**HALF ADDER**  
**EXP.NO: 21**  
**AIM:**

To design and implement the two bit half adder using Logisim simulator.

**PROCEDURE:**

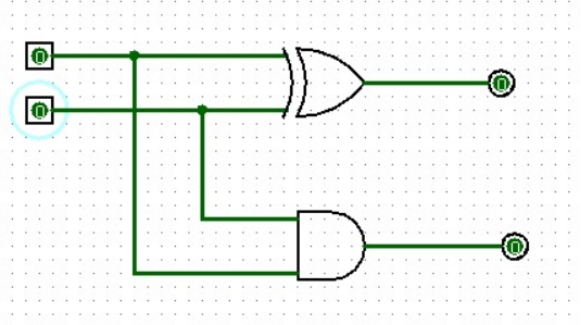
1. Pick and place the necessary gates.
2. Insert 2 inputs into the canvas.
3. Connect the inputs to the XOR gate and AND gate.
4. Insert 2 outputs into the canvas.
5. Make the connections using the connecting wires.
6. Verify the truth table.

**TRUTH TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **A** | **B** | **S** | **C** |
| 0 | 0 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 1 |

S = A XOR B C = A AND B

**OUTPUT**



**RESULT:** Thus 2-bit half adder has been designed and implemented successfully using logisim simulator.