EXPERIMENT-1

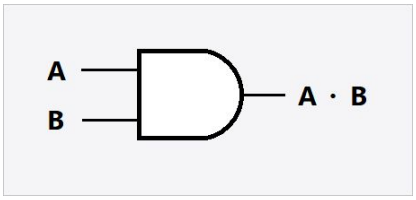
AIM: To verify the truth tables of all logical gates (AND ,OR ,NOT ,NAND , NOR , XOR, XNOR).

HARDWARE / SOFTWARE APPARATUS : Power supply , Bread Board , Connecting Wires, respective IC

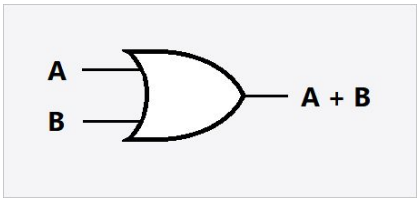
(7404, 7408, 7432, 7486, 7400, 7402, 74266)

CIRCUIT:

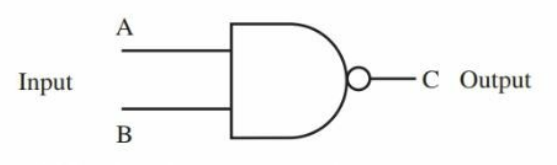
AND GATE



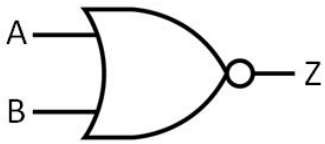
OR GATE

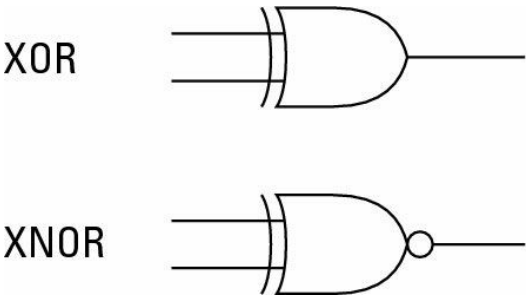


NAND GATE

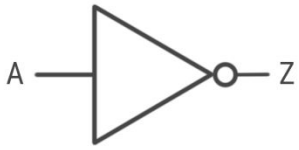


NOR GATE



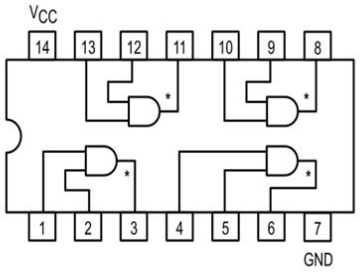


NOT GATE

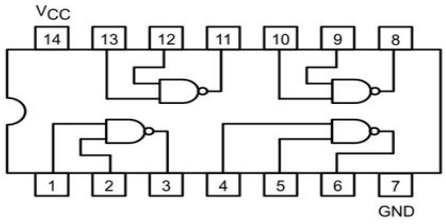


PIN-DIAGRAM:

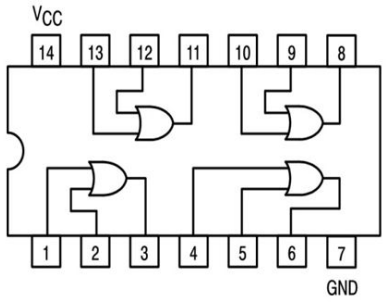
AND GATE



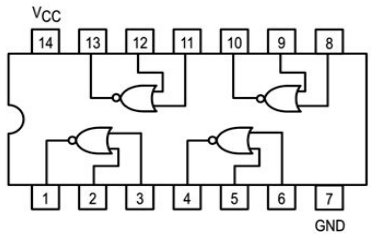
NAND GATE



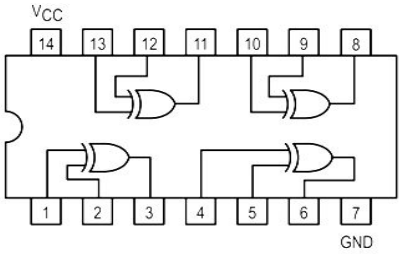
OR GATE



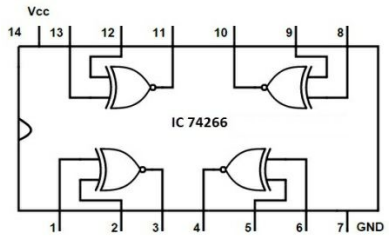
NOR GATE



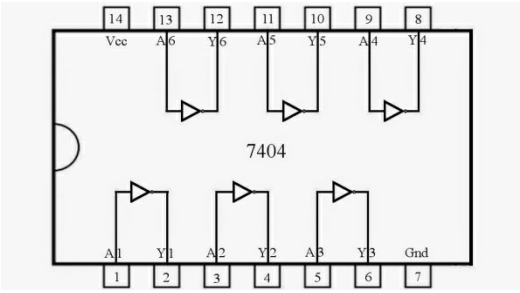
XOR GATE



XNOR GATE



NOT GATE



TRUTH TABLE:

AND GATE

AND Truth Table		
A	B	Q
0	0	0
0	1	0
1	0	0
1	1	1

NAND GATE

NAND Truth Table		
A	B	Q
0	0	1
0	1	1
1	0	1
1	1	0

OR GATE

Or Truth Table		
A	B	Q
0	0	0
0	1	1
1	0	1
1	1	1

NOR GATE

NOR Truth Table		
A	B	Q
0	0	1
0	1	0
1	0	0
1	1	0

XOR GATE

XOR Truth Table		
A	B	Q
0	0	0
0	1	1
1	0	1
1	1	0

XNOR GATE

XNOR Truth Table		
A	B	Q
0	0	1
0	1	0
1	0	0
1	1	1

NOT GATE

NOT Truth Table	
A	Q
0	1
1	0

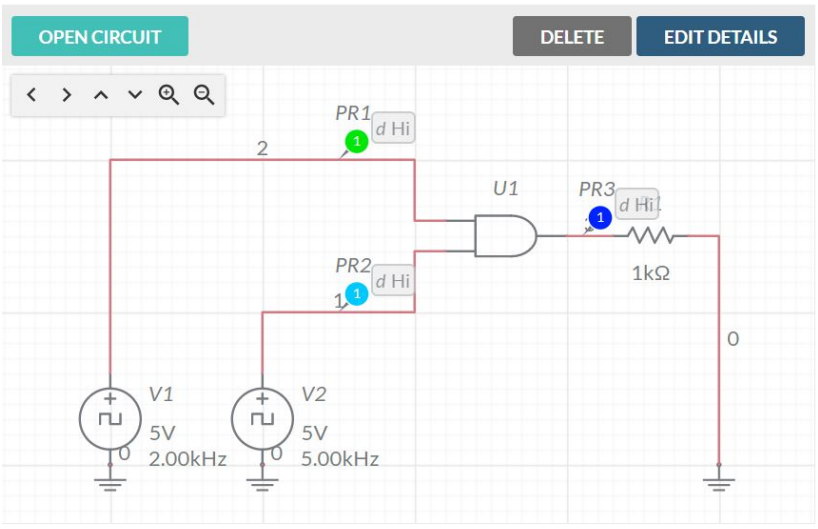
THEORY: Logic gates are electronic circuits which perform logical operations on one or more inputs to produce a signal output. There are 7 logic gates. These include the AND, NAND, OR, NOR, XOR, XNOR and NOT.

PROCEDURE (MULTISIM):

- Select the required gate symbol from the digital section of the tool bar on the left .
- Select a resistor from the same toolbar.
- Select the voltage sources and ground symbols from that toolbar.
- Ground both the voltage sources(clock) and then connect them to the input terminal of the gate.
- Connect the output terminal to 1kohm resistor and ground it.

CIRCUIT DIAGRAMS:

AND GATE



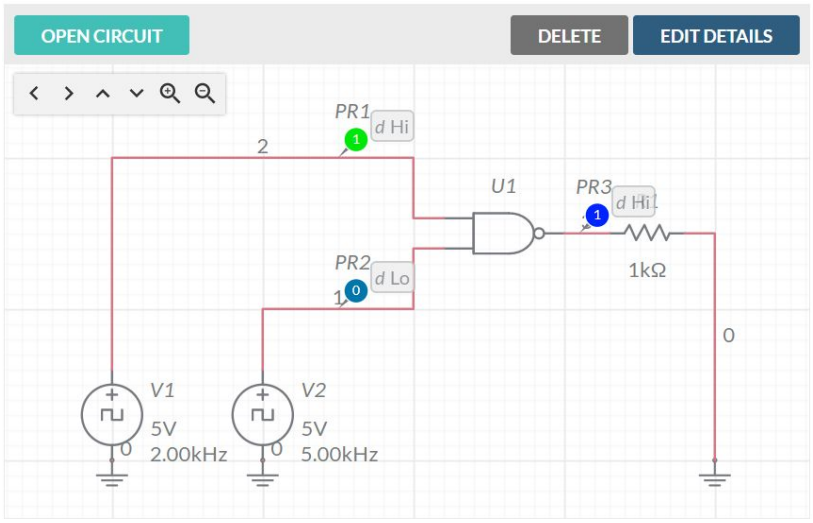
CREATOR
therijulsharma
7 Circuits

DATE CREATED
23 minutes ago

LAST MODIFIED
13 minutes ago

TAGS
This circuit has no tags currently. EDIT TAGS

NAND GATE



CREATOR
therijulsharma
7 Circuits

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LAST MODIFIED
17 minutes ago

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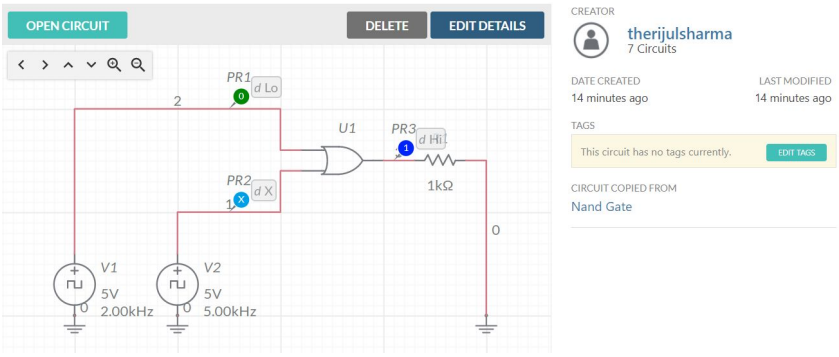
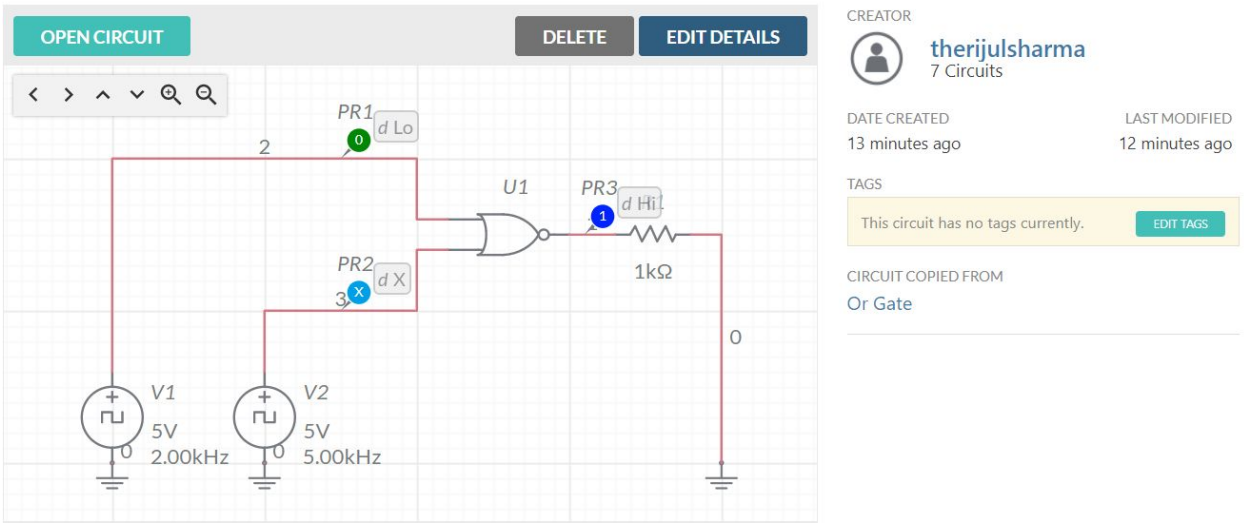
CIRCUIT COPIED FROM
And Gate

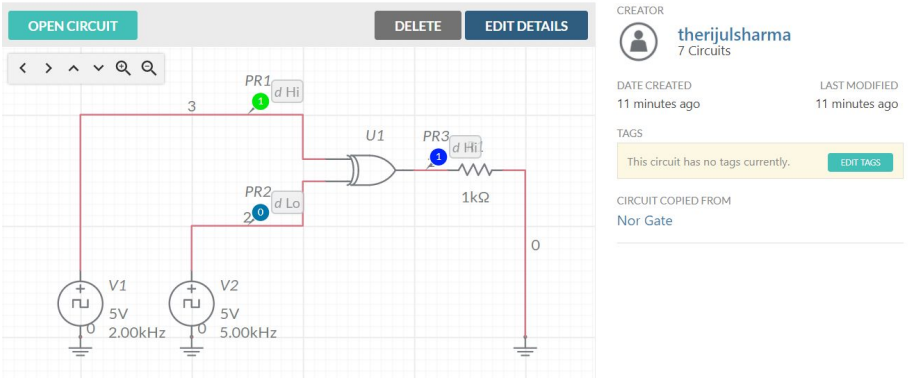
OR GATE



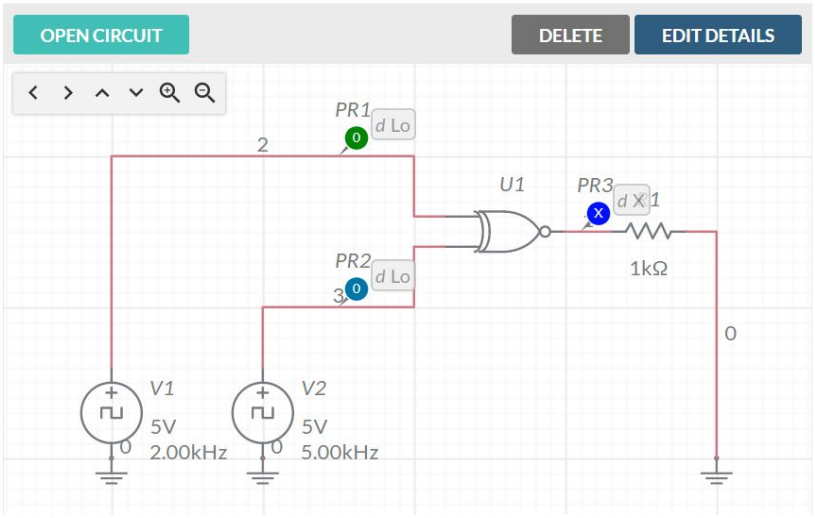
NOR GATE



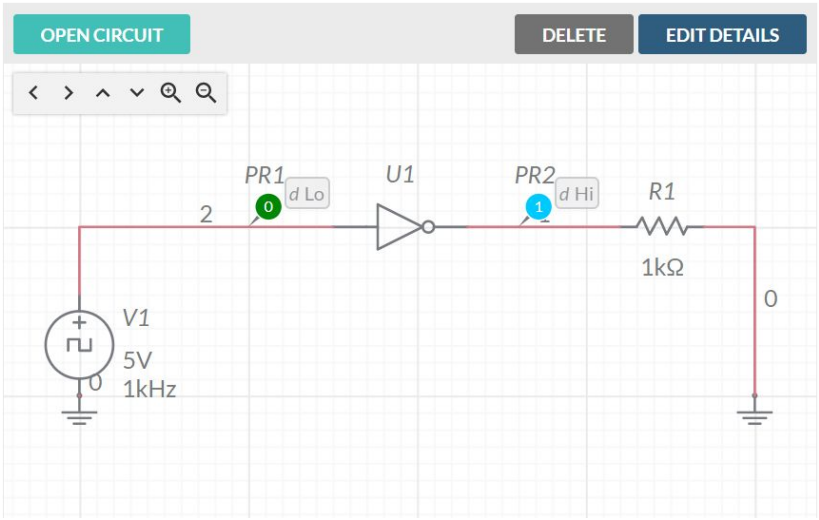
XOR GATE



XNOR GATE

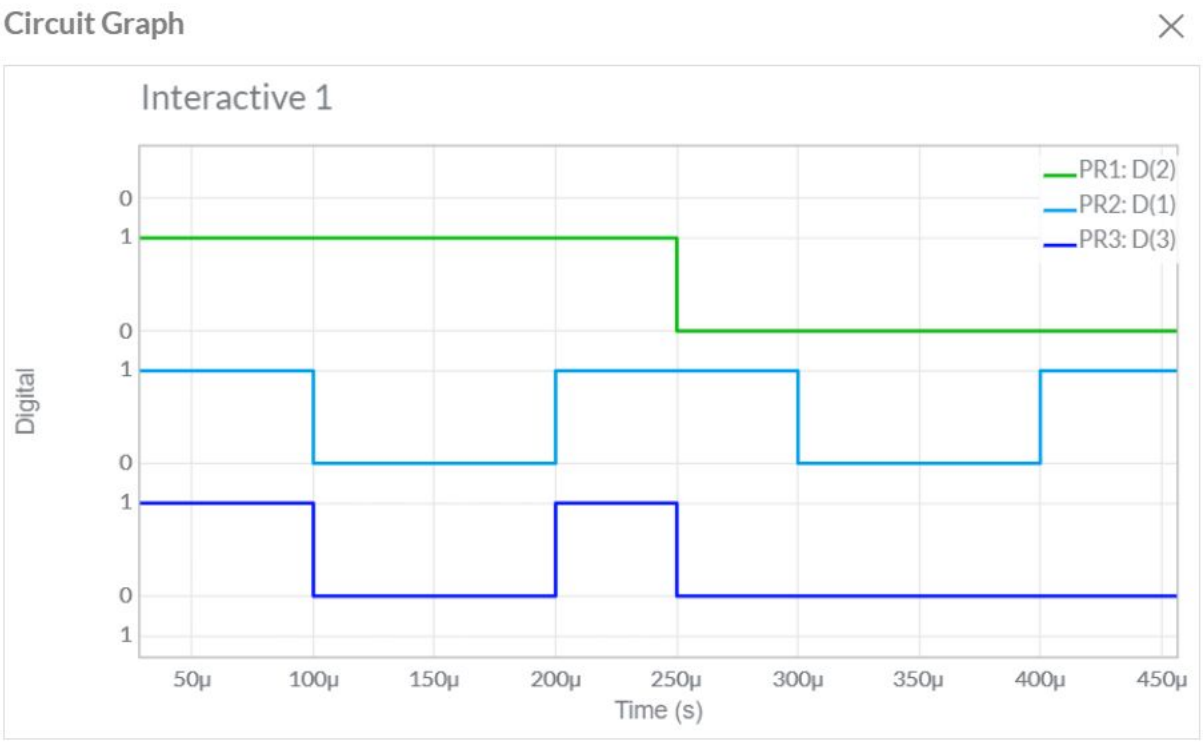


NOT GATE

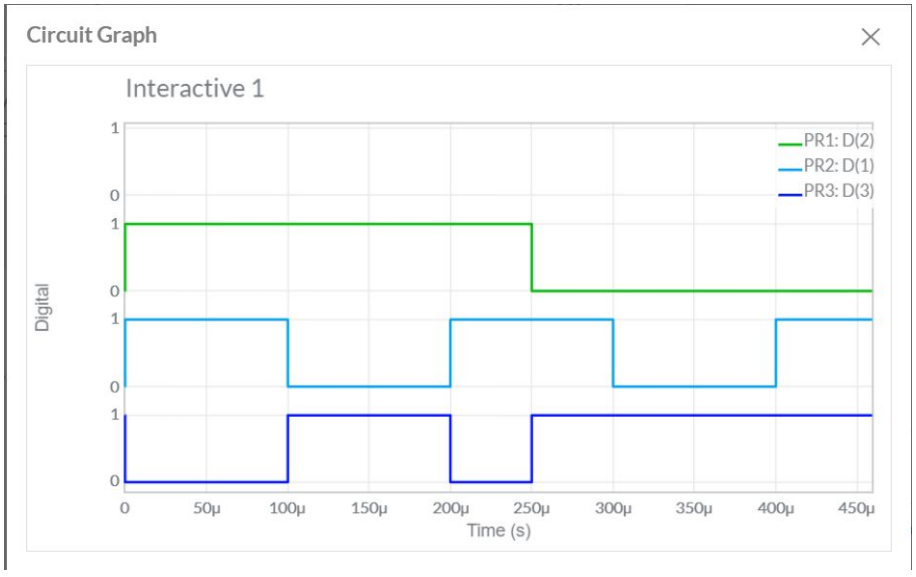


INPUT /OUTPUT WAVEFORMS:

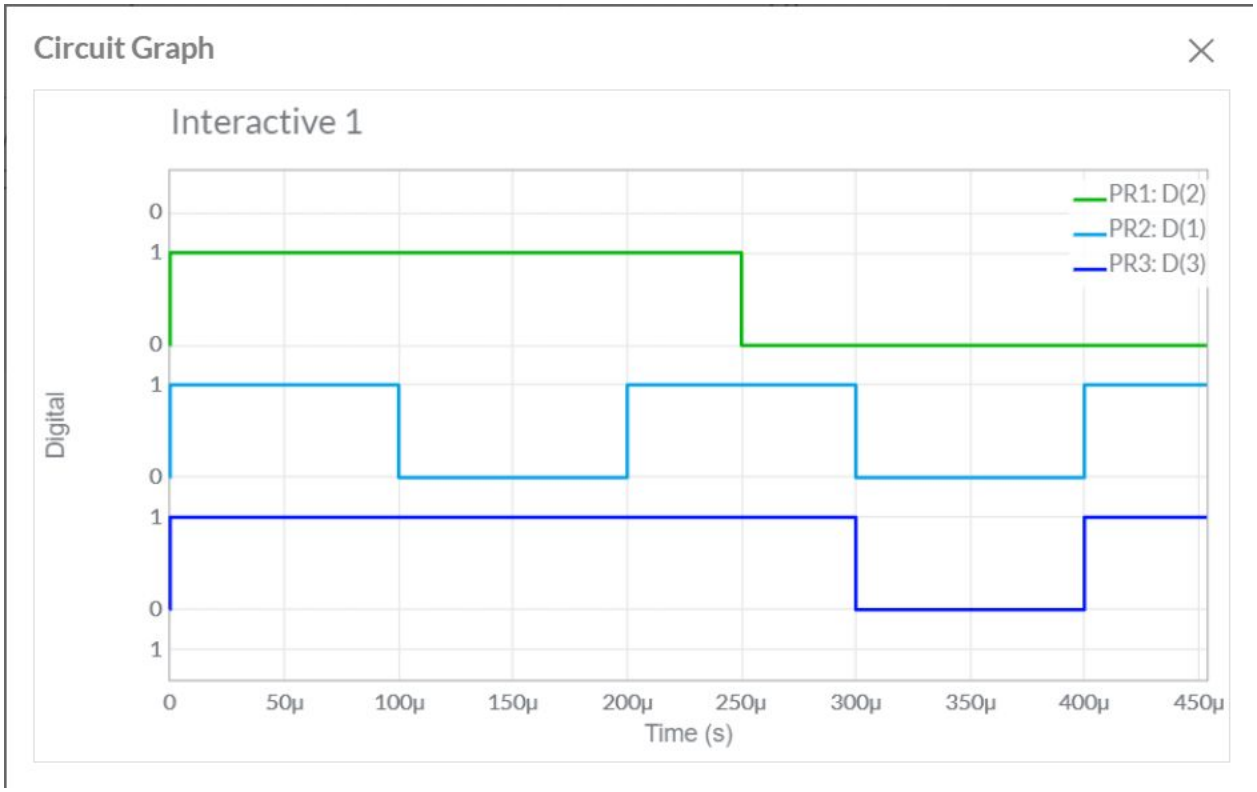
AND GATE



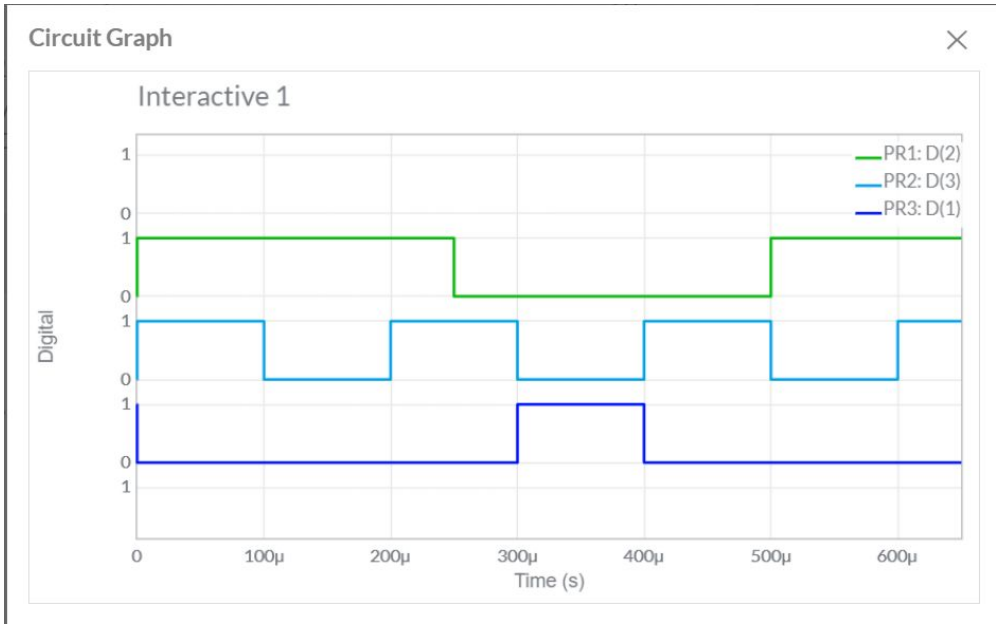
NAND GATE



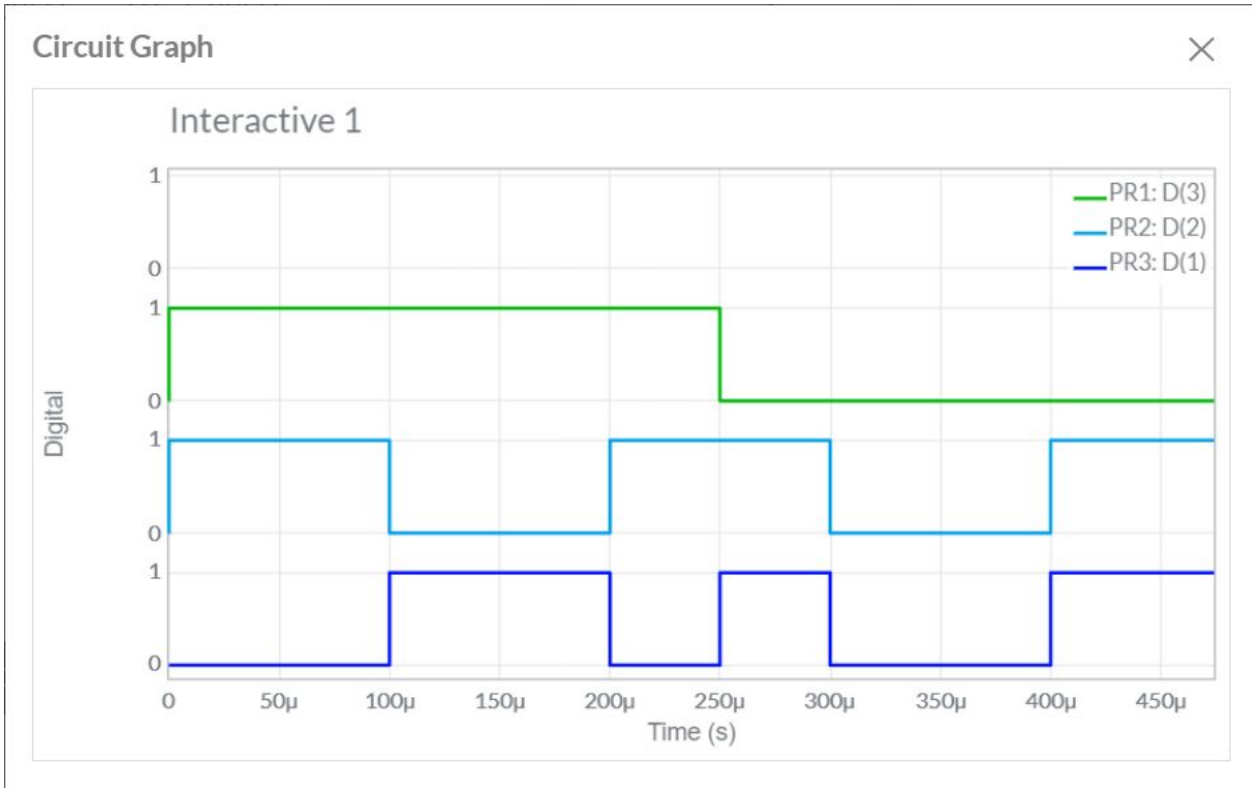
OR GATE



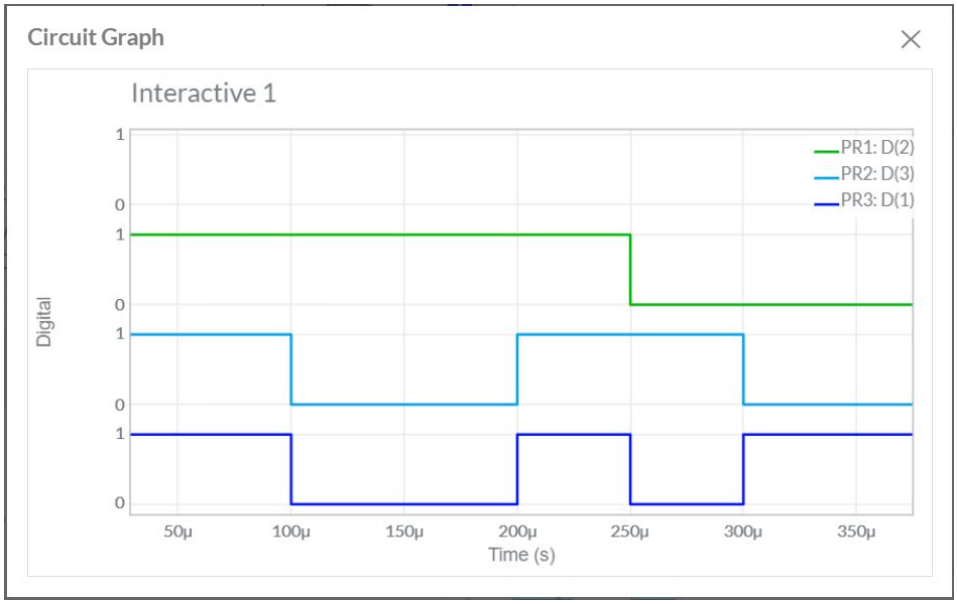
NOR GATE



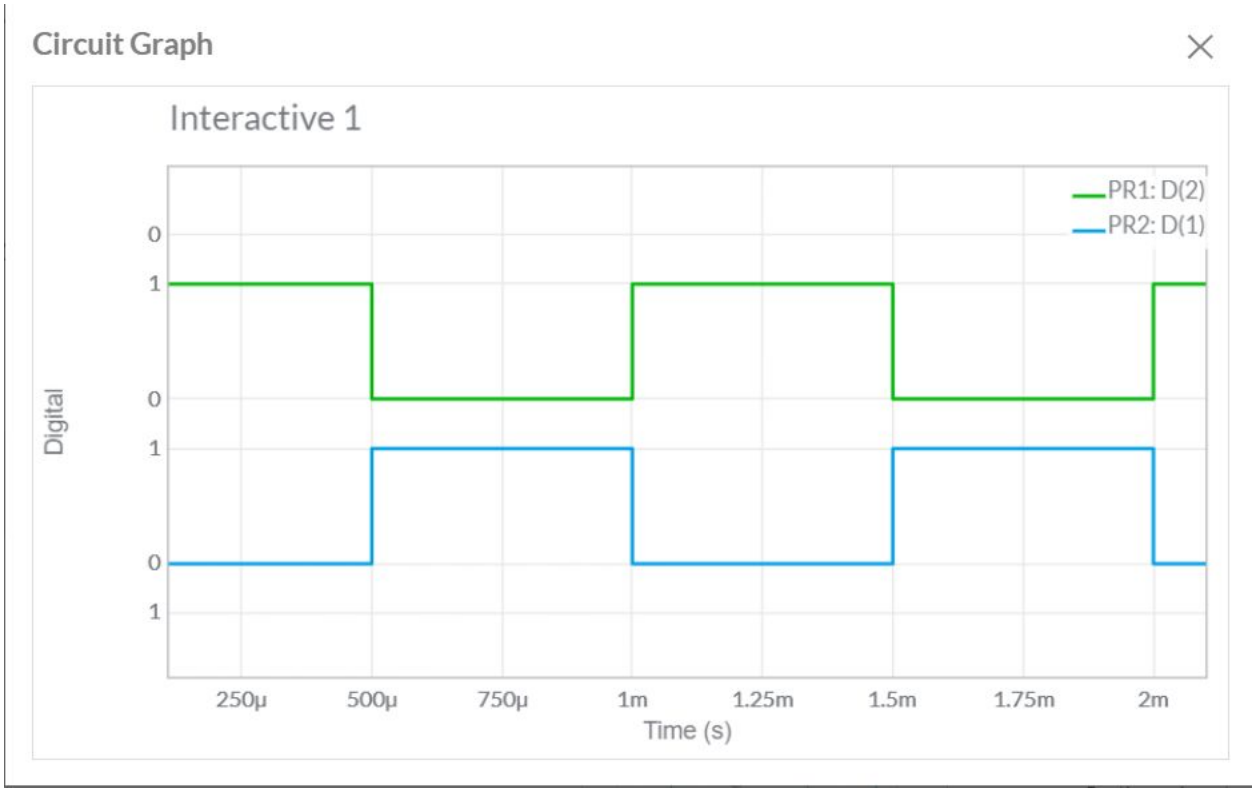
XOR GATE



XNOR GATE



NOT GATE



PRECAUTIONS:

- Power supply should not exceed 5V.
- All the connections should be tight.
- Components should be tested before the practical.