**LESSON 7: CMOS**

CMOS – COMPLEMENTARY METAL OXIDE SEMICONDUCTOR

Why Use a CMOS Inverter?

**Power Efficiency**: CMOS circuits are essential in low-power applications like mobile devices, sensors, and portable electronics.

The logic levels in CMOS (voltage corresponding to logical 0 and 1) are well-defined, ensuring that signals are processed correctly, even with noise.

**Switching Speed**: CMOS technology enables fast switching between logic levels, making it ideal for high-speed applications. The speed is achieved because only the capacitance of the transistors needs to be charged or discharged, which takes less time compared to other logic families.

**Reliability**: CMOS inverters have a simple, robust design, contributing to their reliability in a wide range of digital applications.

**Reduced Heat Dissipation**: Since CMOS inverters only consume power during state transitions, there is very little heat generated in steady states. This makes CMOS circuits more thermally efficient and less prone to overheating, which is especially important in high-performance computing and battery-operated devices.

**Digital Logic**: CMOS inverters are the fundamental building blocks of many digital circuits, forming the core of logic gates (AND, OR, NOT, NAND, NOR, etc.) in processors and memory devices.

NMOS is the pull-down network between output and source voltage

PMOS is the pull-up network between output and drain voltage

TYPES OF GATE IN CMOS

NOT GATE









