Mohammed Alsheraa

I worked alone, everything i did myself.

https://github.com/Alsheraa313/assignment-2-310

Register file:
We can have two read pins with a single write input by using both multiplexors and demultiplexors. Out input write pin goes through a demultiplexor that will output to four different registers depending on the input. These registers will then be selected based on the value of the read pins that are set as the select nodes of two multiplexors.

Alu arithmetic:
How you handled add, subtract, increment, decrement, and transfer operations.
By having the b input, b compliment, constant value 0, and 0 compliment (F) fed into a 2 selector pin multiplexor, we are able to select between which input passed through to the full adder with A using a selector pin that is split between the multiplexor, and transferring the carry in.
If the selector pin is 0, the first input is passed through to the full adder which is B. if the selector pin is 1 B is passed through alongside with the split bit from the selector node. If the pin is 2 we subtract without borrow, and if its 3 we subtract with a borrow since it selects the inverse of B. if the pin is 4, 0 is passed through, which transfers A. if the pin is 5 it transfers the carry in to A, incrementing A. if the pin is 6, it decrements A by transferring the inverse of 0 to be added to A in the full adder.