CS1026

Lab #2

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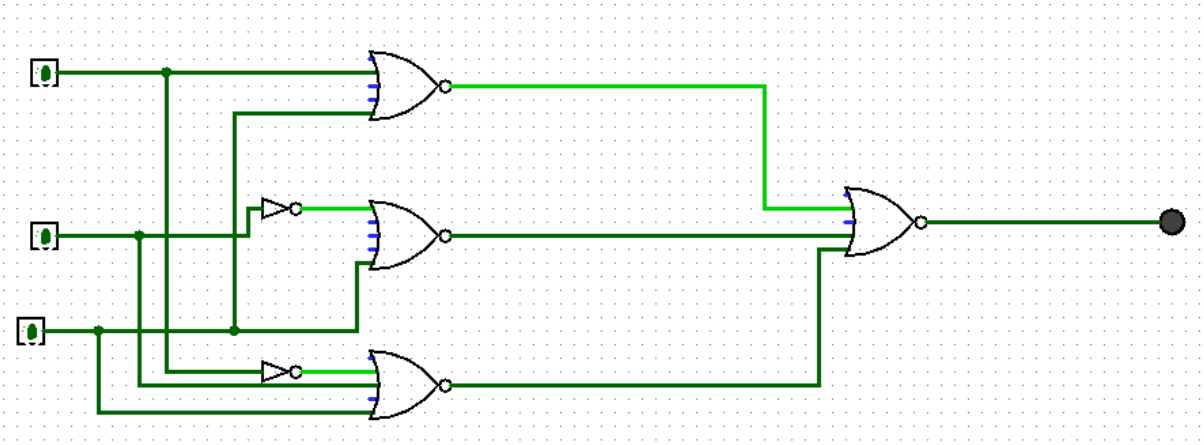
POS function using NOR gates only • Implement: F = (X + Z)(Y’ + Z)(X’ + Y + Z)



NOR gate logic

Inputs		Output
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

F = (X+Z)(Y’+Z)(X’+Y+Z)

F = (A)(B)(C)

F’ = (A’)(B’)(C’)

F’’ = (A’+B’+C’)’

F’ = (X’+Z’+Y+Z’)(X+Y’+Z’)

F’ = Z’ + (X’+Y)(X+Y’)

F’ = Z’ + X’X+X’Y’+YX+YY’

F’ = Z’ + X’Y’ + YX

F’ = Z’ + 1

F = Z

F = (A’ nor B’ nor C’)

F = (XnorZ) nor(Y’norZ) nor (X’norYnorZ)

Every time Z is set to 1 the LED lights up no matter what the other ones are configured to.