DIGITAL SYSTEMS LABORATORY WORK

MODUL 10 : IMPLEMENTASI DECODER

By :

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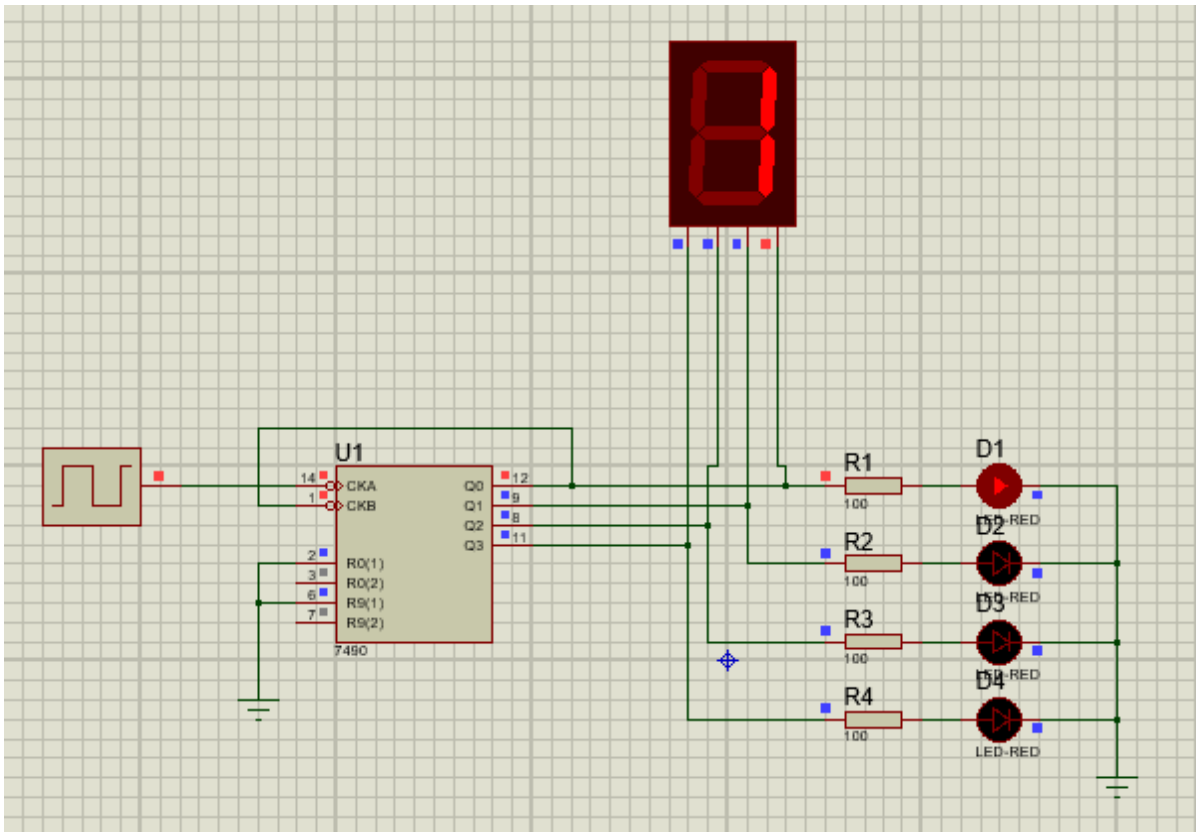
Date of Practicum	: Friday, May 24 st 2019

Trial 1. Clock Counter Circuit

1. Make a Counter below!

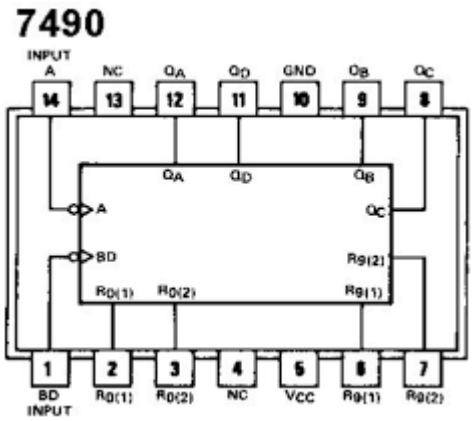
   Use IC 7490 (Decade Counter), &segment(7seg-BCD-red), resistor (res)



2. Fill in the blank column in the table!

Input Clock	Output LED				Output Seven Segment
	D1	D2	D3	D4	
1	0	0	0	0	0
2	1	0	0	0	1
3	0	1	0	0	2
4	1	1	0	0	3
5	0	0	1	0	4
6	1	0	1	0	5
7	0	1	1	0	6
8	1	1	1	0	7
9	0	0	0	1	8
10	1	0	0	1	9
11	0	0	0	0	0
12	1	0	0	0	1
13	0	1	0	0	2

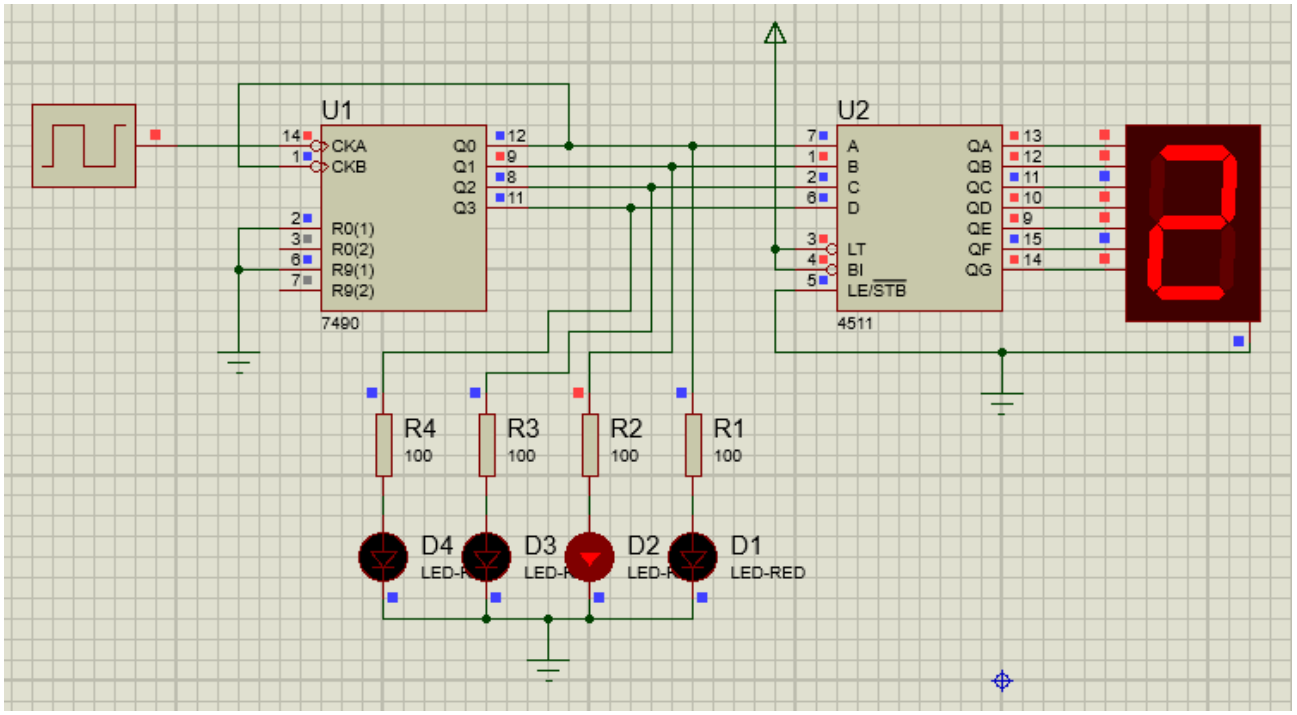
3. Assignment : Search reference about IC 7490 of the datasheet



Trial 2. Decrase Decoder BCD-to-7segment

1. Make a circuit following the trial 1

   Add a circuit with IC 4511 and 7 segmen common cathode!



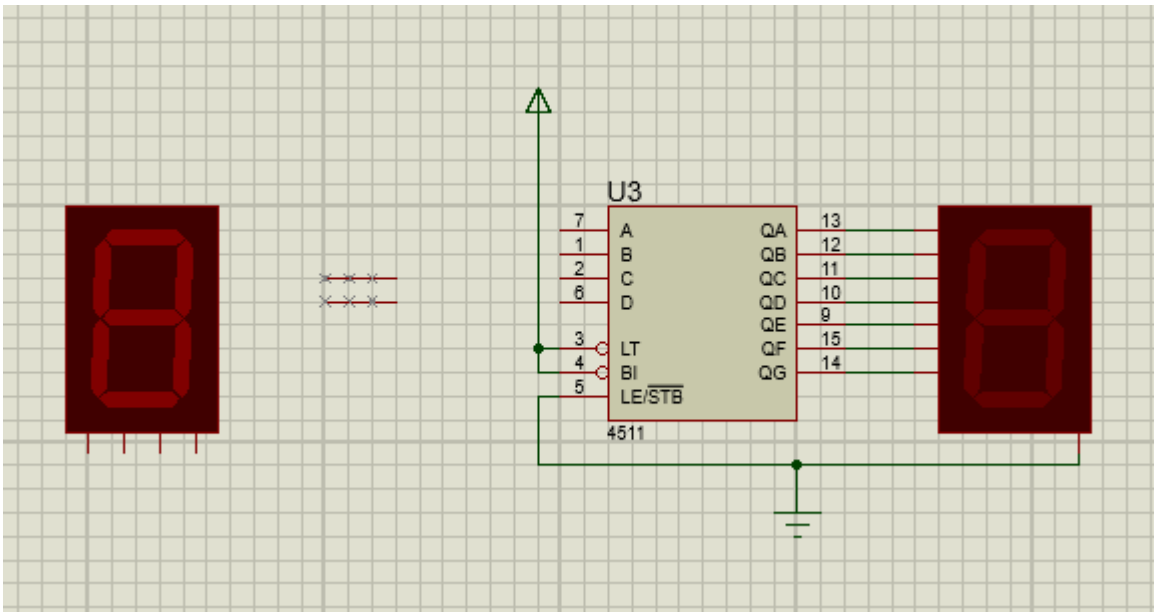
2. Fill in the blank column in the table!

Input Clock	Output LED				Output Seven Segment
	D1	D2	D3	D4	
1	0	0	0	0	0
2	1	0	0	0	1
3	0	1	0	0	2
4	1	1	0	0	3
5	0	0	1	0	4
6	1	0	1	0	5
7	0	1	1	0	6
8	1	1	1	0	7

9	0	0	0	1	8
10	1	0	0	1	9
11	0	0	0	0	0

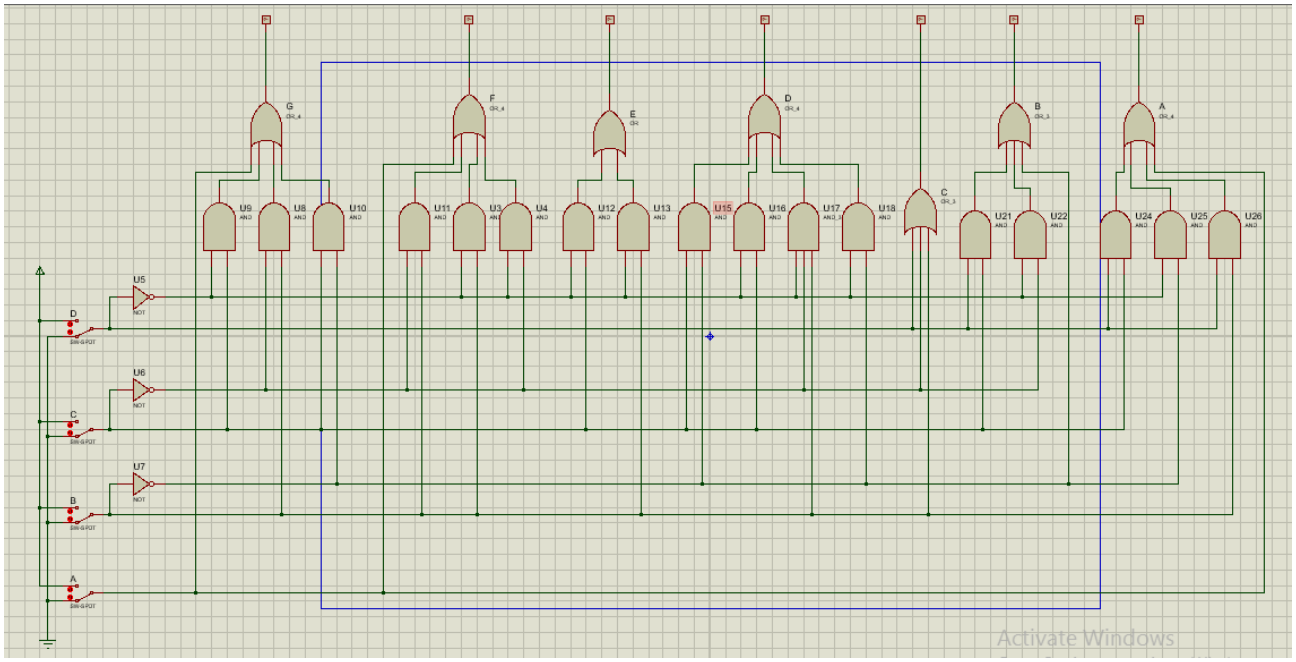
3. Compare trial 1 and trial 2! Can you get a sameness ?
   Yes, I can

4. What does 7seg-BCD sameness with BCD-to-7segment decoder ?
   (Yes is available sameness the output because the circuit which use 7seg-BCD is more simple then the circuit which use BCD-to-7segment)



Trial 3.

1. Make a combination of logic gates following in the picture!



DECIMAL DIGIT	INPUT					OUTPUT							DISPLAY *OUTPUT*
	LT	D	C	B	A	A	B	C	D	E	F	G	
0.	H	L	L	L	L	H	H	H	H	H	H	L	0
1.	H	L	L	L	H	L	H	H	L	L	L	L	1
2.	H	L	L	H	L	H	H	L	H	H	L	H	2
3.	H	L	L	H	H	H	H	H	H	L	L	H	3
4.	H	L	H	L	L	L	H	H	L	L	H	H	4
5.	H	L	H	L	H	H	L	H	H	L	H	H	5
6.	H	L	H	H	L	L	L	H	H	H	H	H	6
7.	H	L	H	H	H	H	H	H	L	L	L	L	7
8.	H	H	L	L	L	H	H	H	H	H	H	H	8
9.	H	H	L	L	H	H	H	H	L	L	H	H	9
LT	L	X	X	X	X	H	H	H	H	H	H	H	8

INPUT				OUTPUT						
A	B	C	D	A	B	C	D	E	F	G
L	L	L	L	H	H	H	H	H	H	L
H	L	L	L	H	H	H	H	H	H	H
L	H	L	L	H	H	H	H	L	H	H
H	H	L	L	H	H	H	H	L	H	H
L	L	H	L	H	H	L	H	H	L	H
H	L	H	L	H	H	L	H	H	H	H
L	H	H	L	H	L	H	H	H	H	H
H	H	H	L	L	L	H	H	H	H	H
L	L	L	H	L	H	H	L	L	L	L
H	L	L	H	H	H	H	L	L	H	H