

# State Diagrams

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# State diagrams

- Some objects are more important than others!
- These objects can have *different states*
- It would be nice if we could depict them in one diagram.
- Such a diagram exists! It is the so called :

## State Diagram

# State diagrams

- We consider simple statediagrams that are made for one class/object.
- Statediagrams are not useful for every class.
- Statediagrams mainly consist of *states* and *transitions*.
- *States* may have internal *events*: on *entry* and/or *exit*.
- *Transitions* has a label that comes with three parts:

**trigger-signature [guard]/activity**

# State diagrams: elements

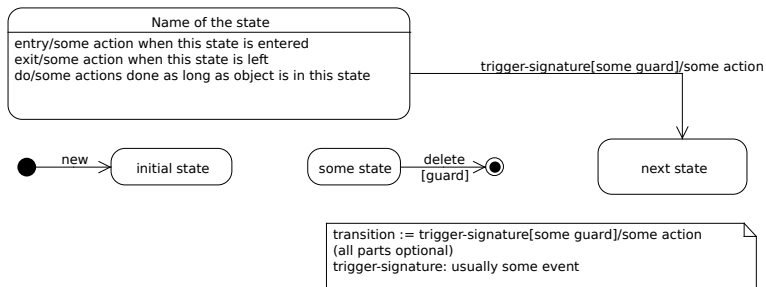


Figure : UML notation: *state*, *transition* and *internal interactions*.

## Example: Rental class (library)

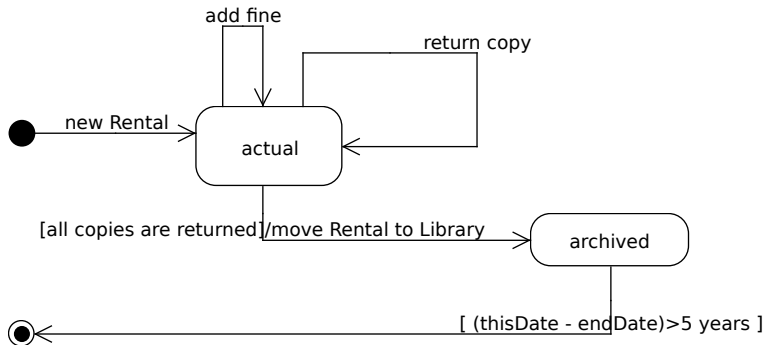
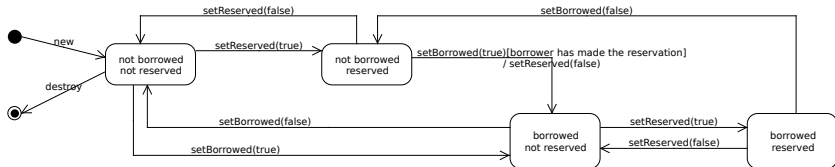


Figure : State with *entry/exit activities* and *self-transitions*. More copies on one rental and rental saves total fine.

# Anti Example: Copy class (library)



**Figure :** State diagram directly based upon attributes. A rather not so interesting diagram!

Don't apply state diagrams in this way!

# Example: Copy class: library actions

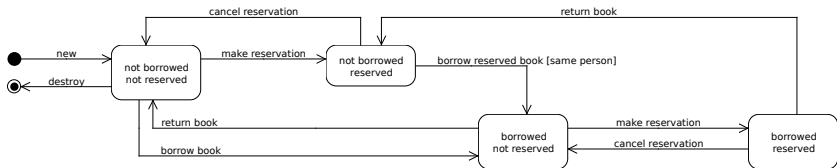


Figure : State diagram for a book copy.

Transitions described by library actions. See for yourself why certain transitions are absent.

## Example: Graphical Textfield

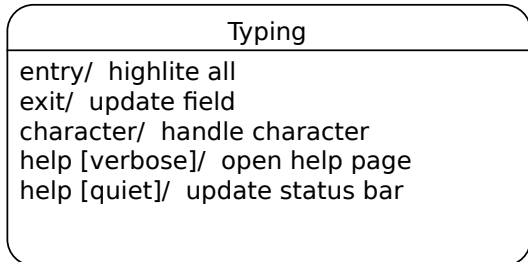
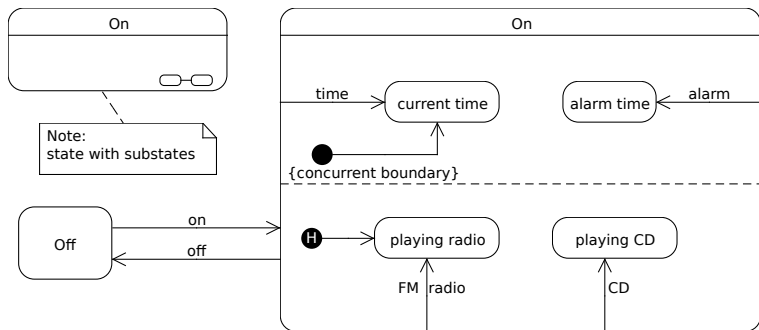


Figure : Internal events shown with the typing state of a text field.



# Superstates



**Figure :** Alarm radio example; too much information or details is not wise. Make use of state tables if necessary.

# When to use state diagrams

- Statediagrams are good at describing the behaviour of an object across several use-cases.
- Statediagrams are not very good at describing the behaviour that involves a number of objects collaborating.
- Several objects in a use-case: sequence diagrams.
- General sequence of activities for several objects and use cases: activity diagrams.

# Question

Why is the Library class not an interesting candidate for a state diagram?