

Hazır 4 sayısını input veriyoruz.

7'den sonra don't care

BCD

A	B	C	D	OUT (FG)
0	0	0	0	11 ✓
0	0	0	1	01 ✓
0	0	1	0	10 ✓
0	0	1	1	00 ✓
0	1	0	0	00 ✓
0	1	0	1	00 ✓
0	1	1	0	00 ✓
0	1	1	1	00 ✓
1	0	0	0	Don't care
1	0	0	1	
1	0	1	0	
1	0	1	1	
1	1	0	0	
1	1	0	1	
1	1	1	0	
1	1	1	1	

Karnaugh map

AB \ CD	00	01	11	10
00	1	0	0	1
01	0	0	0	0
11	X	X	X	X
10	X	X	X	X

for output
F
use don't
cares as 1.

AB \ CD	00	01	11	10
00	1	1	0	0
01	0	0	0	0
11	X	X	X	X
10	X	X	X	X

for output
G

Sum of Products

$$F = \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C\bar{D} +$$

$$A\bar{B}C\bar{D} + A\bar{B}C\bar{D}$$

$$F = \bar{D}\bar{B}(\bar{A}\bar{C} + \bar{A}C + A\bar{C} + AC)$$

$$F = \bar{D}\bar{B}$$

$$G = \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C\bar{D}$$

$$G = \bar{A}\bar{B}\bar{C}(\bar{D} + D)$$

$$G = \bar{A}\bar{B}\bar{C}$$

Truth Table and Karnaugh Map and Sum of Products are in scanned page 1.

Sum of Products

$$F = B' \cdot D'$$

$$G = A' \cdot B' \cdot C'$$

Screenshots

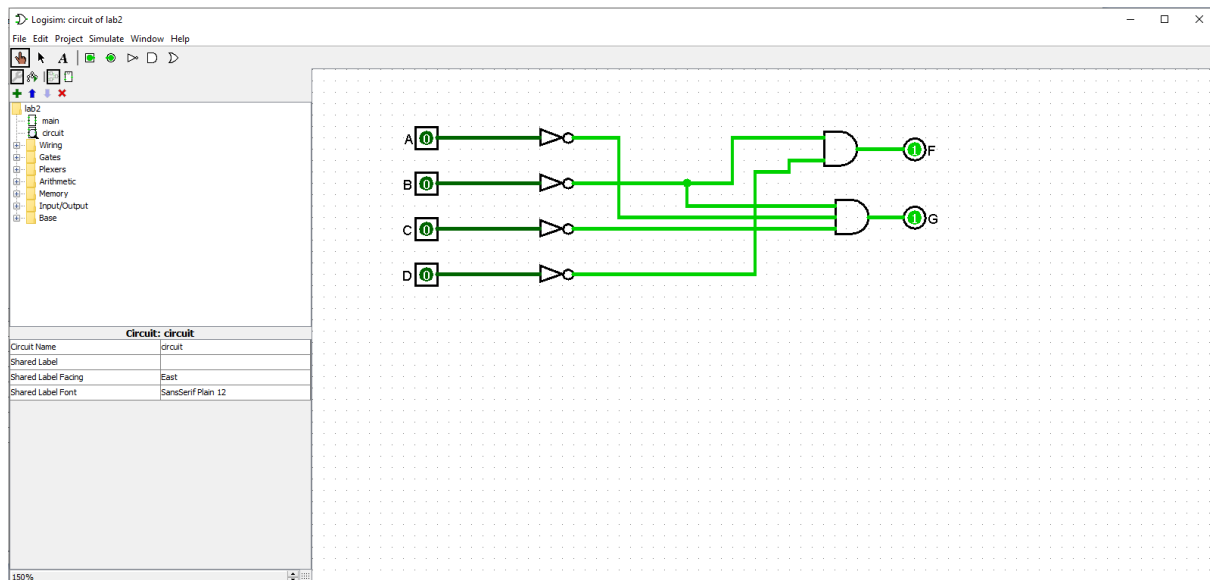


Figure 1: Circuit

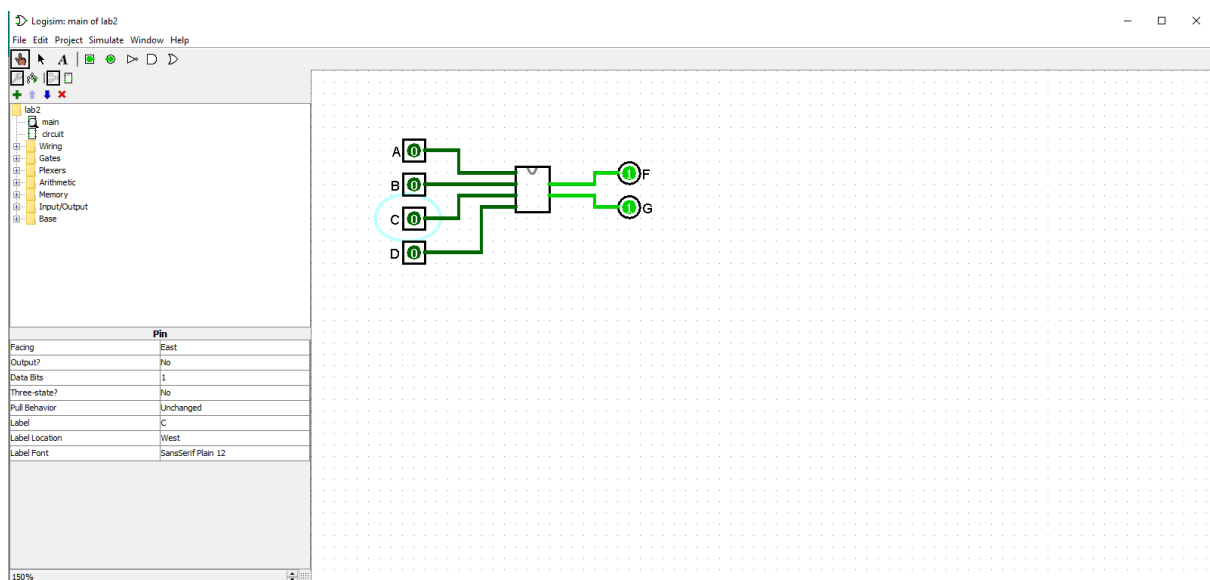


Figure 2: A'B'C'D' Output

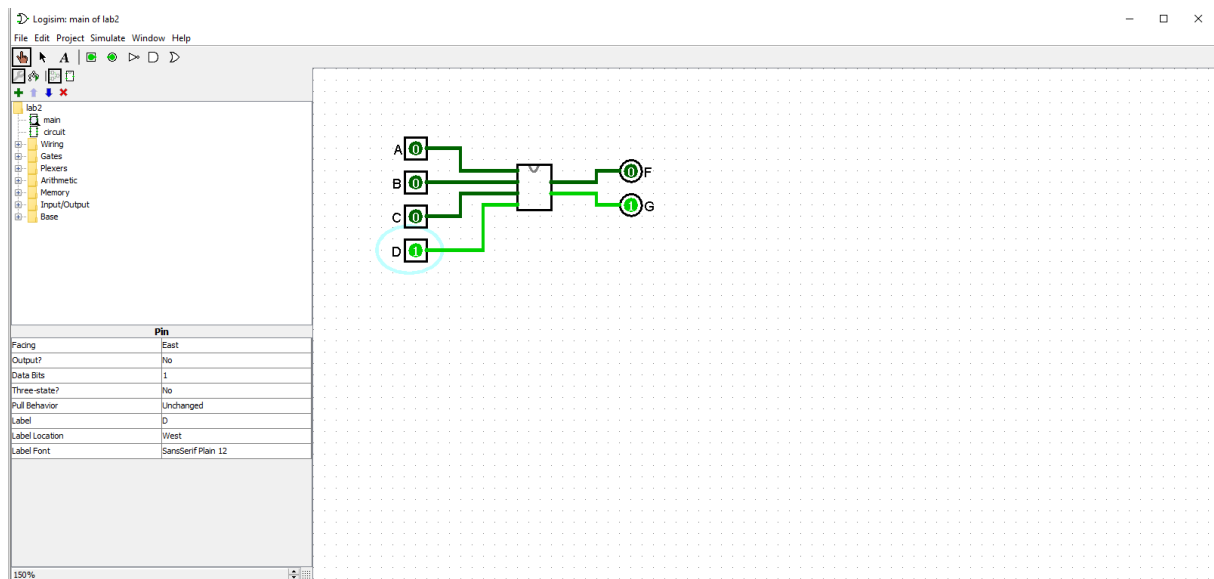


Figure 3: $A'B'C'D$ Output

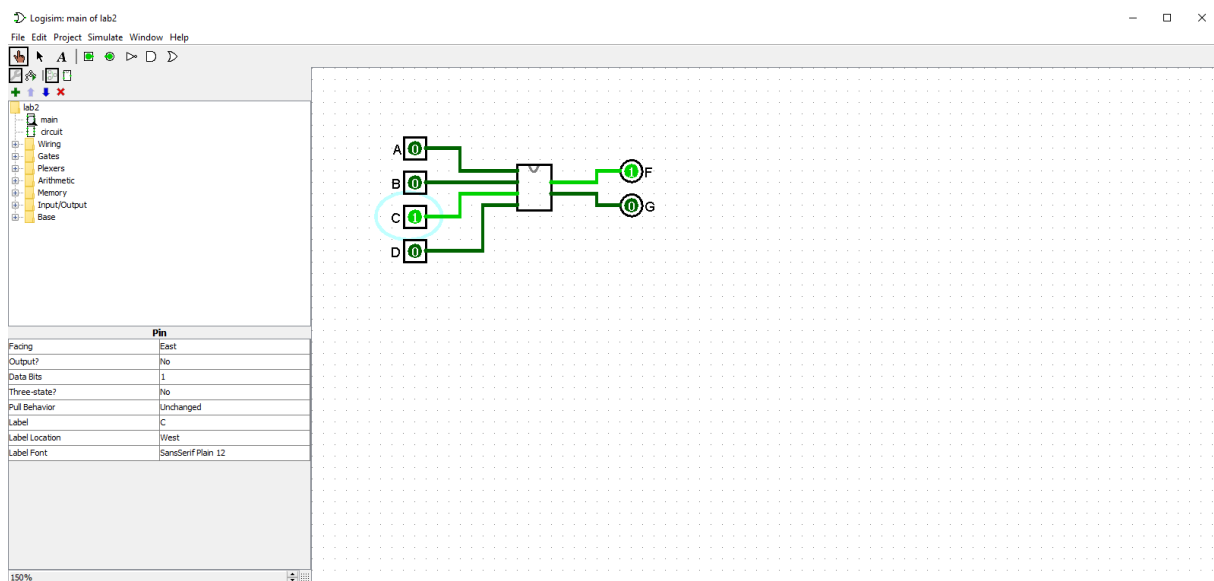


Figure 4: $A'B'C'D'$ Output