

# UML Statechart Diagram

A UML Statechart Diagram describes

- states for an object
- when an objects' state will change

A Statechart Diagram models an object's decision about what it does when it receives a message

May be related to classes, use cases, ...

# States, Events, Transitions

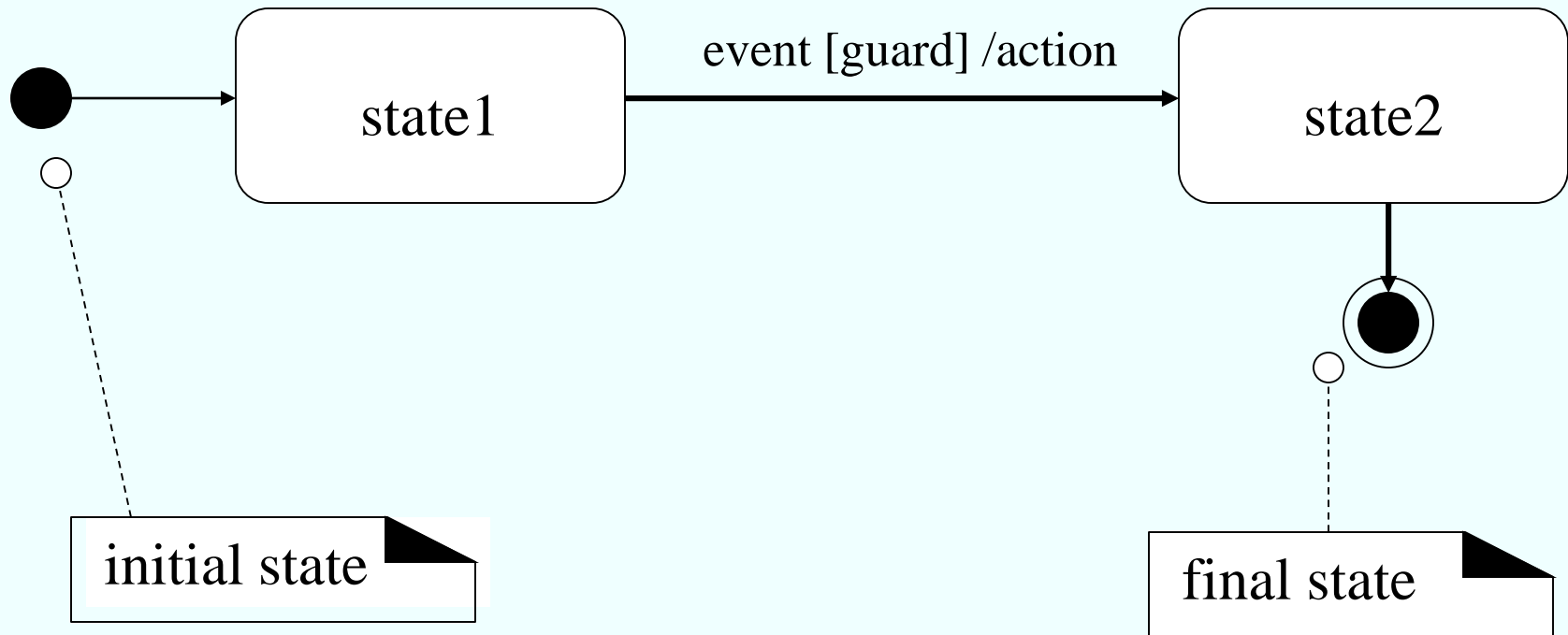
**State** - a condition or situation during the life of an object during which it satisfies some condition, performs some activity, or waits for some event.

**Event** - a noteworthy occurrence

- An event can trigger a state transition
- Used to name the transition

**Transition** – a movement from one state to another in response to some event. If there are two transitions from A for the same event then a guard is used to determine which transition is triggered.

# State Diagram - General Form



We choose to represent events that suit us - enabling a diagram to represent the level of detail we need

# Bank Account Example – based on dofactory.com example

States:

*red*

*silver*

*gold*

Events: deposits, withdrawals, and interest payments

We need to detail the business rules that govern the processing in each state when deposits, withdrawals, and interest payments are made.

Using business rules we can draw the transitions: event, guard, action



# Bank Account Example Example – Silver State

An account begins by being **Silver**.

In the Silver state:

- If there is a withdrawal and the balance becomes less than a lower limit, then the account goes into the Red state.
- If there is a deposit and the balance gets larger than the upper limit, then the account goes into the Gold state.
- When interest is paid and the balance gets larger than the upper limit, then the account goes into the Gold state.



*fill in the transitions*



# Bank Account Example Example – Red State

Consider an account in the **Red** state.

- Withdrawals are not permitted and if attempted a service charge is applied.
- If there is a deposit and the balance gets larger than the upper limit, then the account goes into the Silver state.
- No interest is paid.

silver

red

*fill in the transitions*

gold

# Bank Account Example – Gold State

Consider an account in the **Gold** state.

- If there is a withdrawal and if the balance gets smaller than a lower limit but not less than 0, then the account goes into the Silver state.
- If there is a withdrawal and if the balance gets less than a 0, then the account goes into the Red state.
- Interest is paid, and ~~if the balance gets larger ...~~ added to the balance

silver

red

*fill in the transitions*

gold

# Bank Account Example

*fill in the transitions for  
the complete diagram*

silver

red

gold