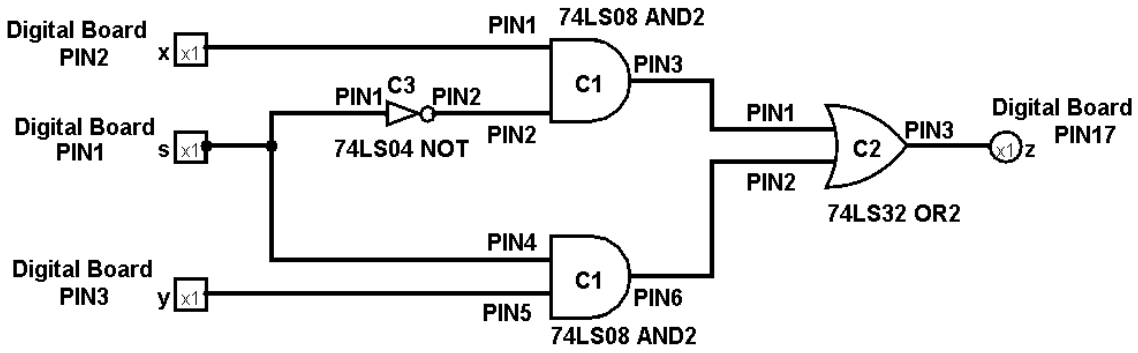
CSC258 – Lab1 **Pufan Zhao & ZiYu Zhang**

Part 1: **1002744021 & 1001426076**

Function: *f = xs' + ys*



Chips used:

C1 – 74LS08 AND gate

C2 – 74LS32 OR gate

C3 – 74LS04 NOT gate

Connected to all chips:

PIN#7 – Gnd

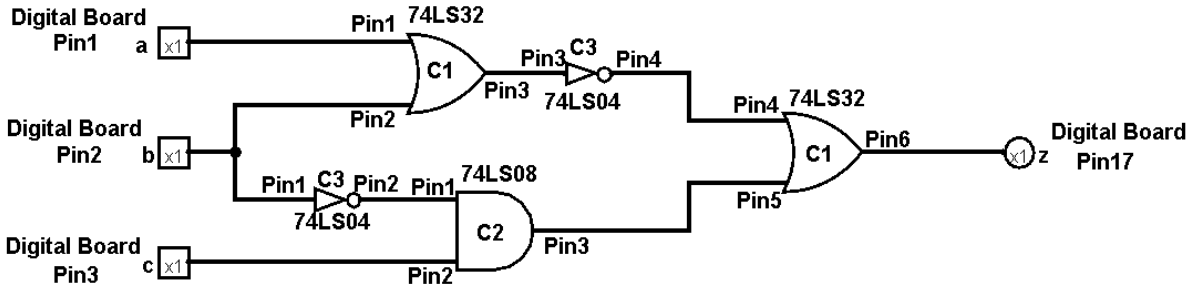
PIN#14 – Vcc

Truth Table:

S	X	Y	Z
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1

Part 2:

Function: *f = (a+b)' + cb'*



Chip used:

C1 - 74LS32 OR gate

C2 - 74LS08 AND gate

C3 - 74LS04 NOT gate

Connected to all chips:

PIN#7 – Gnd

PIN#14 – Vcc

Truth Table:

a	b	c	z
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

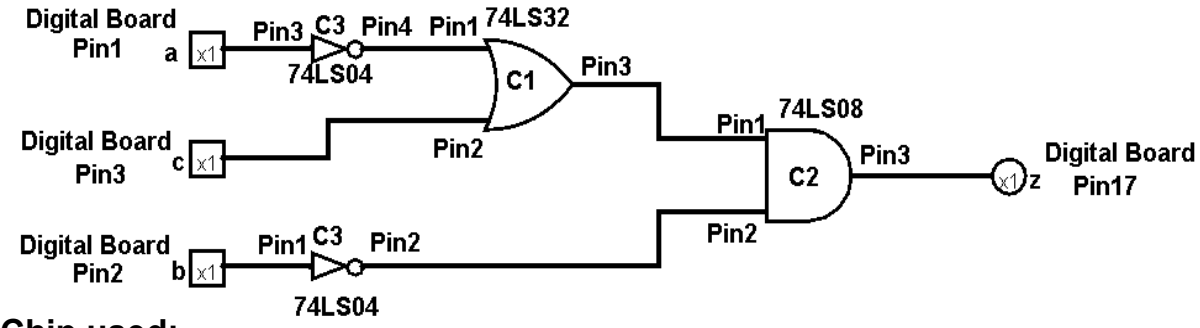
Improved function:

f = (a+b)' + cb'

= a'b' + cb'

= b'(a' + c)

As I shown in the two schematic Diagrams, the number of gates used reduced to 4 from 5.



Chip used:

C1 - 74LS32 OR gate

C2 - 74LS08 AND gate

C3 - 74LS04 NOT gate

Connected to all chips:

PIN#7 – Gnd

PIN#14 – Vcc

Truth Table:

a	b	c	z
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0