

# Object Oriented Analysis

## Lecture 6: State Machine Diagram

Nga Nguyen

### Exercise 1: Library

We are interested in the lifecycle of objects from the Book class and the Member class of a library. Here are some management rules in a library:

- A member can borrow books;
- He/she cannot borrow more than 5 books at a time;
- If he/she returns a book after the deadline, he/she will be suspended

Represent the state machine diagram for each object of the Book class and the Member class.

### Exercise 2: Espresso

A coffee machine makes espresso from water and pre-filled coffee capsules. It has 3 buttons:

- An ON button to turn on the coffee machine.
- An OFF button to turn off the coffee machine at any time.
- A light button:
  - At startup, it is flashing as long as the water is not under pressure. If the user presses on it, nothing happens. It takes 1 minute for the machine to be ready.
  - It is bright and not flashing when the machine is finally under pressure. If the user presses on it, the coffee flows.
  - It is also flashing when serving coffee. If the user presses, the coffee stops flowing and you can enjoy your coffee.

It is assumed that the pressurization can begin only if the water tank is sufficiently full. When the water tank is empty, the machine is out of pressure and will remain without pressure until the tank has been refilled.

Represent the state machine diagram of this coffee machine.