

Chapter 7: State-chart Diagram

- Introduction
- Elements of State Diagram
- Example of State Diagram
- Adding Detail to State Icon
- Superstate and Substate

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What is State Diagram

- The state-chart diagram describes the life of an object in terms of the events that trigger changes in the object's state.
- The **state diagram** shows the states of a **single object**.
- Examples
 1. When you throw a switch, a light changes its state from **Off** to **On**.
 2. When you click a remote control, a television changes its state from showing you **one channel** to showing you **another**.

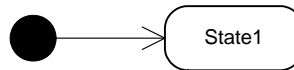
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Elements of State Diagram

- State: States represent situations during the life of an object.



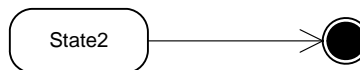
- Initial State: An initial state indicates the state of an element when it is created.



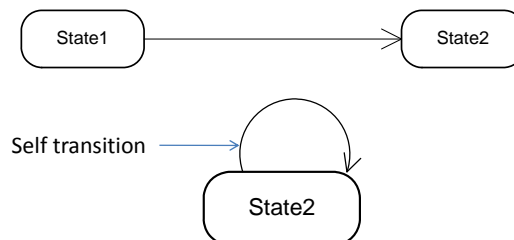
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Elements of State Diagram

- Final State: A final state indicates the state of an element when it is destroyed



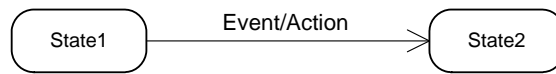
- Transition, Event and Action



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Elements of State Diagram

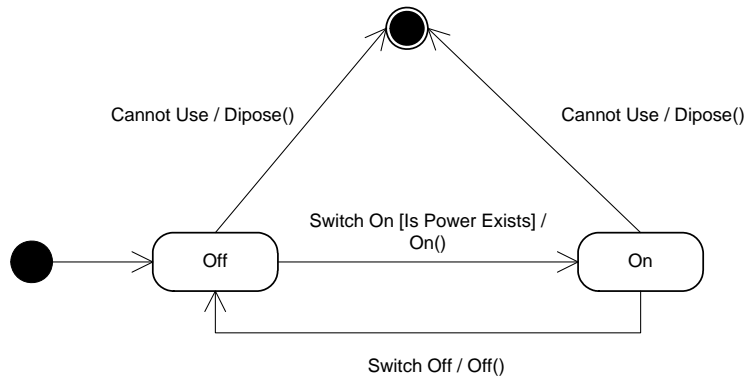
- Event [condition] / Action
 - Event: that causes a transition to occur (a **trigger event**)
 - Action: the computation that executes and makes the state change happen.



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Example of State Diagram

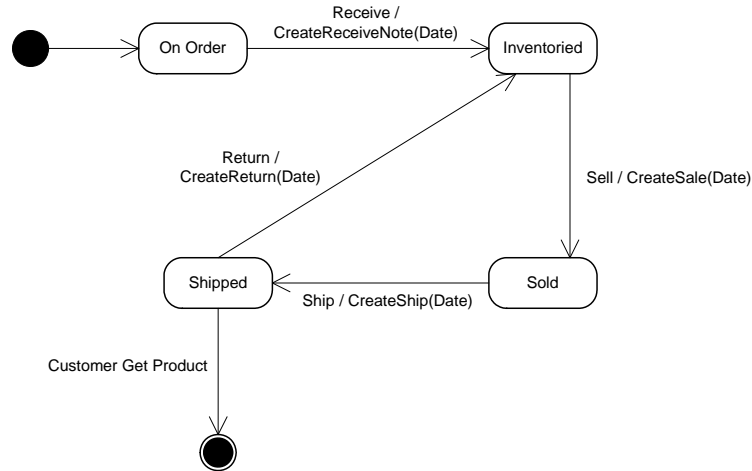
- Fan State



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Example of State Diagram

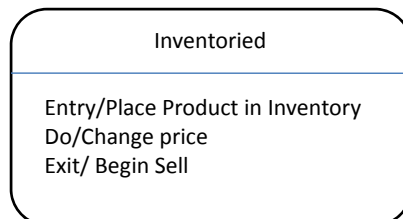
- State of Product



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Adding Detail to State Icon

- Three frequently used categories of activities:
 - **Entry:** what happens when the system enters the state.
 - **Exit:** what happens when the system leaves the state.
 - **Do:** what happens while the system is in state.



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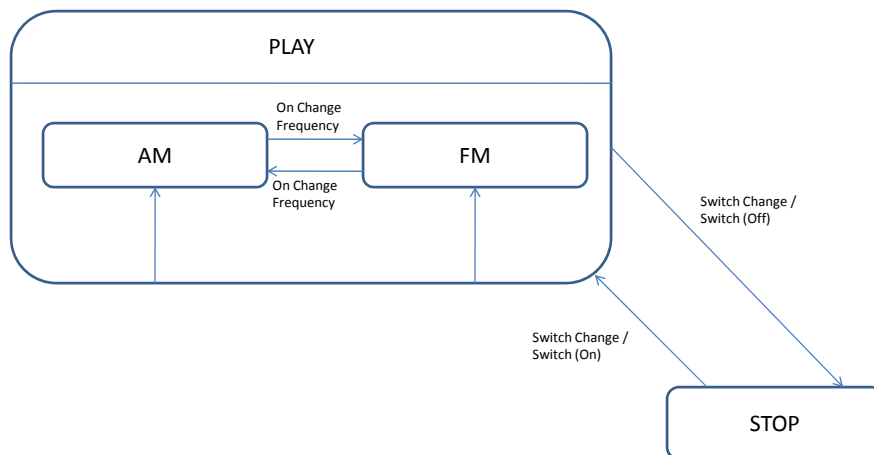
Superstate and Substate

- A superstate is simply a state that is expanded to show more detail.
- A substate is a state within a state, a lower level of detail within a state. For example, a car can be in the state of moving forward. Within the *moving forward superstate* are *substates of moving forward in first gear, moving forward in second gear, and so on.*

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Superstate and Substate

- State of Radio



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