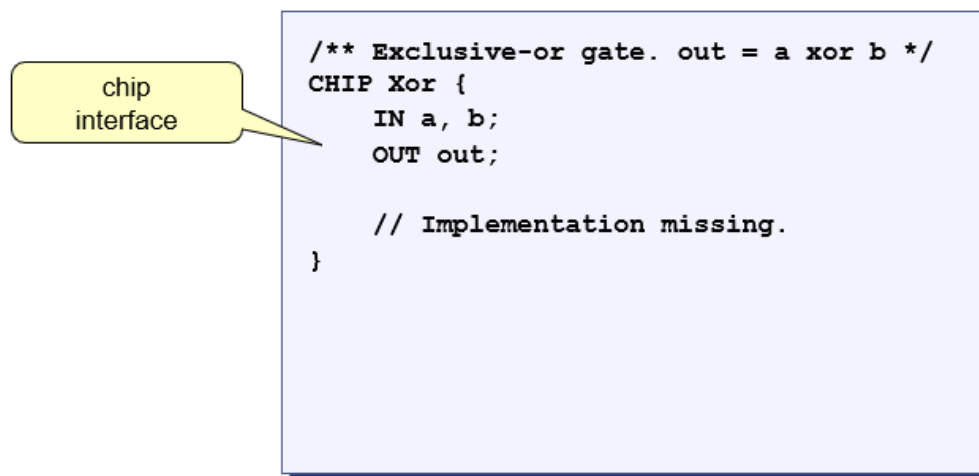# 【CA】Day3

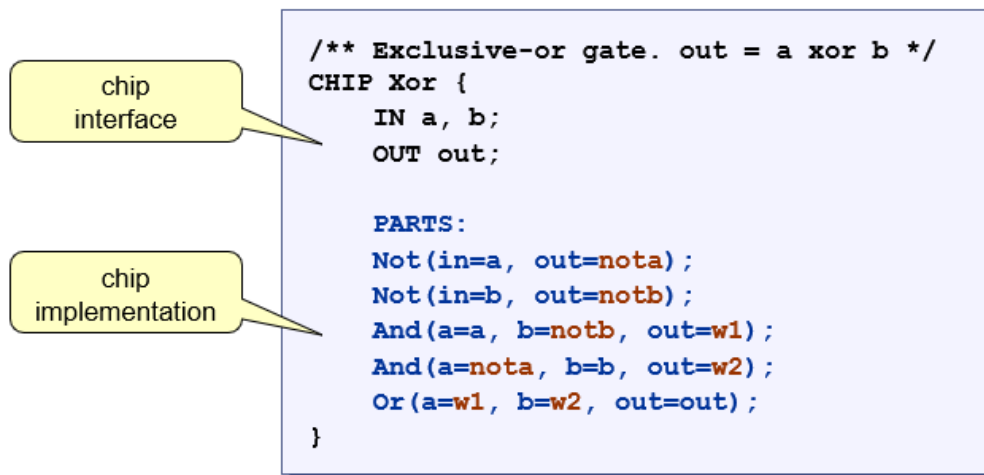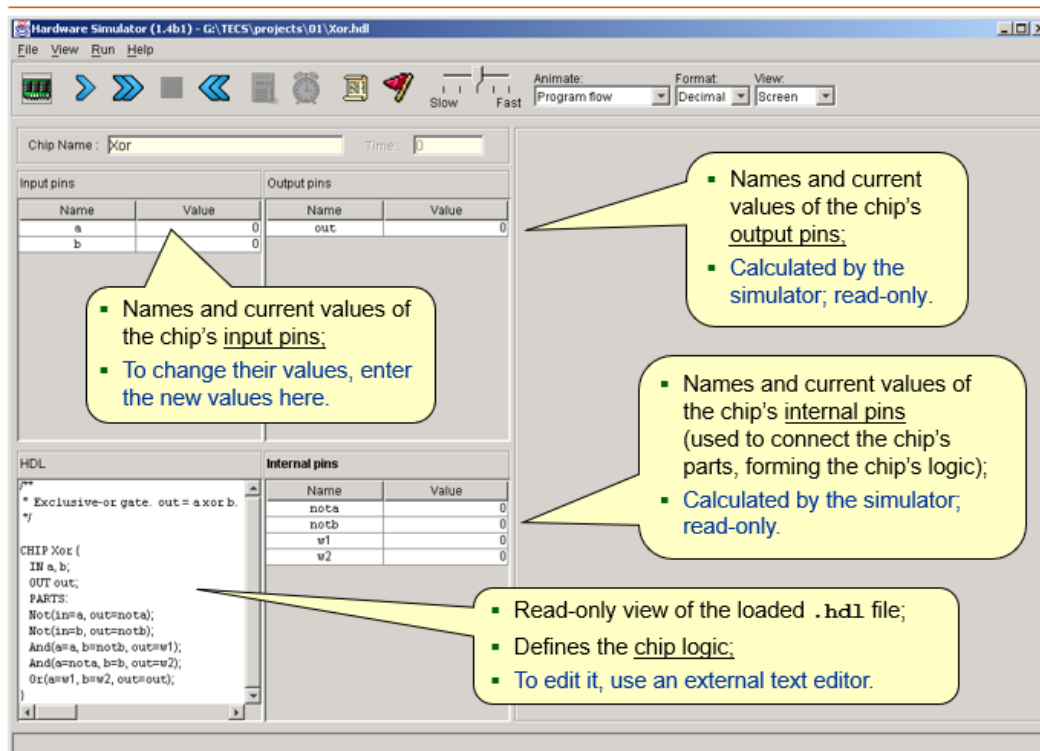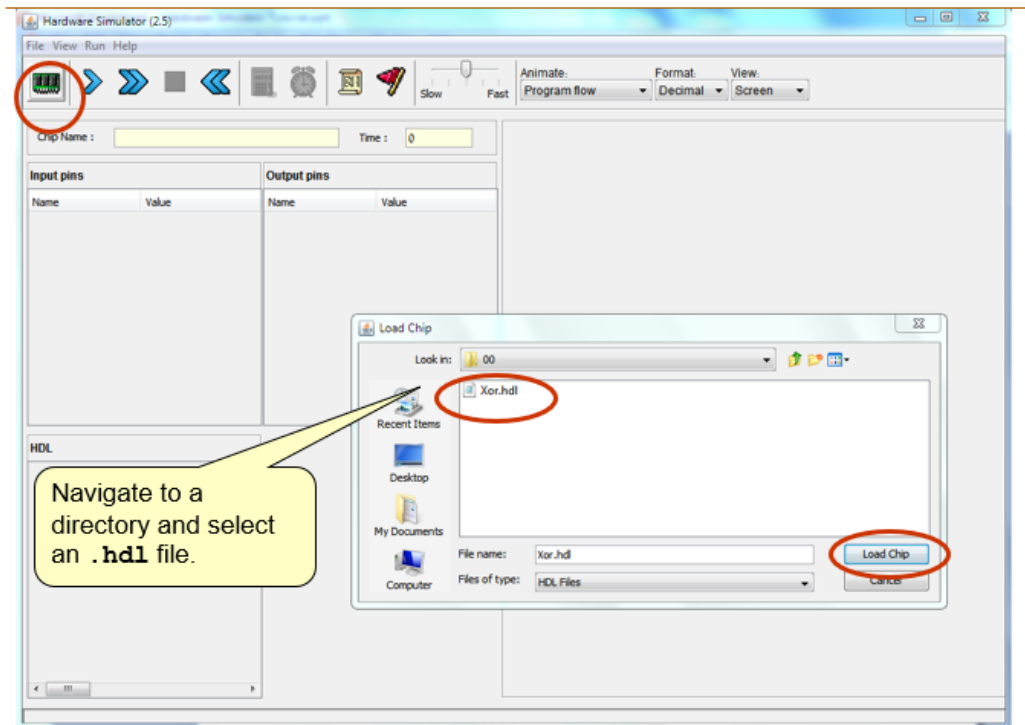|	
⊙ Course	Nand to Tetris
🗐 Study Date	@January 26, 2022

【Ch1】Simulator Tutorial

1. Chip Definition(.hdl file)

The chip interface includes:

1. Name of the chip
2. Names of its input and output pins
3. Documentation of the intended chip operation

```
/** Exclusive-or gate. out = a xor b */
CHIP Xor {
    IN a, b;
    OUT out;

    PARTS:
    Not(in=a, out=nota);
    Not(in=b, out=notb);
    And(a=a, b=notb, out=w1);
    And(a=nota, b=b, out=w2);
    Or(a=w1, b=w2, out=out);
}
```

chip interface

chip implementation

- Any given chip can be implemented in several different ways. This particular implementation is based on: `Xor(a, b) = Or(And(a, Not(b)), And(Not(a), b))`

- `Not`, `And`, `Or`: Internal parts(previously built chips), invoked by the HDL programmer.

- `nota`, `notb`, `w1`, `w2`: internal pins, created and named by the HDL programmer; used to connect internal parts

2. Load a Chip

Navigate to a directory and select an **.hdl** file.

- Names and current values of the chip's output pins;
- Calculated by the simulator; read-only.

- Names and current values of the chip's input pins;
- To change their values, enter the new values here.

- Names and current values of the chip's internal pins (used to connect the chip's parts, forming the chip's logic);
- Calculated by the simulator; read-only.

- Read-only view of the loaded **.hdl** file;
- Defines the chip logic;
- To edit it, use an external text editor.

3. Test Scripts:

- Used for specifying, automating and replicating chip testing

- Supplied for every chip mentioned in the book

- Can create an output file that records the results of the chip test.