Lab 1: Introduction to bottom-up design

In this lab, we designed several logic gates using LTSpice, and used them to build bigger circuits. Here are the guidelines for your report. I don't have a specific format in mind. So if you want to include more information, that's okay too.

Lab tasks:

- We built an inverter schematic and symbol. Did a parametric analysis with a load capacitor.
- We built NAND and NOR gates
- We built 2-1 mux using those gates, and then 4-1 mux using 2-1 muxes

Report guideline:

There needs to be 4 sections.

Introduction: In a few words, describe what this lab is about

Methodology: Describe briefly how you built the final circuit (4-1 Mux) from bottom up starting from logic gates. Provide screenshots of your inverter, nand, nor, 2-1 mux, 4-1 mux schematics and symbols. Show me the final simulation circuit of 4-1 mux. Show me your parametric simulation with inverter.

Result: Show me the result of your parametric analysis with inverter and capacitor. And only show the final results from 4-1 mux. Describe results in a few words, what does it signify?

Discussion: Describe in a few words what you learned from this analysis, and the challenges you faced.