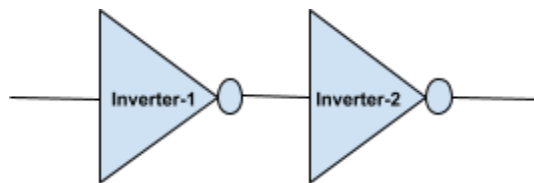


Assignment-2

1. Plot the voltage transfer characteristics (VTC) of a CMOS Inverter for $\beta_n/\beta_p = 1, 2, \frac{1}{2}$ and 3.
 - a. Make all the observations and report your analysis
 - b. Calculate the V_{OH} , V_{OL} , V_{IL} , V_{IH} for different β_n/β_p ratios
 - c. Obtain the Noise Margin levels for all the β_n/β_p ratios
 - d. Calculate the total power and dynamic power of the CMOS Inverter
 - e. Calculate the rise time, fall time and propagation delay for all the β_n/β_p ratios
 - f. Calculate the rise time and fall time for inverter-1 by varying the β_n/β_p ratio (1, 2, $\frac{1}{2}$ and 3) of inverter-2.



2. Plot the Voltage Transfer characteristics of CMOS NAND and NOR gates and calculate the rise time, fall time and propagation delays (*consider $\beta_n/\beta_p = 1, 2, \frac{1}{2}$ and 3*).