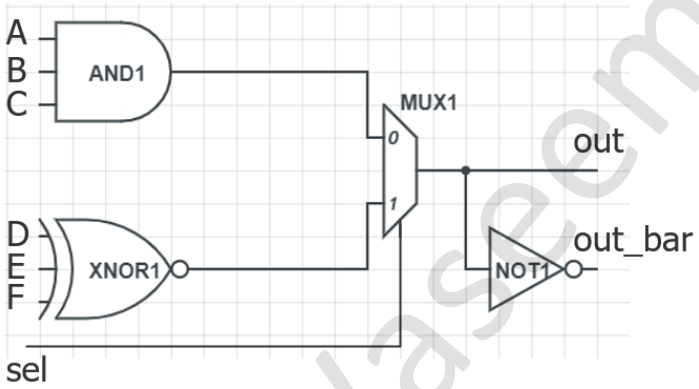
Combinational Circuit Design

Design the following circuits using Verilog

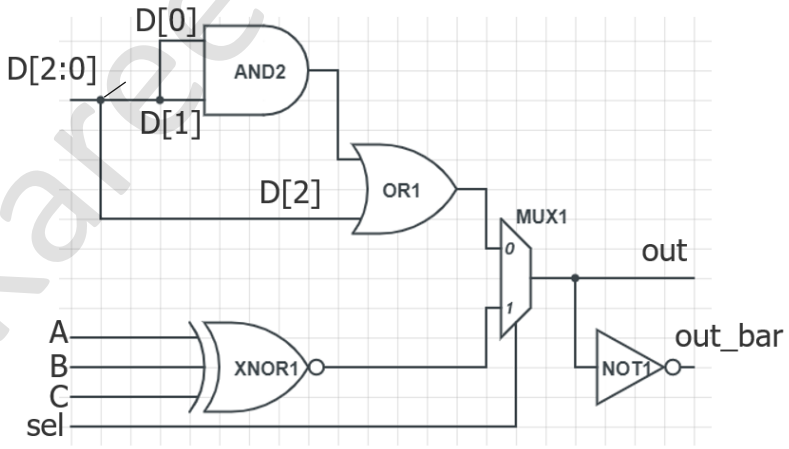
1)

- The design has 7 inputs and 2 outputs
- Use assign statements (structural coding style) to design the following



2)

- The design has 5 inputs and 2 outputs
- Use Behavioral coding style to implement the basic gates



Kareem Waseem

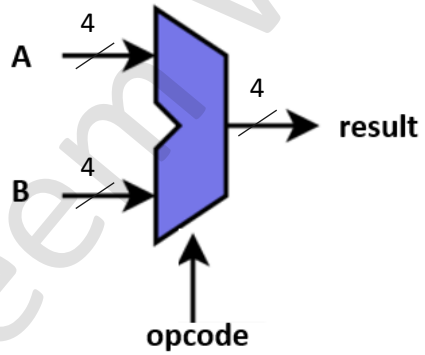
3) Implement 4-bit half-adder using Dataflow modeling style

- The design takes 2 inputs (A, B) and the summation is assigned to output (C) ignoring the carry

4) Design 4-bit ALU that perform the following operations

- The design has 3 inputs and 1 output
- For the subtraction, subtract B from A "A – B"

Inputs		Outputs
opcode		Operation
0	0	Addition
1	0	Subtraction
0	1	OR
1	1	XOR



Deliverables:

1) The assignment should be submitted as a PDF file with this format <your_name>_Assignment1 for example Kareem_Waseem_Assignment1
2) Snippets from the waveforms captured from Modelsim for each design with inputs assigned values and output values visible

Note that your document should be organized as 4 sections corresponding to each design above, and in each section, I am expecting the Verilog code and the waveforms snippets

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