

LAB WORK  
DIGITAL SYSTEM  
SEMESTER GENAP



Disusun oleh:

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PROGRAM STUDI INFORMATIKA  
FAKULTAS KOMUNIKASI DAN INFORMATIKA  
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## MODUL 10

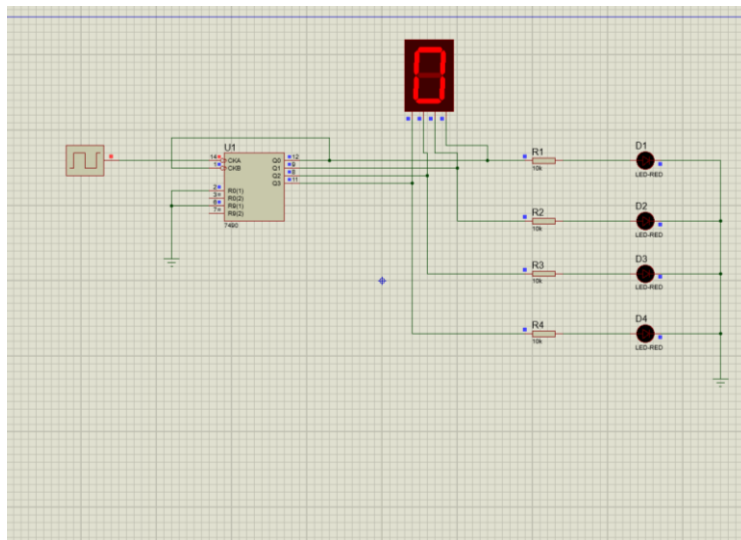
### IMPLEMENTASI DECODER

#### Kegiatan Praktikum

##### Percobaan 1. Rangkaian Clock Counter

###### 1. Buat counter dibawah!

Gunakan IC 7490(decade Counter), 7segment(7seg-BCD-red), resistor(res)

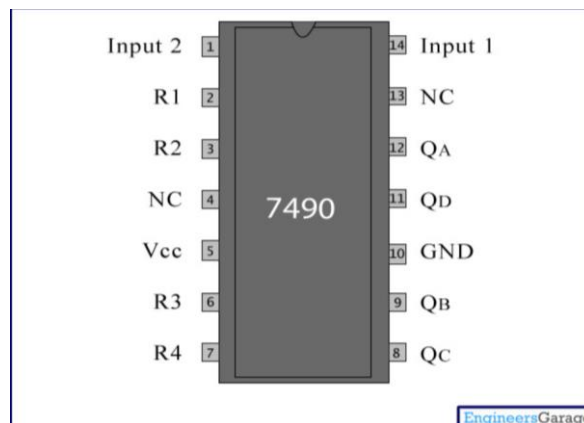


###### 2. Isi kolom pada Tabel!

| 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. Cari referensi datasheet mengenai IC 7490! Lihat gerbang logika penyusunnya dan laporkan ke dosen pengampu/asisten praktikum.



**Pin Description:**

| Pin No | Function                           | Name           |
|--------|------------------------------------|----------------|
| 1      | Clock input 2                      | Input2         |
| 2      | Reset1                             | R1             |
| 3      | Reset2                             | R2             |
| 4      | Not connected                      | NC             |
| 5      | Supply voltage; 5V (4.75V – 5.25V) | Vcc            |
| 6      | Reset3                             | R3             |
| 7      | Reset4                             | R4             |
| 8      | Output 3, BCD Output bit 2         | Q <sub>C</sub> |
| 9      | Output 2, BCD Output bit 1         | Q <sub>B</sub> |
| 10     | Ground (0V)                        | Ground         |
| 11     | Output 4, BCD Output bit 3         | Q <sub>D</sub> |
| 12     | Output 1, BCD Output bit 0         | Q <sub>A</sub> |
| 13     | Not connected                      | NC             |
| 14     | Clock input 1                      | Input1         |

| 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                    |

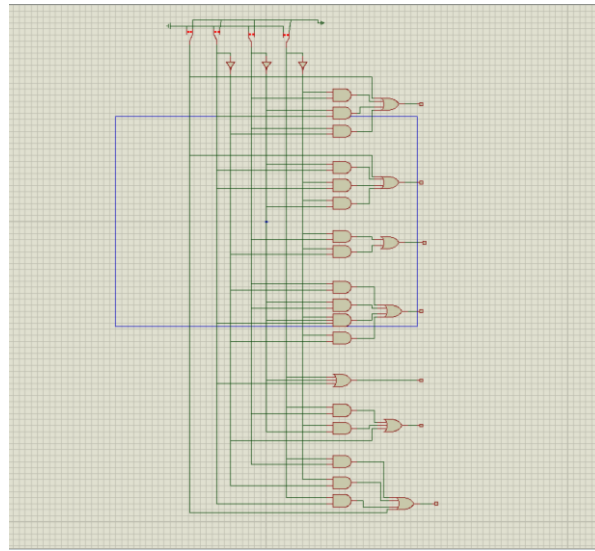
3. Bandingkan percobaan 1 dan percobaan 2! Dapatkah anda melihat persamaan?(YES)

Persamaan pada percobaan 1 dan 2 adalah dari LED-RED

4. Apakah benar bahwa 7seg-BCD sama dengan BCD-to-7segment decoder?(YES)

Karena berubah saat berwarna biru

Percobaan 3. Melihat dalam BCD-to-segment decoder



| Decimal | input |   |   |   | output |   |   |   |   |   |   | Display<br>output |
|---------|-------|---|---|---|--------|---|---|---|---|---|---|-------------------|
|         | D     | C | B | A | a      | b | c | d | e | f | g |                   |
| 0       | L     | L | L | L | H      | H | H | H | H | H | L | 7                 |
| 1       | L     | L | L | H | L      | H | H | H | L | H | H | 5                 |
| 2       | L     | L | H | L | H      | H | L | H | H | L | H | 5                 |
| 3       | L     | L | H | L | H      | H | H | H | L | L | H | 5                 |
| 4       | L     | H | L | L | L      | H | H | H | L | H | H | 5                 |
| 5       | L     | H | L | H | H      | L | H | L | L | H | H | 4                 |
| 6       | L     | H | H | L | L      | L | H | L | H | H | H | 4                 |
| 7       | L     | H | H | H | H      | H | H | L | L | L | L | 3                 |
| 8       | H     | L | L | L | H      | H | H | H | H | H | H | 8                 |
| 9       | H     | L | L | H | H      | H | H | L | L | H | H | 5                 |