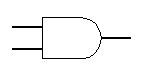
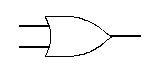
**There are seven basic logic gates: AND, OR, NOT, XOR, NAND, NOR and XNOR.**

1. The (AND) gate is a fundamental logic gate that uses logical conjunction (∧) in logical operation. The output can be only true, if all the inputs are true. You cannot consider the output is true when the inputs are true and false or false and false.

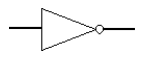
***Real-life scenario:***

*When you log in to online applications like Instagram and Amazon you have to put both your username and password correctly to log in successfully. You cannot have one or both wrong, because that will be unsuccessful.*

2. The (OR) gate is a fundamental logic gate that uses logical disjunction (V) in logical operation. The output can be only true, if one or both inputs are true. You cannot consider the output is true when the inputs are false and false.

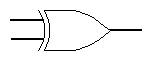
***Real-life scenario:***

When opening your smartphones you have to unlock it using either your face or fingerprints, this allows different security access. You cannot use any other methods except face or fingerprints.

3. The (NOT) gate is a logical inverter that executes logical negation on its input (-) in logical operation. The outputs will be the opposite of the input. True will become false and vice versa.

***Real-life scenario:***

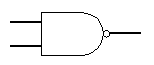
When a smoke detector detects an unusual air-flow it goes off and sounds a warning signal suggesting that there might be smoke nearby.

4. The XOR (exclusive-OR) gate is a fundamental logic gate that functions in the same way as the logical either/or (⊕) in logical operation. The output will be considered true if either, but not both, of the inputs are true. This means that if both inputs are true and both inputs are false, the outputs are considered false.

***Real-life scenario:***

A light switch that can be on and off, but not both at the same time, will ensure that only one at a time can be active.

5. The NAND (Negated AND) gate is a digital combination logic circuit that operates as an AND gate's logical inverse ( - (∧) ) in logical operation. The outputs will be false only if all inputs are true. Then, if the inputs are true and false or both false, the outputs are considered true.



***Real-life scenario:***

In the recycle bin file deletion feature where a file is permanently deleted unless you confirming your action (like clicking yes) are passed.

6. The NOR (NOT OR) gate is a digital logic gate that gives an output of true otherwise, and false if any of its inputs are true ( - ( V) ) in logical operation. The outputs will be false if all of the inputs have true. Then, if the inputs are all false, the outputs are considered true.

***Real-life scenario:***

A fire alarm in a public and private building that goes into a standby mode when there is no smoke, changes in high temperatures, or water movement, conserving battery life.

7. The XNOR (exclusive-NOR) gate is a digital logic gate that performs logical equality ( - (⊕) ) in logical operation, where the outputs will only be true if all inputs are the same. The outputs are true if the inputs are both true and both false. Then if the inputs are true and false or false and true, the outputs are considered false.

***Real-life scenario:***

A strategy game online that allows two players only, they must either choose to protect or destroy and only progress if they make the same choice.

Honor Pledge:

"I affirm that I will not give or receive any unauthorized help on this activity and that all work will be my own."