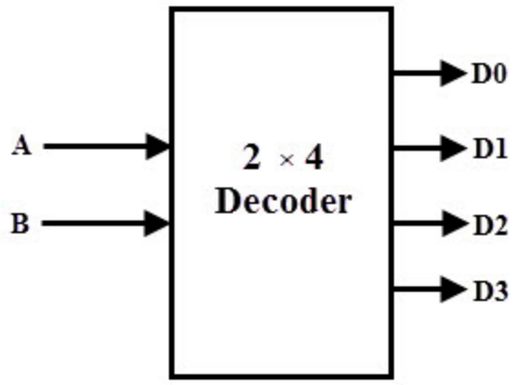
2:4 Binary Decoder Exercise



Summary:
The inputs B and A represent a binary sequence.
B represents the 2's column
A represents the 1's column

When the inputs (BA) representing a binary sequence evaluates to 0, only D0 turns on.
When the inputs (BA) representing a binary sequence evaluates to 1, only D1 turns on.
Etc ...

Fill out the chart.

B (2^1 column)	A (2^0 column)	D0	D1	D2	D3
0	0	1	0	0	0
0	1	0	1	0	0
1	0	0	0	1	0
1	1	0	0	0	1

What are the equations for each output LED (D0 to D3)?
D0: $\overline{A} \bullet \overline{B}$
D1: $A \bullet \overline{B}$
D2: $\overline{A} \bullet B$
D3: $A \bullet B$

Open up Logisim and wire the circuit for each output. Take a screenshot of your circuit for each combination of A and B that produces a different output.

Scenario 1: (Explain briefly here)

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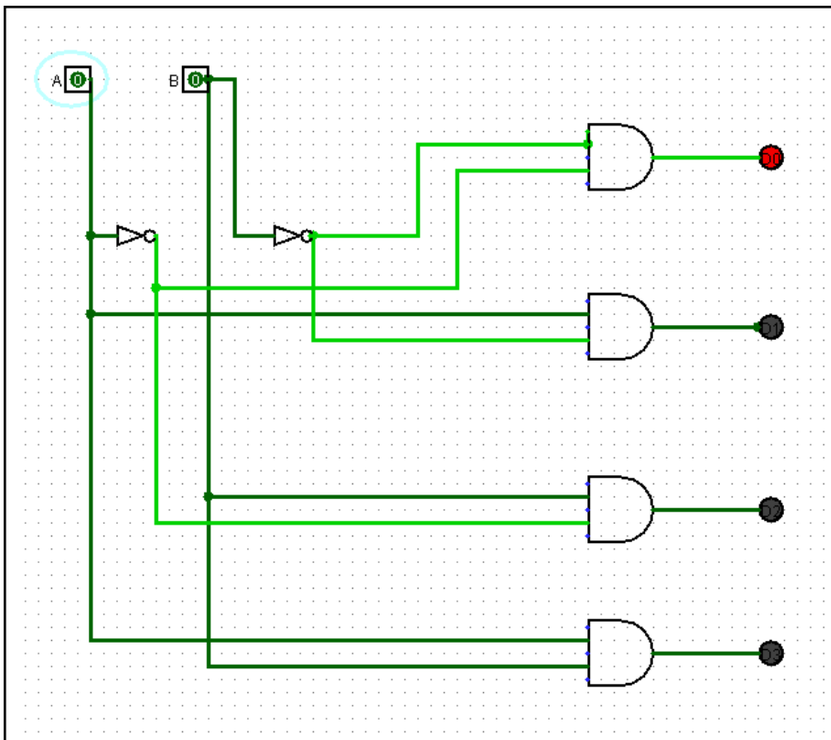
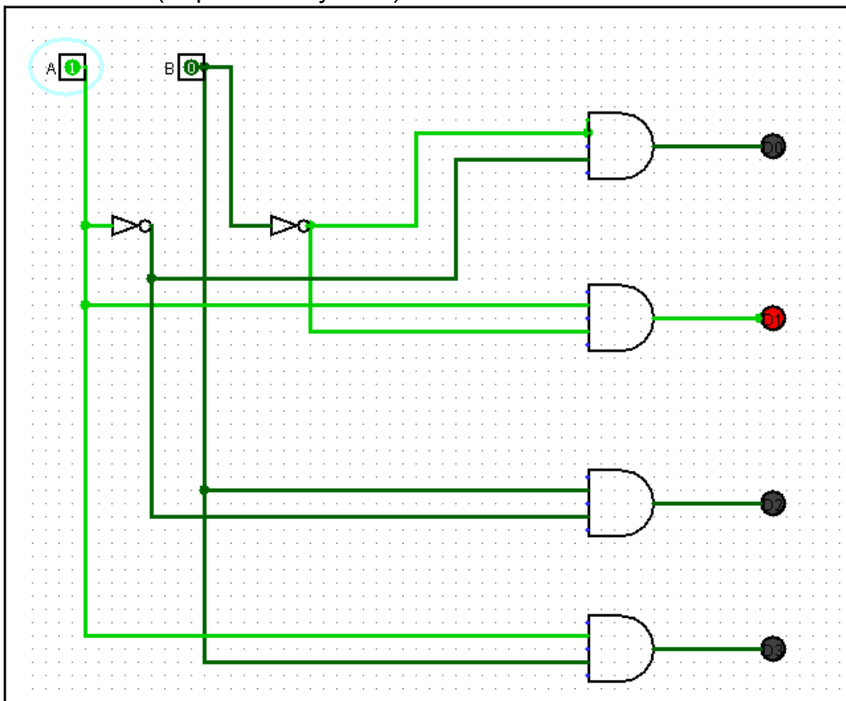


When A and B are both runned through a NOT gate, D0 turns on.

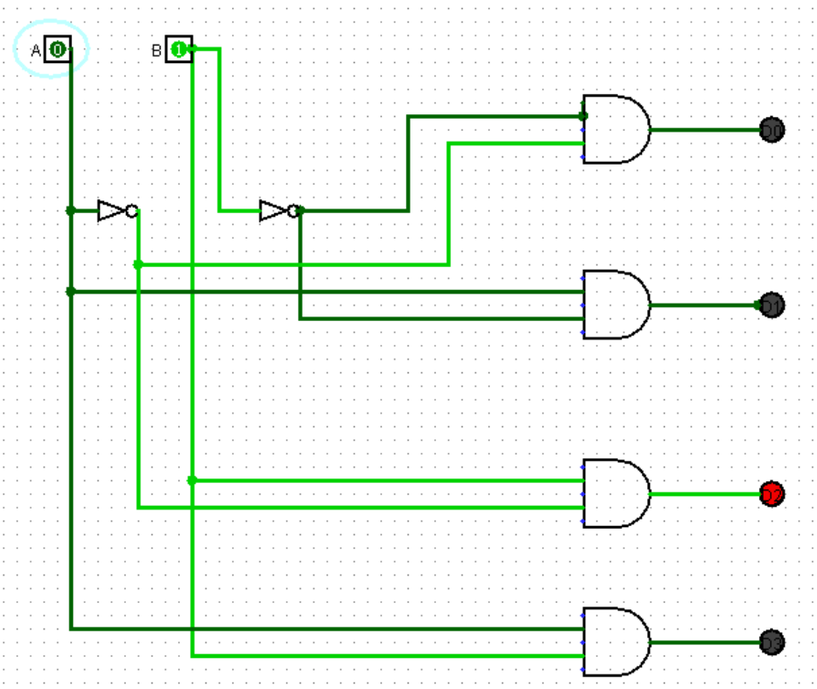
Scenario 2: (Explain briefly here)



When only B is runned through a NOT gate however A isn’t, D1 turns on

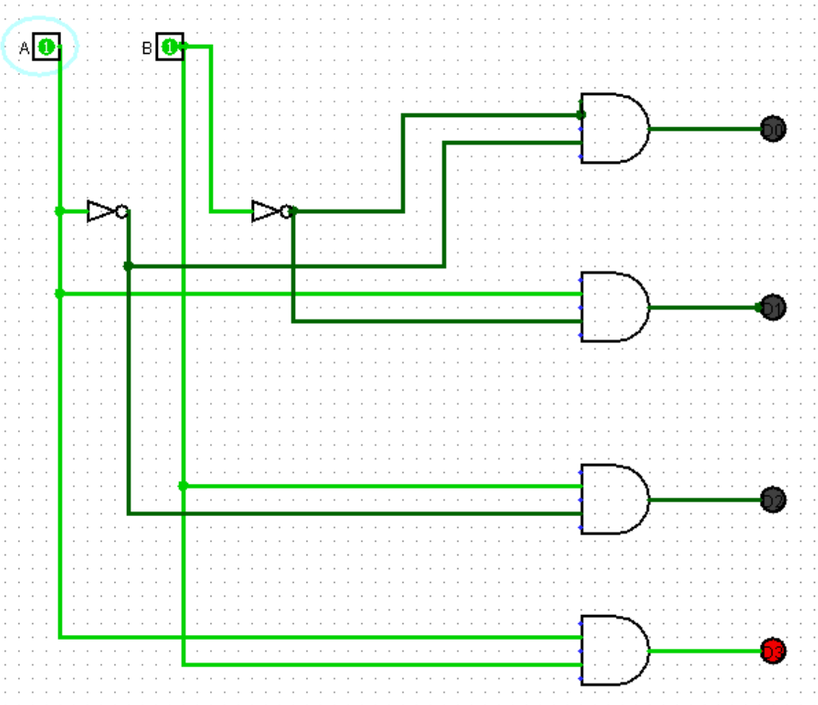
Scenario 3: (Explain briefly here)

2:4 Binary Decoder Exercise



When only A is runned through a NOT gate however B isn’t, D3 turns on

Scenario 4: (Explain briefly here)



When both outputs are not runned through a NOT gate, D4 turns on.