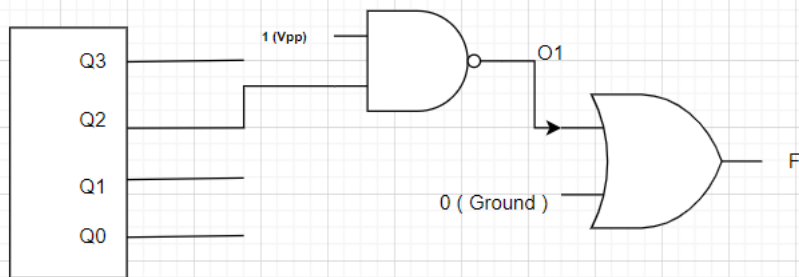


Purpose:

The aim of this lab was learning the gates and how they work. For this we are wanted to look their datasheets and design a circuit with these gates.

Methodology:

Firstly, we look the datasheets of gates and understood that how they work. Then I designed a circuit with a 4-bit counter, 2-input nand gates, 2-input or gate.



TRUTH TABLE					
Q3	Q2	Q1	Q0	O1	F
0	0	0	0	1	1
0	0	0	1	1	1
0	0	1	0	1	1
0	0	1	1	1	1
0	1	0	0	0	0
0	1	0	1	0	0
0	1	1	0	0	0
0	1	1	1	0	0
1	0	0	0	1	1
1	0	0	1	1	1
1	0	1	0	1	1
1	0	1	1	1	1
1	1	0	0	0	0
1	1	0	1	0	0
1	1	1	0	0	0
1	1	1	1	0	0

Figure 1: My circuit and its truth table

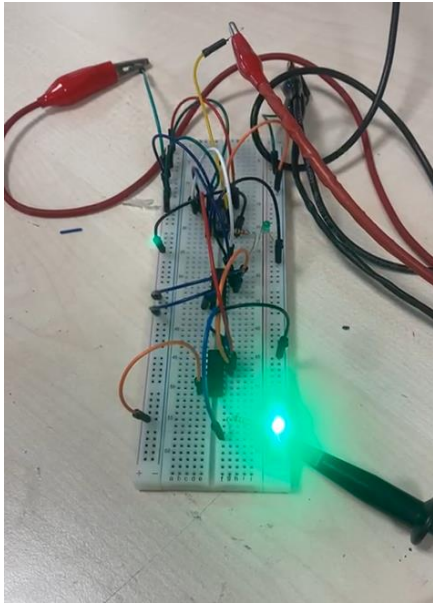


Figure 2: While Q2 is low (0)

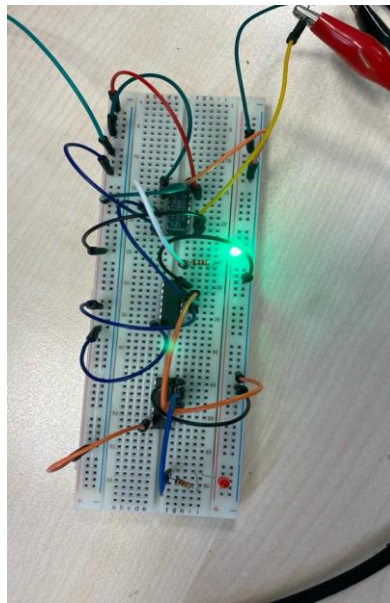


Figure 3: While Q2 is high

Then we tested the circuit with oscilloscope.

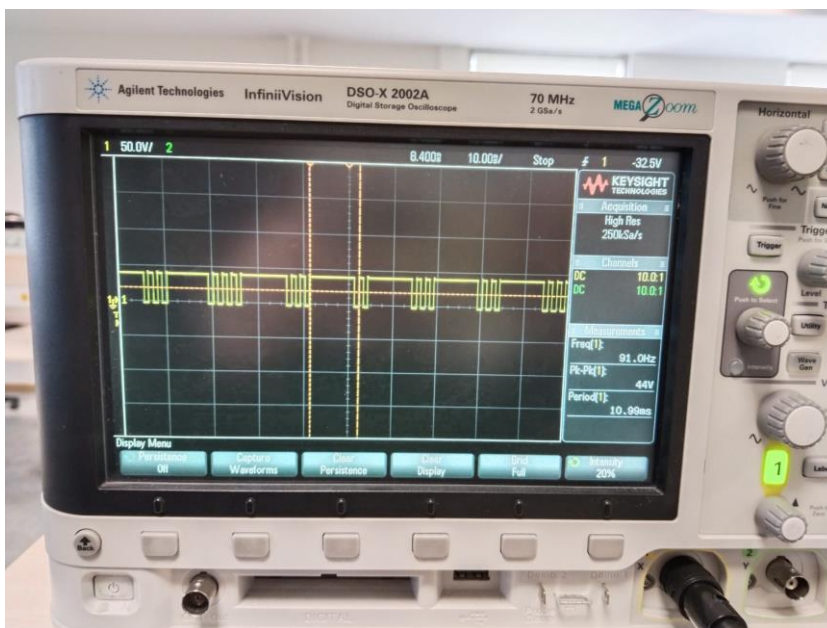


Figure 4: Oscilloscope display of circuit

Conclusion:

As a result, I understood gates mechanism better. We draw circuit and then implemented it on breadboard. So that we learned way better. I think it was really successful experiment for us.