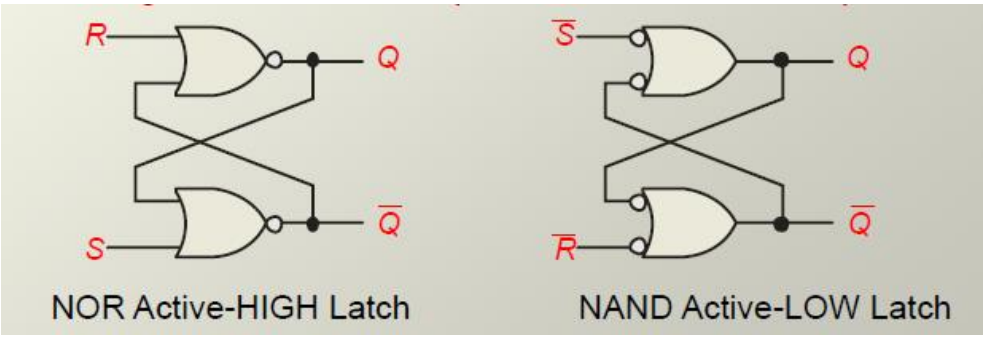
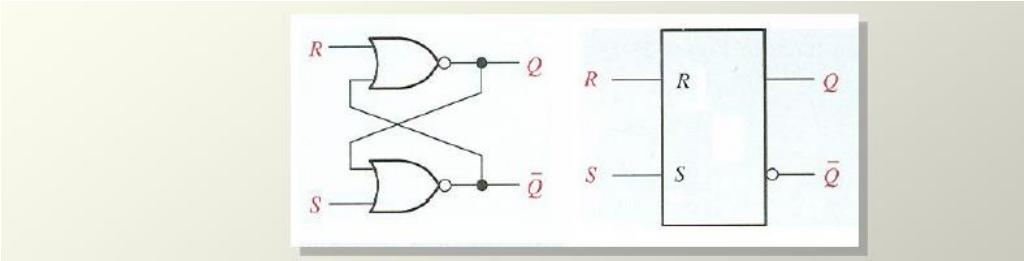
Latches and Flip Flops Lab in Proteus

The S-R (Set-Reset) latch is the most basic type. It can be constructed from NOR gates or NAND gates.

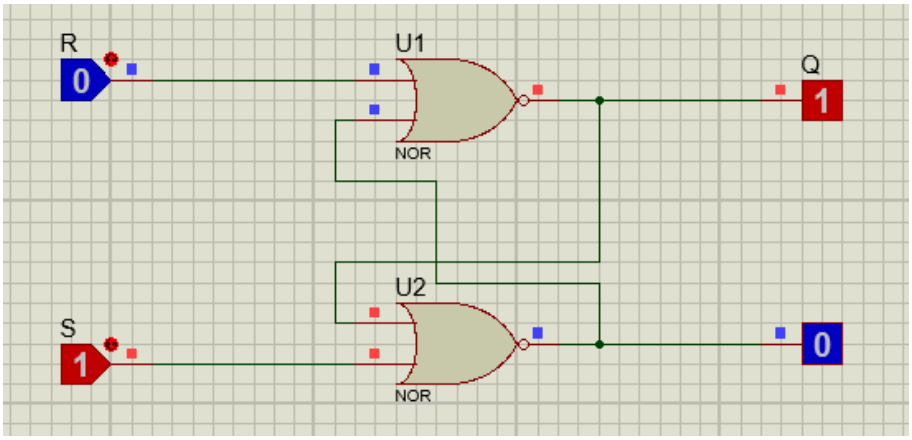
- With NOR gates, the latch responds to active-HIGH inputs.
- With NAND gates, the latch responds to active-LOW inputs.



Active High Latch in Proteus

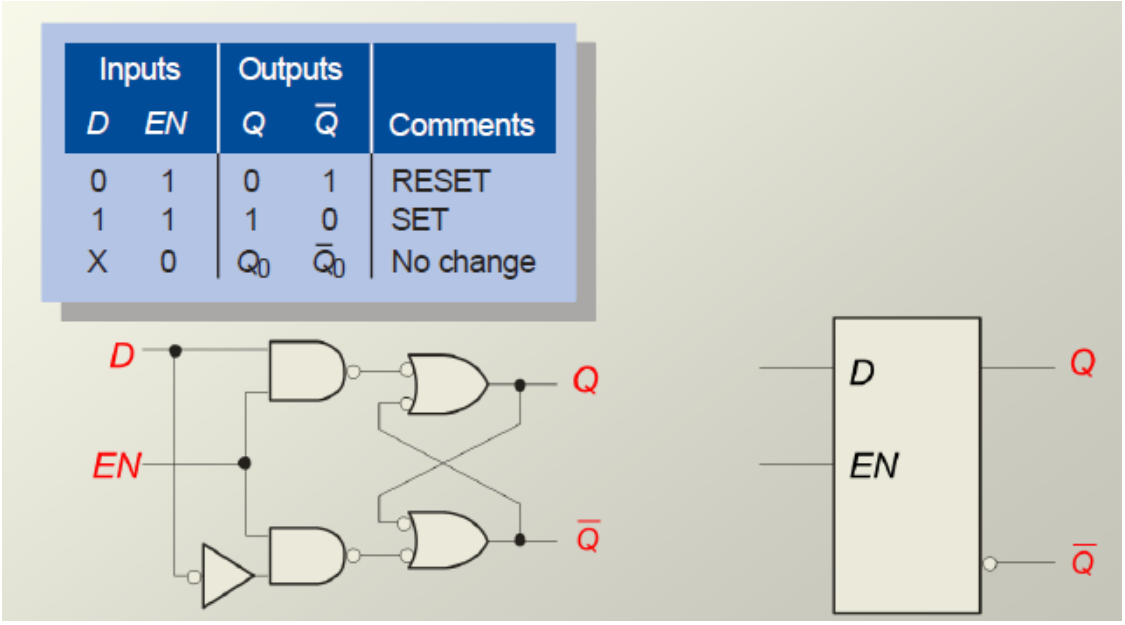


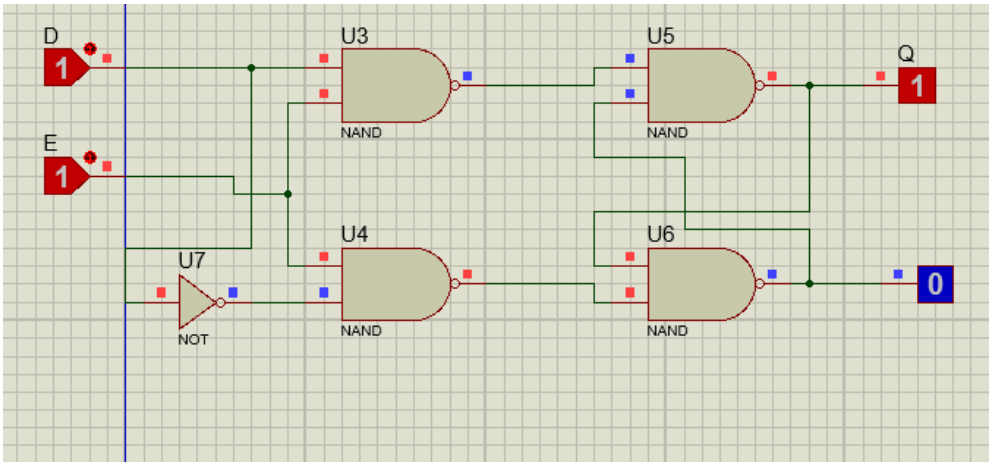
INPUTS S	INPUTS R	OUTPUTS Q	OUTPUTS $\overline{Q}$	COMMENTS
0	0	NC	NC	No change. Latch remains in present state.
0	1	0	1	Latch RESET.
1	0	1	0	Latch SET.
1	1	0	0	Invalid condition



Gated D Latch in Proteus

Inputs		Outputs		
D	*EN*	*Q*	$\bar{Q}$	Comments
0	1	0	1	RESET
1	1	1	0	SET
X	0	Q_0	$\bar{Q}_0$	No change





J-K flip-flop in proteus(ic number 74111)

Inputs			Outputs		
J	K	CLK	Q	$\overline{Q}$	Comments
0	0	↑	Q_0	$\overline{Q}_0$	No change
0	1	↑	0	1	RESET
1	0	↑	1	0	SET
1	1	↑	$\overline{Q}_0$	Q_0	Toggle