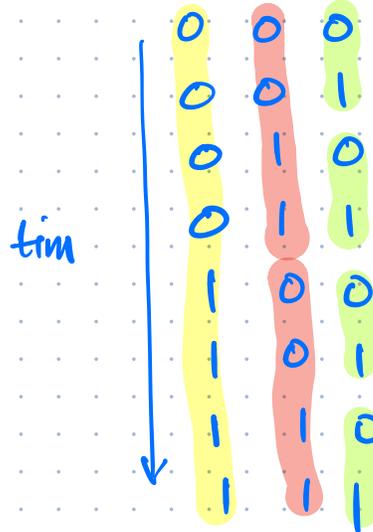


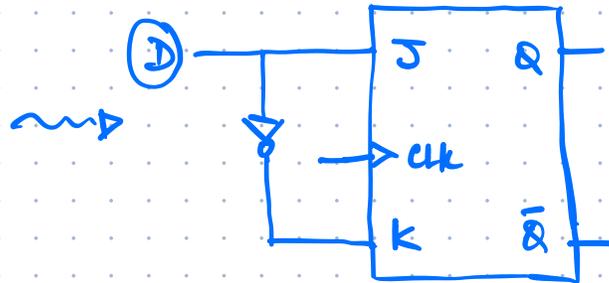
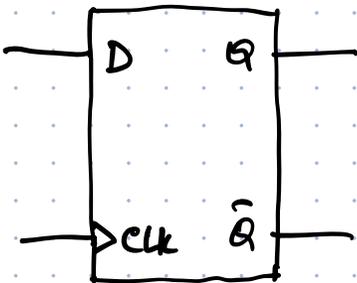
March 6, 2026



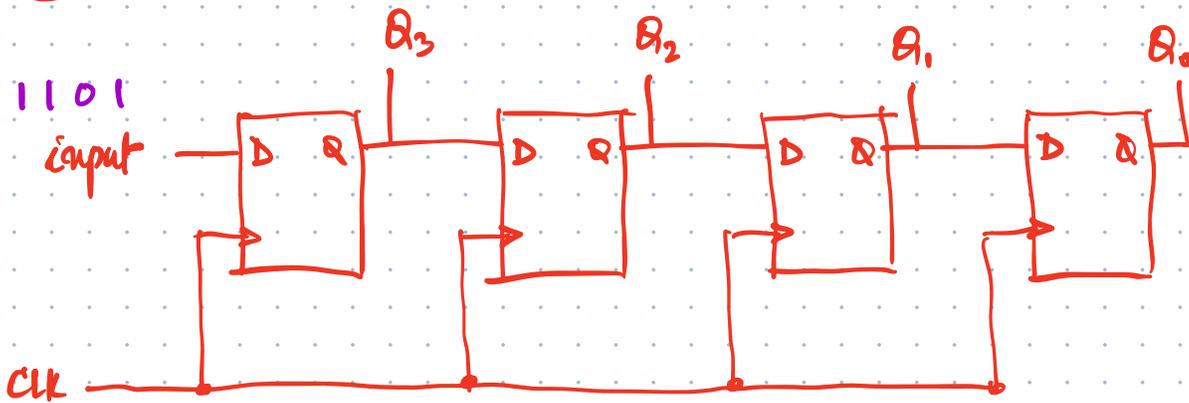
J	K	$Q_{i+1}$
0	0	$Q_i$
1	0	1
0	1	0
1	1	$\bar{Q}_i$



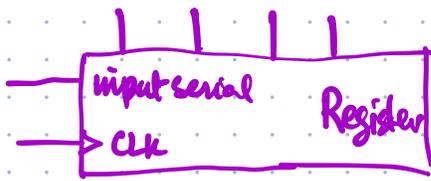
### D Flip-Flop



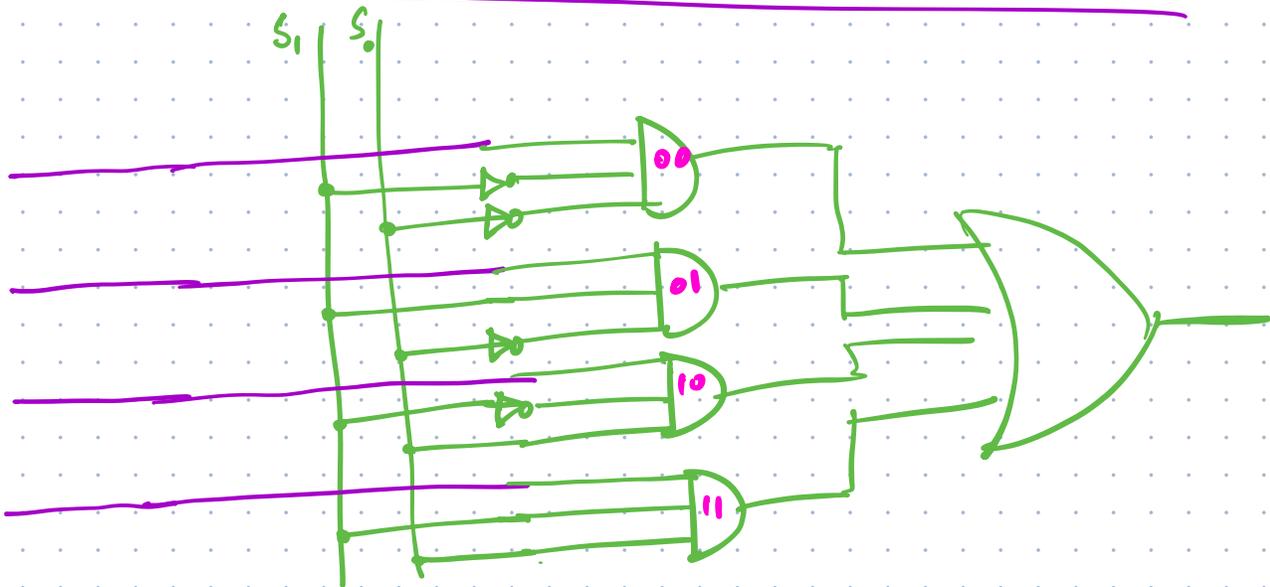
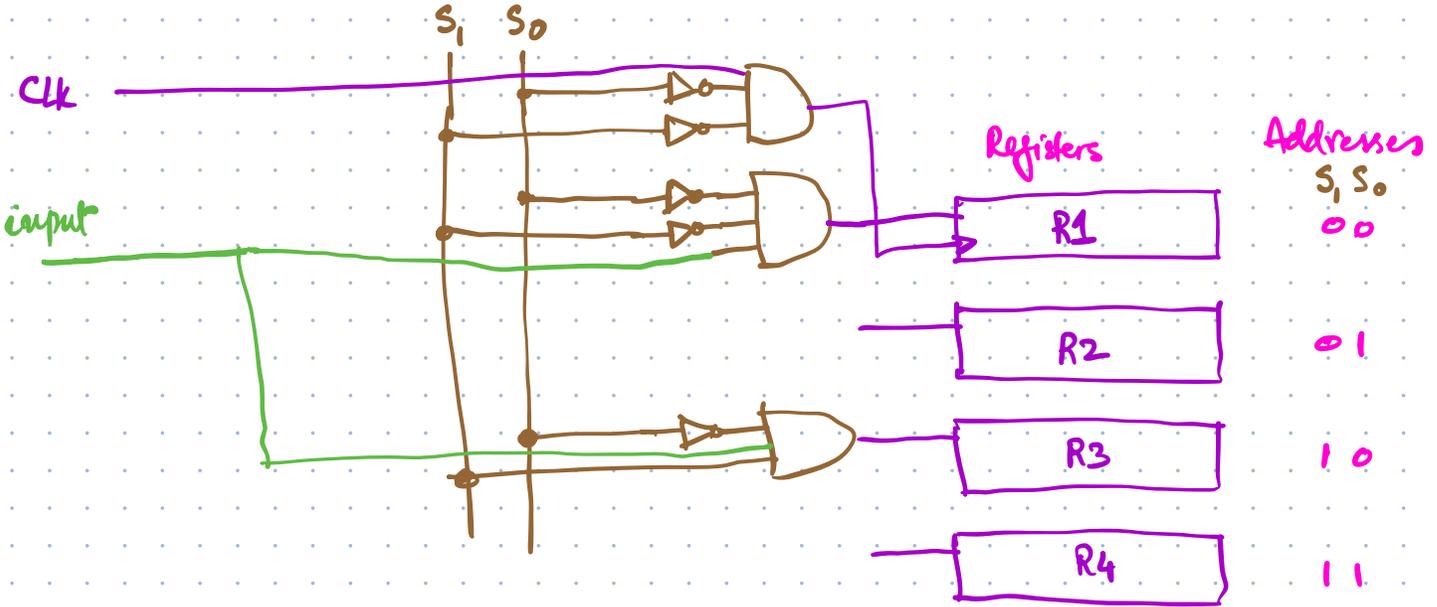
### 4-bit Register



Goal: Store 1101



# Demultiplexer



## Midterm 1.

1. Convert to decimal:  $11000110$   
 $1100.0110$
2. Add  $-38 + 7$  and check if there is an overflow
3. Add  $11011001$   
 $01101011$
4. Convert to decimal assuming two's complement representation  
 $1101$   
 $0111$
5. Is the following transmission correct:  $10110110$  assume odd parity
6. Encode  $11011011$  using Hamming(7,4)