

# CS2310: Digital Logic Design Lab

## Experiment 3

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### **Problem Statement**

In this lab, you will be designing and implementing circuits to solve the following two problems. You can use any of the basic 2-input logic gates (AND-OR-NOT-NAND-NOR-XOR) in your implementation, but you can use at most one IC chip of a certain type (eg., you can't use two IC7402's for Problem 1), for each problem.

#### **A) Determinant of a binary matrix**

Design a circuit that evaluates the determinant of a 2 X 2 binary matrix  
(Note : State any assumptions made about input and output representations)

#### **B) 2-bit Comparator**

Design a circuit that takes two unsigned 2-bit numbers (a and b), and displays one of greater ( $a < b$ ), lesser ( $a > b$ ) or equal ( $a == b$ ) signals.