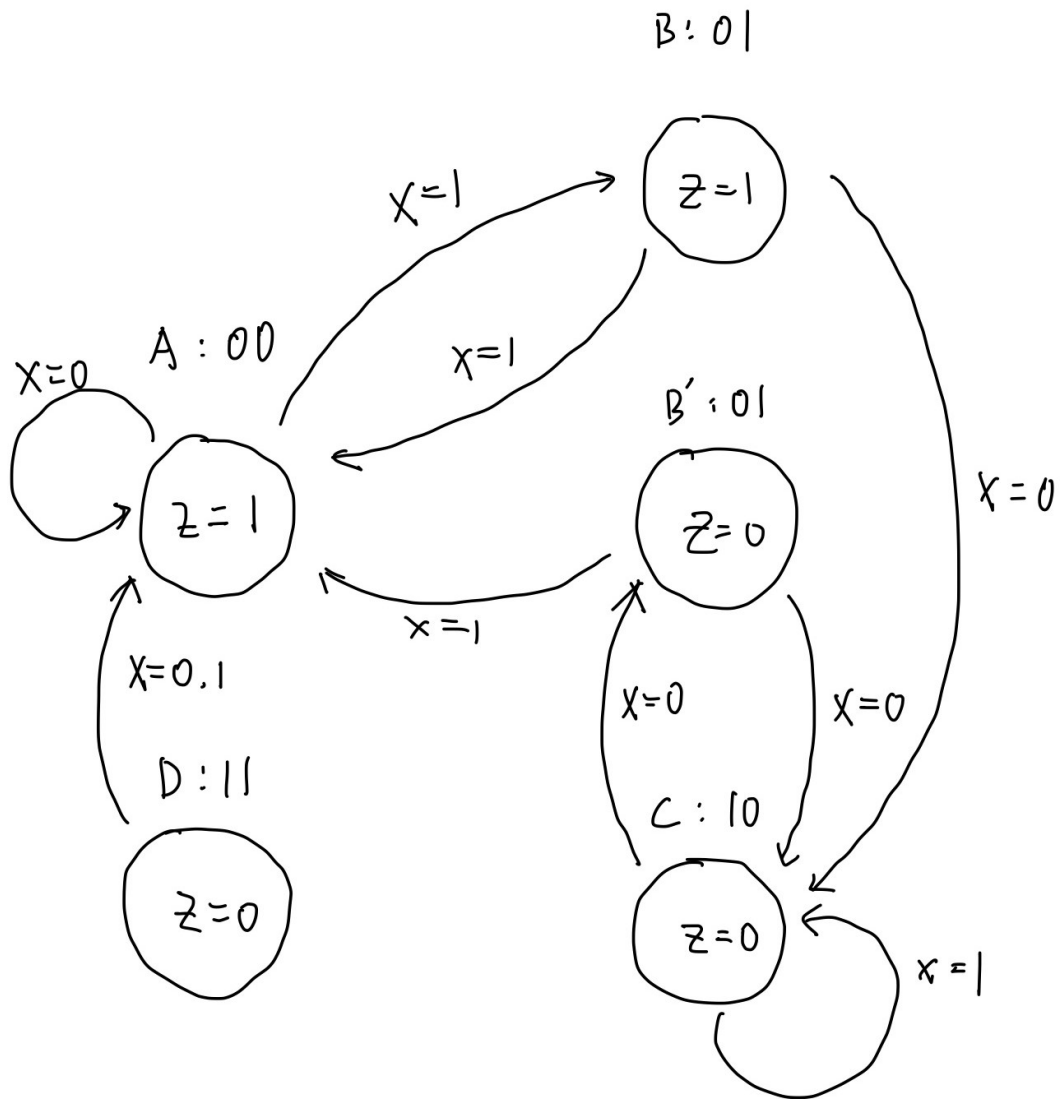# Homework 03

## Chapter3

- **3.38** : The *memory address* is a uniquely identifiable location where the data stored. The *memory addressablilty* is that we can use the address to find the information in a certain location in memory.
- **3.40** :

  a. An address space of three locations

  b. An addressablilty of four bits

  c. 0001
- **3.53** :

|  | cycle 0 | cycle 1 | cycle 2 | cycle 3 | cycle 4 | cycle 5 | cycle 6 | cycle 7 |
|---|---|---|---|---|---|---|---|---|
| D2 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| D1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| D0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |

- **3.61** :

  a.

| S1 | S0 | X | Z | S1' | S0' |
|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 0 | 0 |
| 0 | 0 | 1 | 1 | 0 | 1 |
| 0 | 1 | 0 | 0 | 1 | 0 |
| 0 | 1 | 1 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 0 | 0 | 0 |

  b.

$B : 01$

$Z = 1$

$X = 1$

$A : 00$

$X = 0$

$X = 1$

$Z = 1$

$B' : 01$

$Z = 0$

$X = 0$

$X = 1$

$X = 0.1$

$X = 1$

$D : 11$

$X = 0$

$X = 0$

$C : 10$

$Z = 0$

$Z = 0$

$X = 1$

# Chapter4

- **4.1** :
  **Memory**: Store the data.
  **Processing Unit**: Compute the data.
  **Input**: Input data.
  **Output**: Output data.
  **Control Unit**: Control the other four parts and make sure they work correctly.
- **4.7** : $-2^{15} \sim 2^{15} - 1$