Github url:
https://github.com/Almo-o/Computer-Organization-and-Assembly/tree/main/Assignment-2

Brief Description:

The register file is designed with two read ports and one write port.. Two read address decoders fetch data from two registers via multiplexers, while a write decoder selects the target register for writing when the write signal is on.

ALU: Components- a 4-bit adder, a multiplexer, and control signals (S1,S0,Cin). The MUX selects between inputs like B, -B (complement of B), 0000, or 1111, which are wired into the adder along with A, and CIN. Operations such as addition, subtraction , increment, decrement, and transfer are then achieved by having specific s1,s0,cin configurations.
Screenshots: