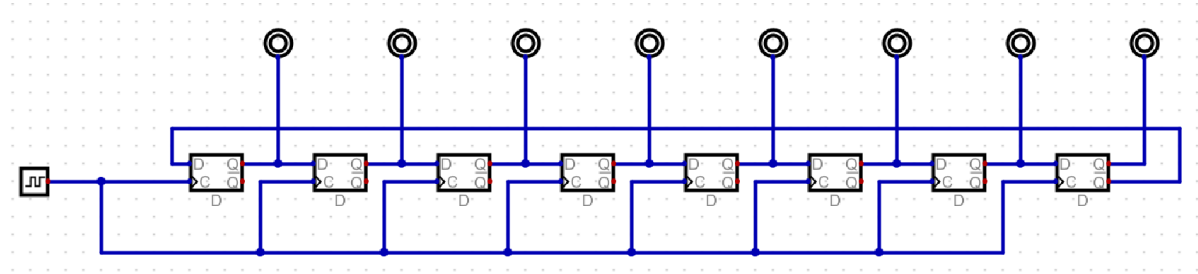
8-bit Johnson Counter

Johnson counter, also known as creeping counter, is an example of a synchronous counter. In the Johnson counter, the complemented output of the last flip flop is connected to the input of the first flip flop, and to implement the n-bit Johnson counter; we require n flip-flop. It is one of the essential types of shift register counter. It is formed by the feedback of the output to its own input. Johnson counter is a ring with an inversion. Another name of the Johnson counter is creeping counter, twisted ring counter, walking counter, mobile counter, and switch tail counter.

Circuit Diagram



Truth Table

Clock Pulse	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1	0	0	0	0	0	0	0	0
2	1	0	0	0	0	0	0	0
3	1	1	0	0	0	0	0	0
4	1	1	1	0	0	0	0	0
5	1	1	1	1	0	0	0	0
6	1	1	1	1	1	0	0	0
7	1	1	1	1	1	1	0	0
8	1	1	1	1	1	1	1	0
9	1	1	1	1	1	1	1	1
10	0	1	1	1	1	1	1	1
11	0	0	1	1	1	1	1	1
12	0	0	0	1	1	1	1	1
13	0	0	0	0	1	1	1	1
14	0	0	0	0	0	1	1	1
15	0	0	0	0	0	0	1	1
16	0	0	0	0	0	0	0	1
17	0	0	0	0	0	0	0	0