

DACD LAB EXPERIMENT 7

Due: 28-09-2020

CED191027

1) Implement 4:2 Encoder using Gate ICs

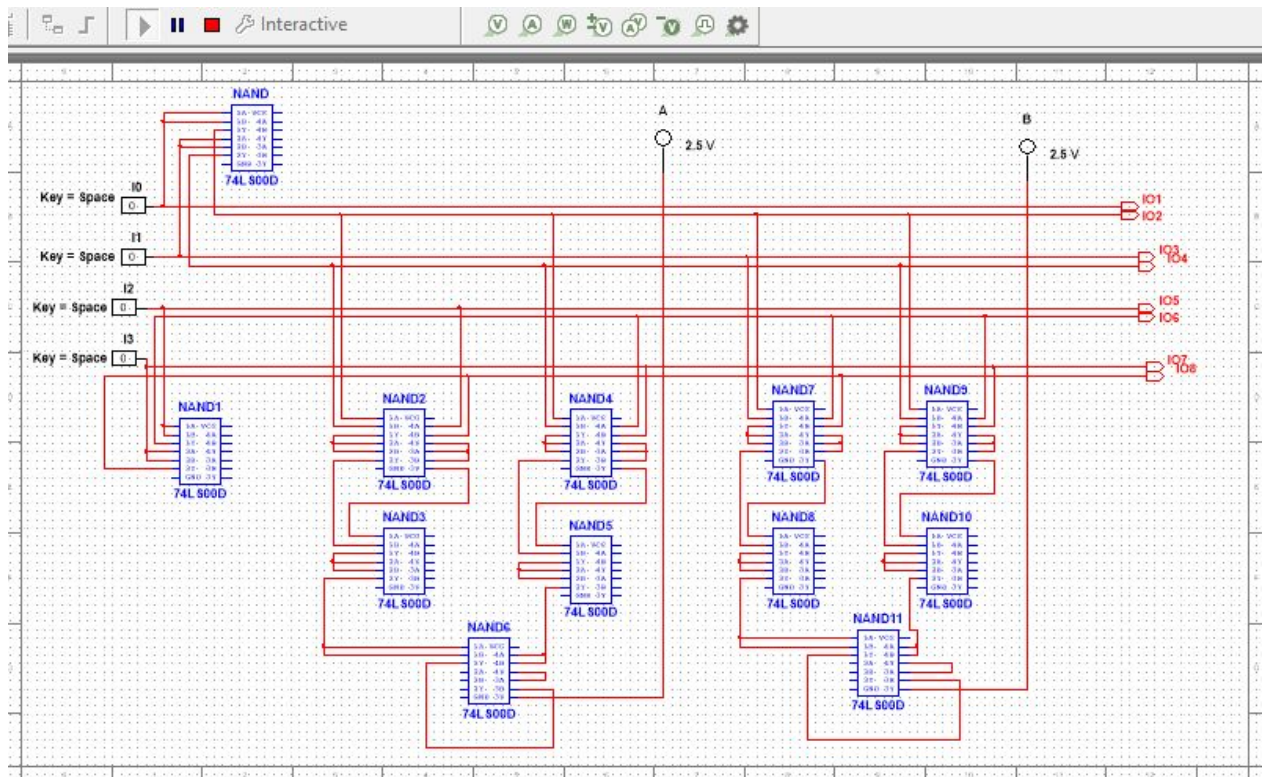
The truth table followed for the Encoder is:

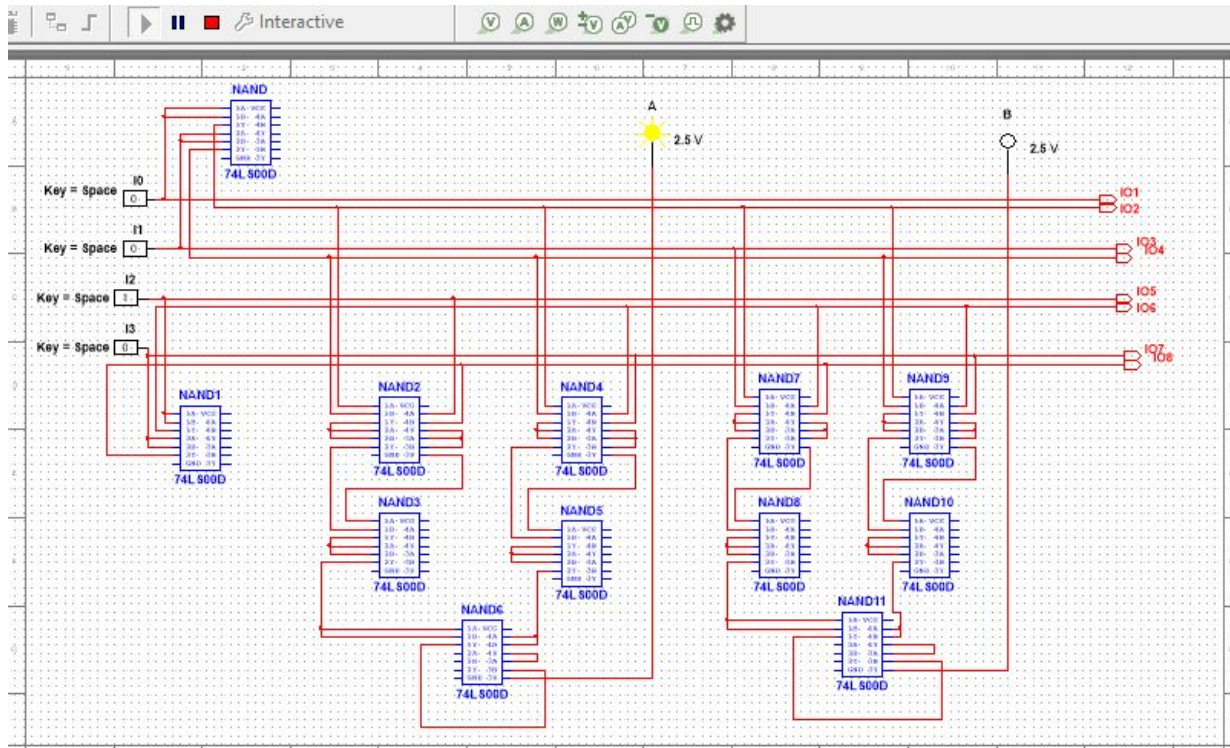
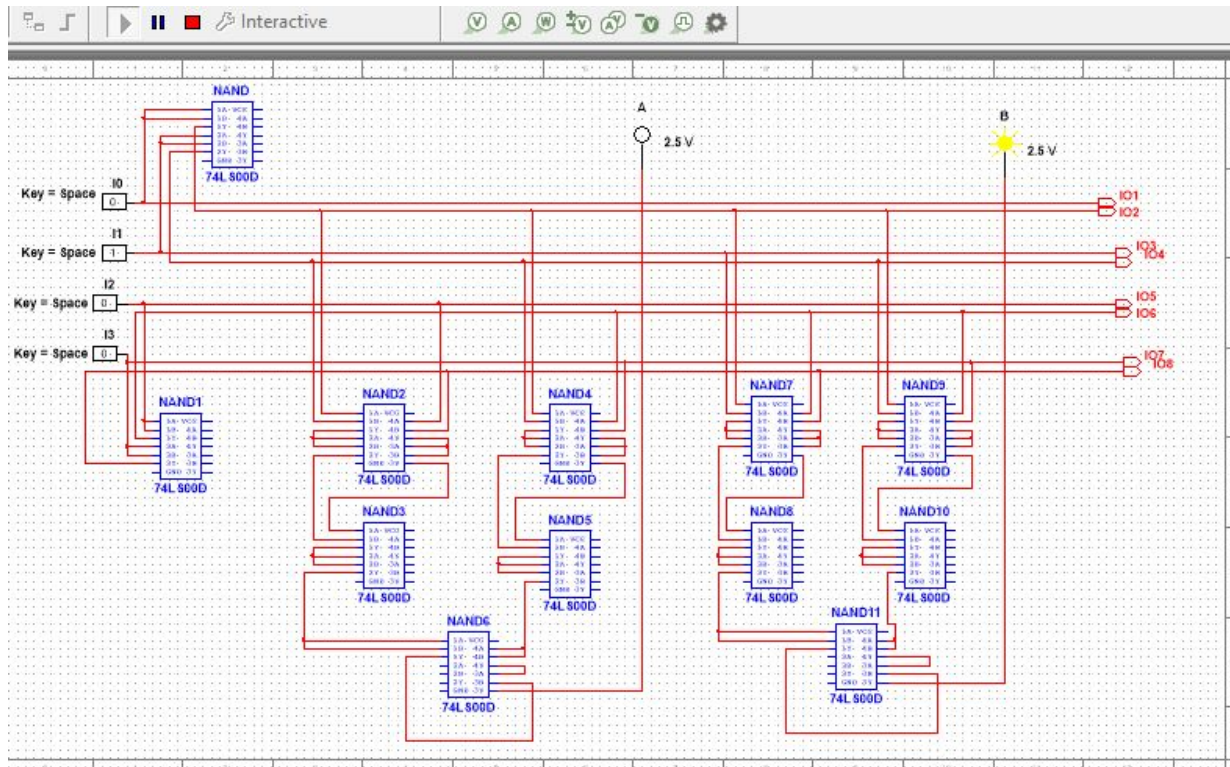
I0	I1	I2	I3	A	B
1	0	0	0	0	0
0	1	0	0	0	1
0	0	1	0	1	0
0	0	0	1	1	1

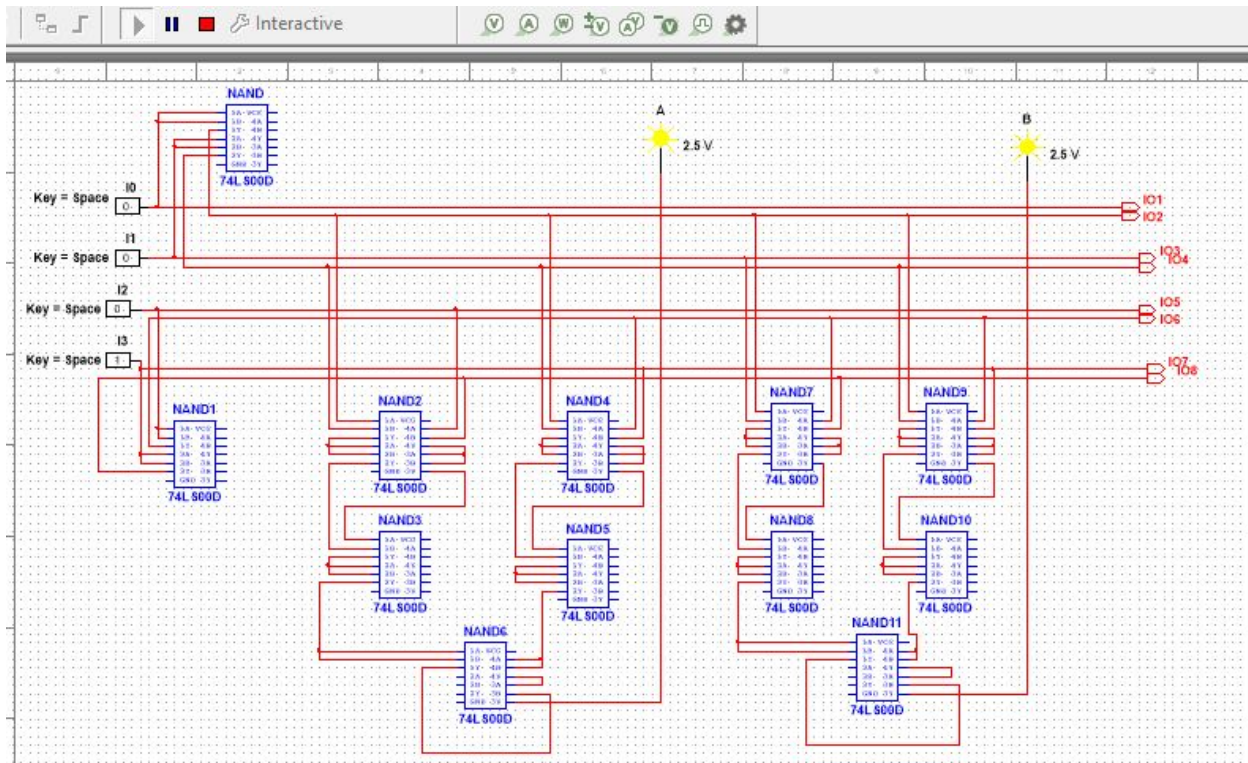
From the truth table , we get

$$A = (I_0)'(I_1)'(I_2)(I_3)' + (I_0)'(I_1)'(I_2)'(I_3)$$

$$B = (I_0)'(I_1)(I_2)'(I_3)' + (I_0)'(I_1)'(I_2)'(I_3)$$







2) Implement 2:4 decoder using gate ICs
The truth table for this is :

A	B	I0	I1	I2	I3
0	0	1	0	0	0
0	1	0	1	0	0
1	0	0	0	1	0
1	1	0	0	0	1

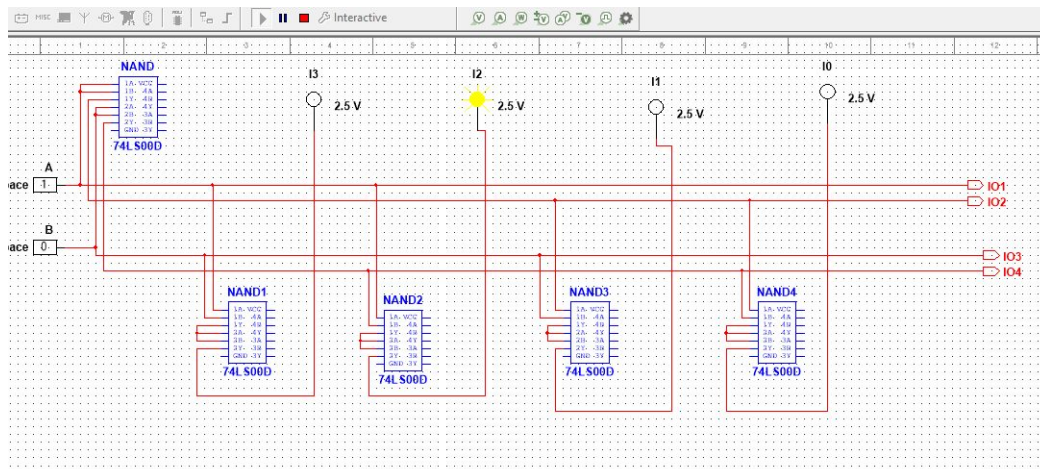
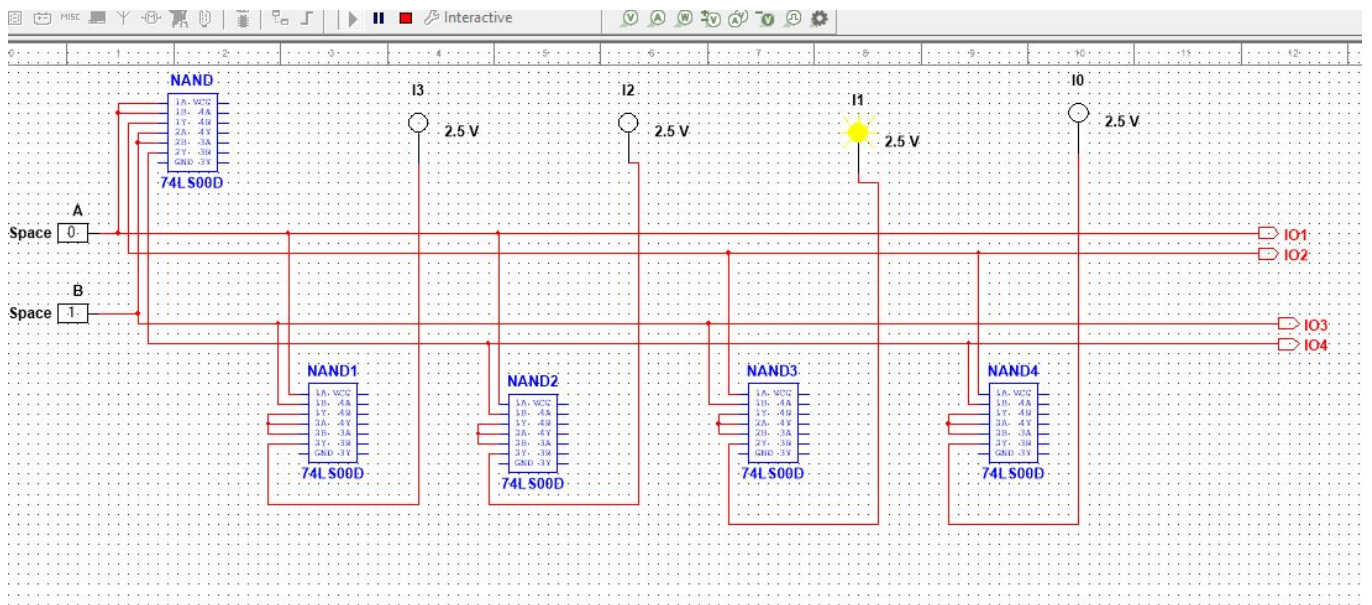
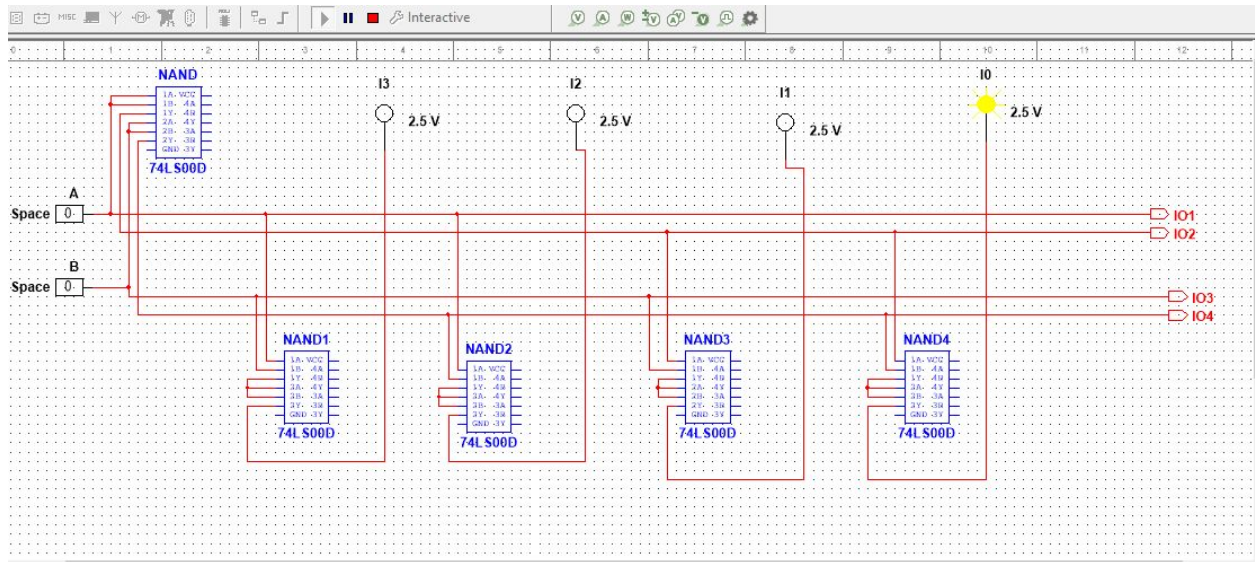
We get

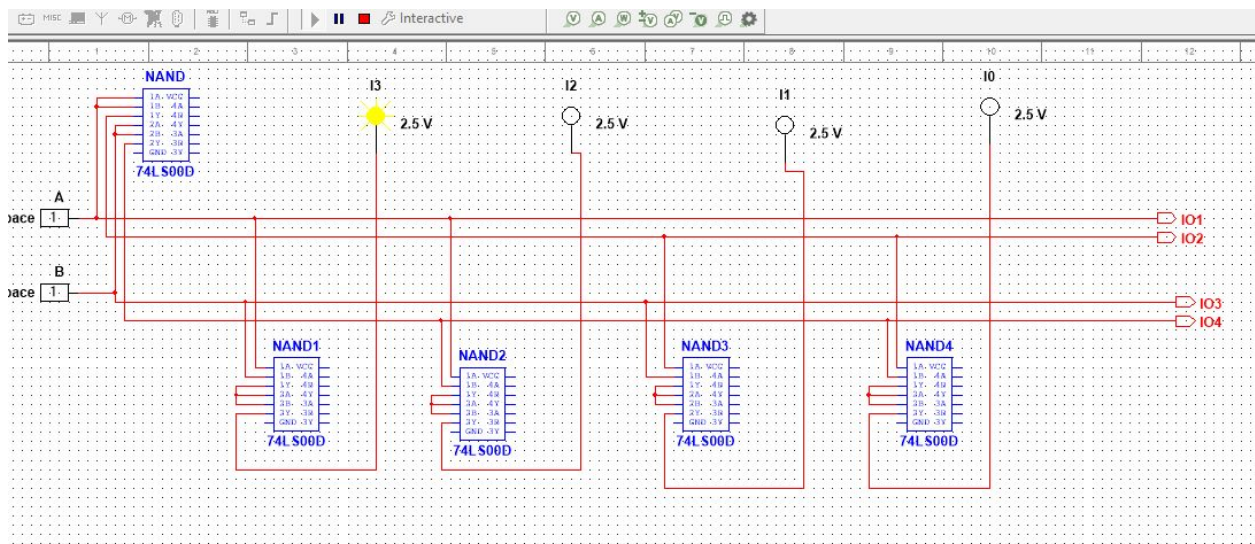
$$I0 = (A)'(B)'$$

$$I1 = (A)'(B)$$

$$I2 = (A)(B)'$$

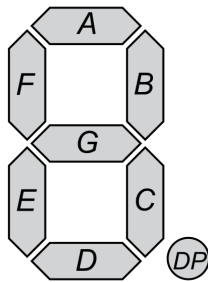
$$I3 = (A)(B)$$





3) Implement Seven segment display using IC7447 decoder(or any equivalent display decoder)

Seven Segment Display is the display showed in digital clocks.



It consists of 7 segments ,namely ,A,B,C,D,E,F,G which are used collectively to display the numbers from 0 to 9.

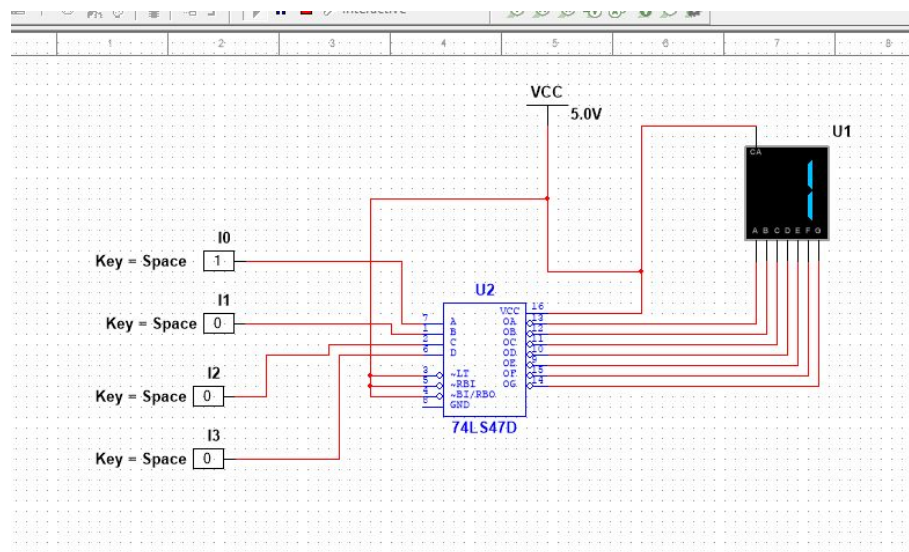
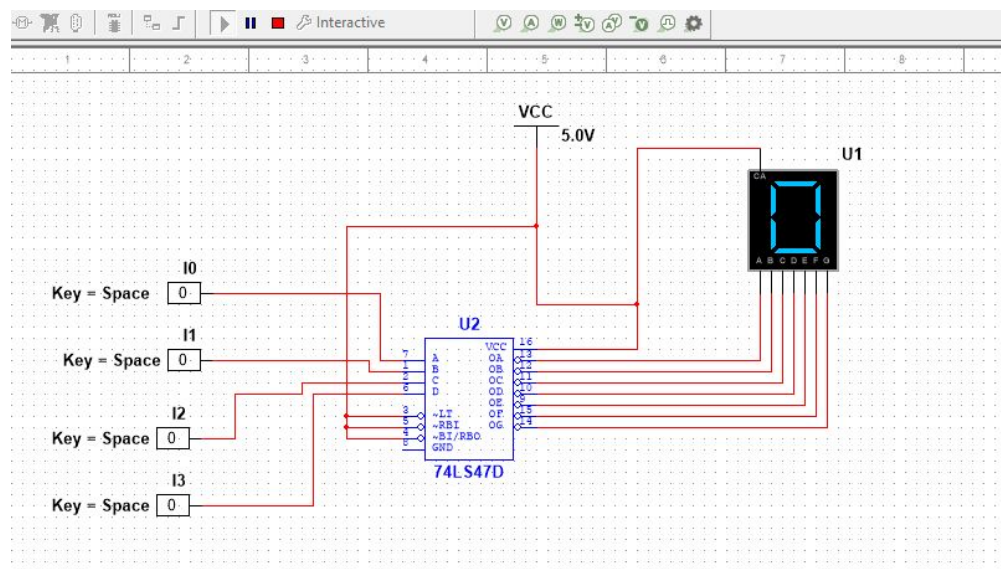
A seven segment display takes in 4 inputs and determines the glowing of each Segment to display the specified number.

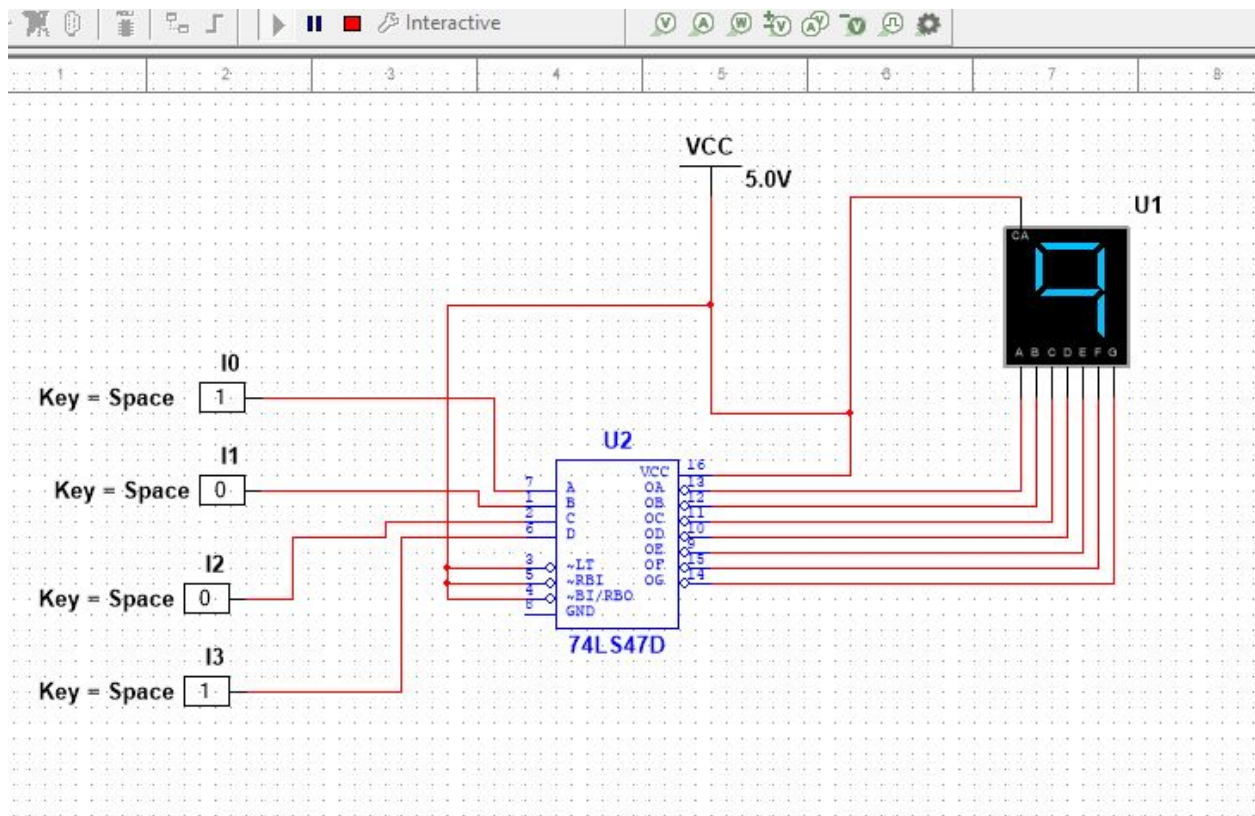
The truth table for seven segment display is as follows:

I3	I2	I1	I0	A	B	C	D	E	F	G
0	0	0	0	1	1	1	1	1	1	0
0	0	0	1	0	1	1	0	0	0	0
0	0	1	0	1	1	0	1	1	0	1
0	0	1	1	1	1	1	1	0	0	1
0	1	0	0	0	1	1	0	0	1	1

0	1	0	1	1	0	1	1	0	1	1
0	1	1	0	1	0	1	1	1	1	1
0	1	1	1	1	1	1	0	0	0	0
1	0	0	0	1	1	1	1	1	1	1
1	0	0	1	1	1	1	1	0	1	1

From the above truth table , by using k-maps we can evaluate for the equations of A,B,C,D,E,F,G .
For any other combination of I0,I1,I2,I3 ,we donot need truth table as that digit will be double digit
and can be represented in BCD system as 2 digits. So rest all values need not be taken care of.
IC 74LS47D is the IC used to get the seven segment display





As shown above , display works for all numbers from 0-9.

But for any other values, it either doesn't display or displays some random shapes as shown below:

