



King Saud University

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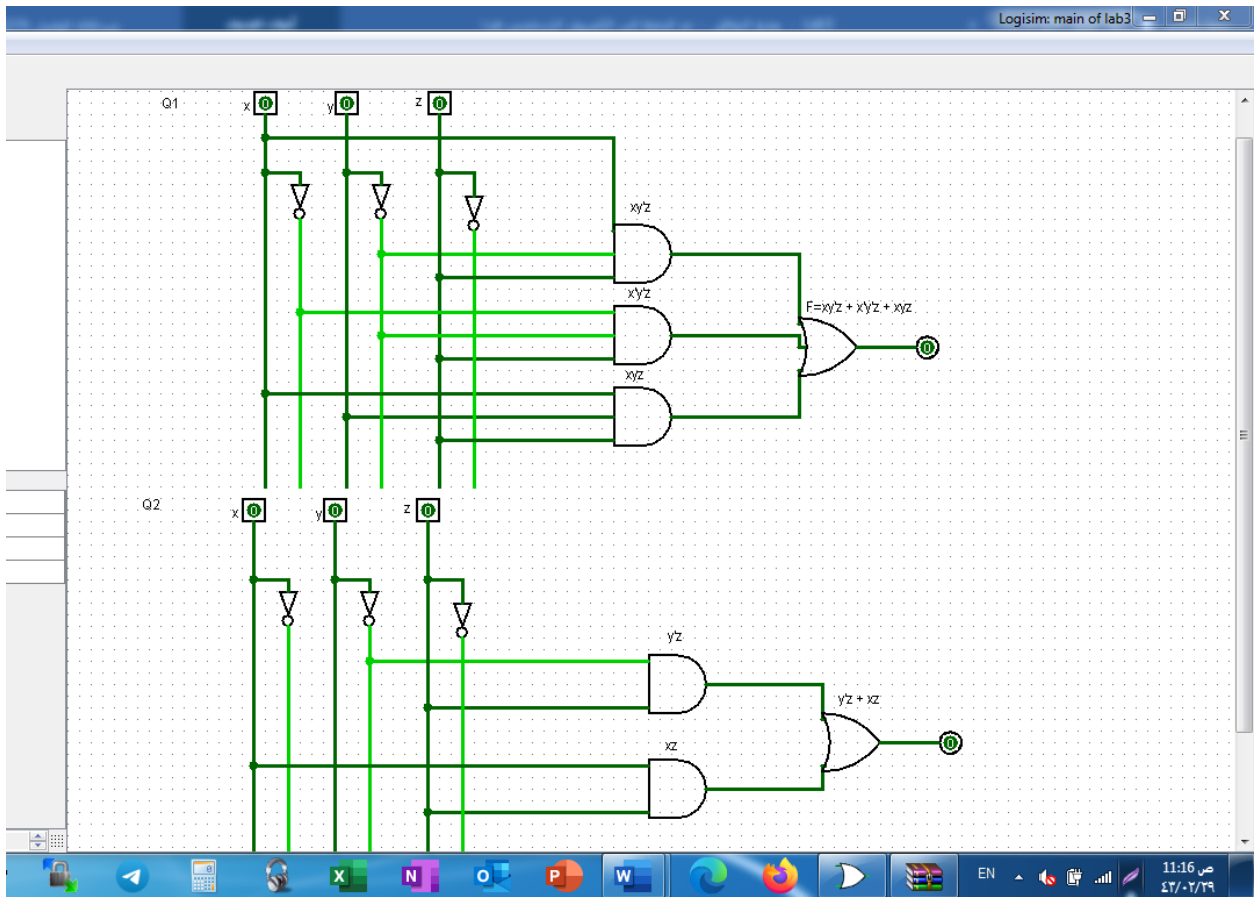
CSC 220: Computer Organization

Labwork - #3

1. Introduction

In this lab we have 2 questions, the first one we've been given a Boolean expression and asked to list the truth table for it, draw and design the logic diagram using Logisim software, simplify it using Boolean algebra, then do it again (truth table and designing) with the simplified Boolean expression.

2. Experiments



3. Results

Q1:

x	y	z	x'	y'	z'	xy'z	x'y'z	xyz	$F = xy'z + x'y'z + xyz$
0	0	0	1	1	1	0	0	0	0
0	0	1	1	1	0	0	1	0	1
0	1	0	1	0	1	0	0	0	0
0	1	1	1	0	0	0	0	0	0
1	0	0	0	1	1	0	0	0	0
1	0	1	0	1	0	1	0	0	1
1	1	0	0	0	1	0	0	0	0
1	1	1	0	0	0	0	0	1	1

Q2:

x	y	z	x'	y'	z'	y'z	xz	F=y'z+xz
0	0	0	1	1	1	0	0	0
0	0	1	1	1	0	1	0	1
0	1	0	1	0	1	0	0	0
0	1	1	1	0	0	0	0	0
1	0	0	0	1	1	0	0	0
1	0	1	0	1	0	1	1	1
1	1	0	0	0	1	0	0	0
1	1	1	0	0	0	0	1	1

4. Discussion

In question number one we notice that in the first circuit we have 6 gates (including the NOT gate) and in the second one we have only 4 and they both have the same outputs, which means that the second one is cheaper and faster to work with.