CSC258 lab7
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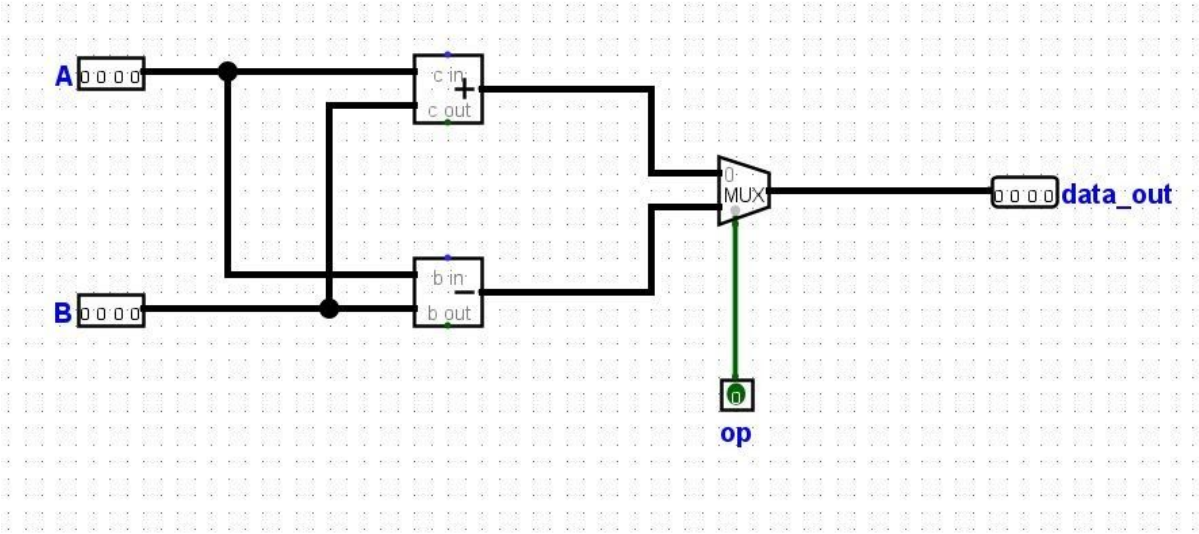
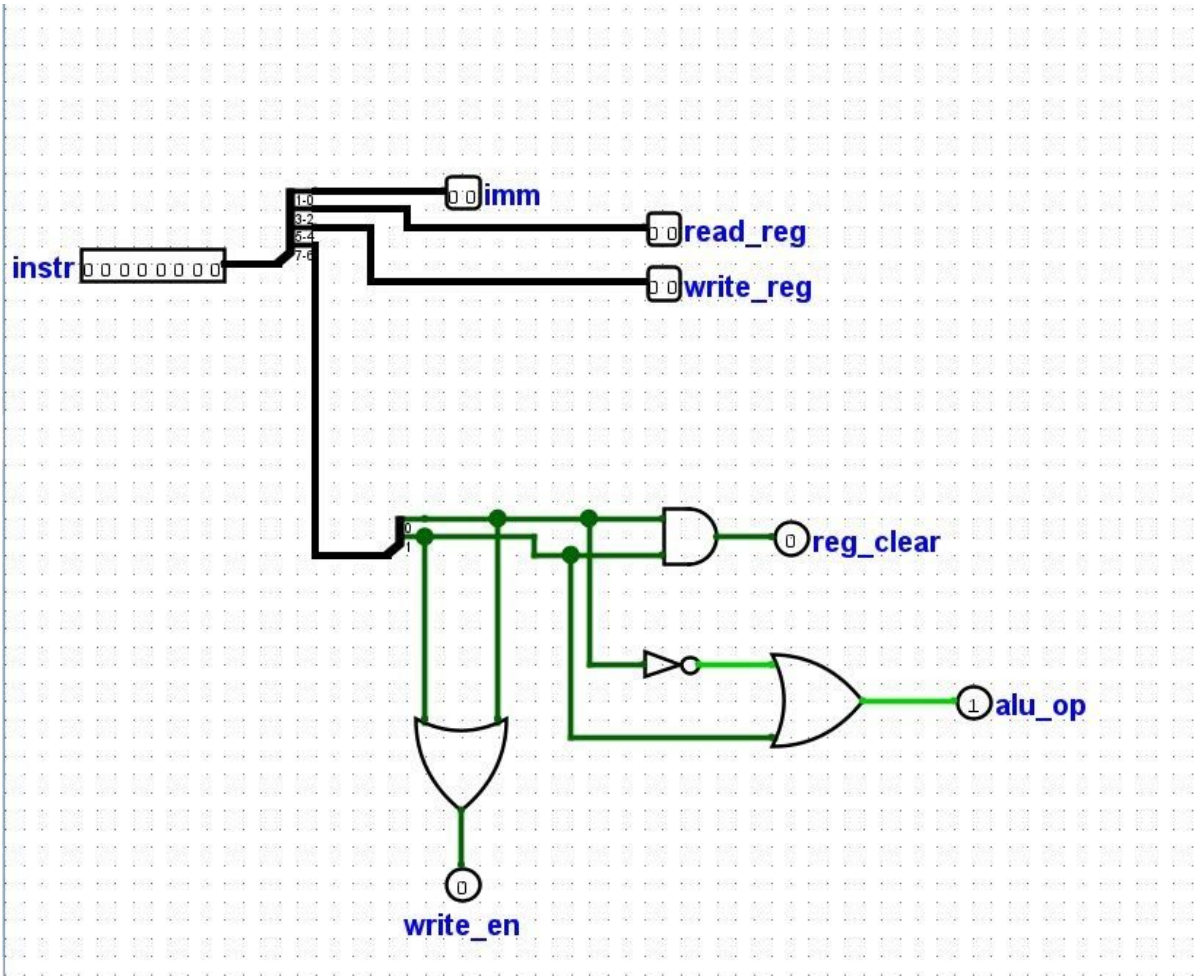
PRA0105

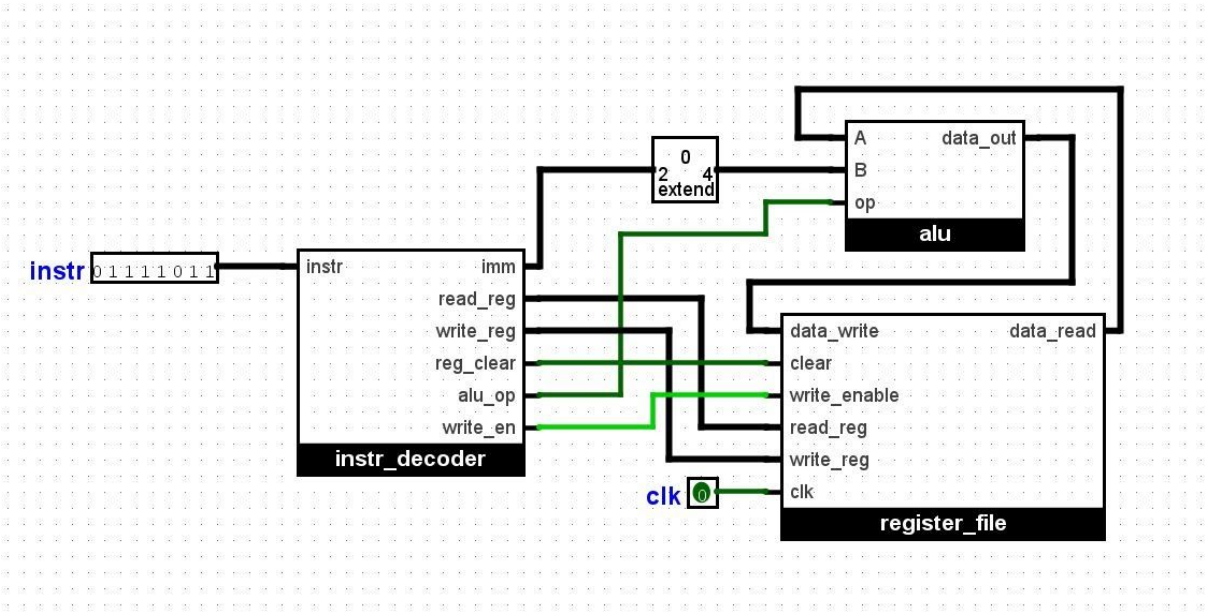
ALU



instruction decoder



main



Example machine instruction: 01100011
Start with the following state(before execution): reg0=4;reg1=3;reg2=0;reg3=0
The machine instruction is decoded as follows:
imm=3;
Src reg= reg0;
Dest reg=reg2;
op= ALU operation A;
The whole instruction is src_reg ALU operation A imm and write the result to dest_reg.
The alu_op is set to low to select the ALU operation A output(high for operation B).
The write_en is set to high for writing the ALU output to dest_reg.
The reg_clear is set to low since the op code is not CLEAR DEST REG(ie.11).
In a clock cycle, the ALU takes the value from reg0 and performs addition with imm.
Then the selected ALU output(4+3=7) is sent to data_write to be written to reg2.
Finally, we have the state: reg0=4;reg1=3;reg2=7;reg3=0.