ĐẠI HỌC TÔN ĐỨC THẮNG
TON DUC THANG UNIVERSITY

REQUIREMENTS ANALYSIS AND DESIGN (PHÂN TÍCH VÀ THIẾT KẾ YÊU CẦU) 502050

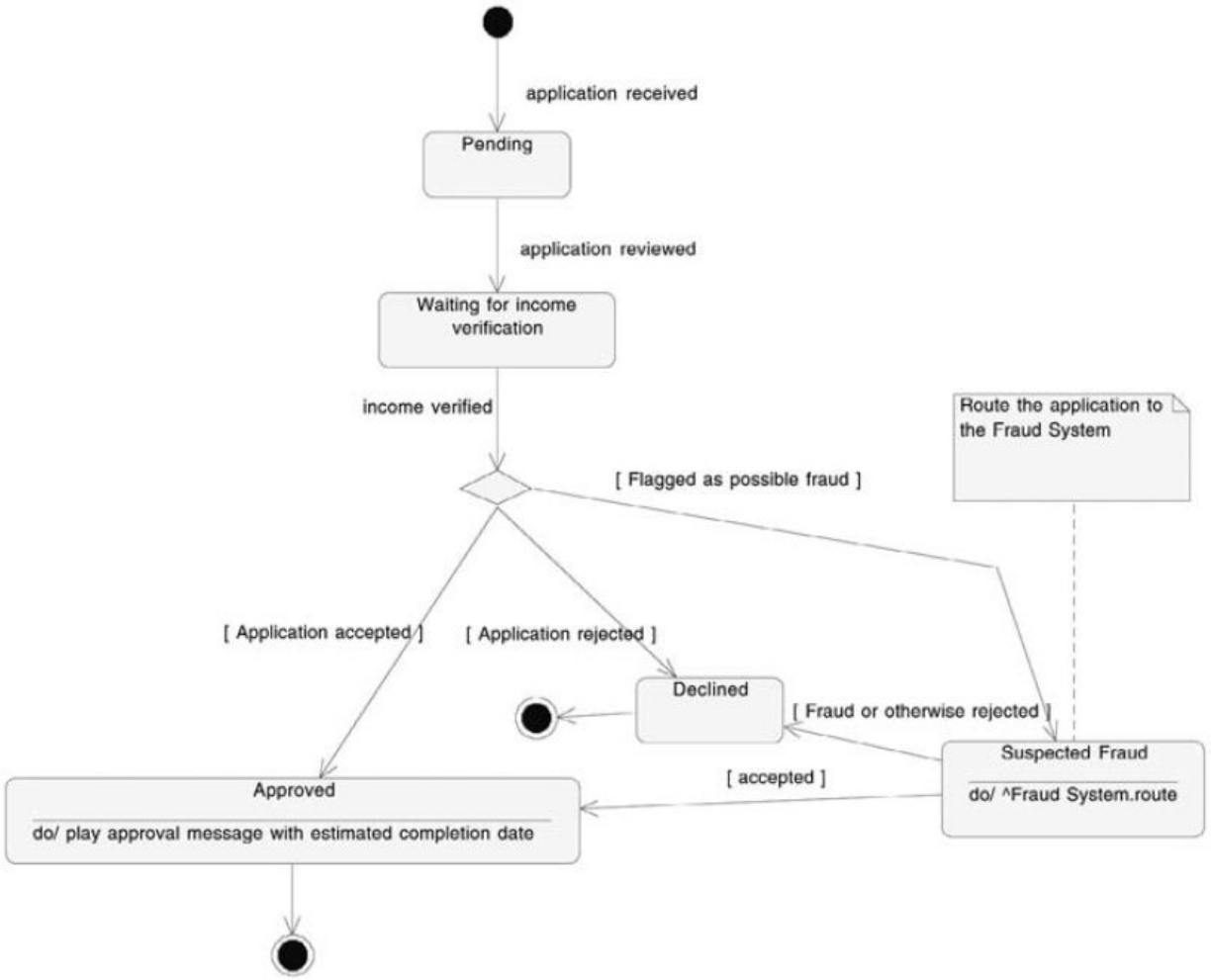
Chapter 5
Discovery Phase II, III, IV

Outline

- State-Machine Diagrams / State Charts
- System Sequence Diagram (SSD)
- Structural Analysis
- Domain Modal Class Diagram
- Specify Testing
- Specify Implementation Plan
- Set baseline for development

state-machine diagrams / State Charts

- How do we model the state of an object?
- Sample State-Machine Diagram

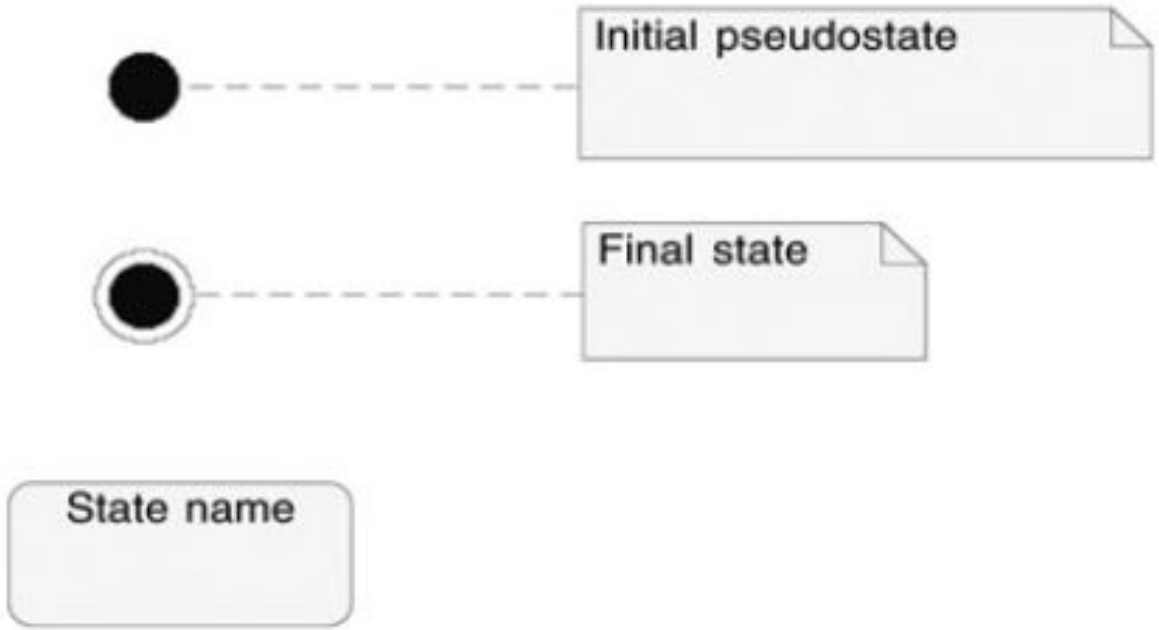


What is a State-Machine Diagram?

- A diagram that models the different statuses or **states of an object and the events and conditions** that cause an object to pass from one state to another
- The diagram describes the **life of a single object over a period of time** – may span several system use cases
- Example
  - a state-machine diagram might show the different statuses of an insurance claim
    - » Received, Validated, Under Adjustment, Adjusted, Paid, Not Paid, etc

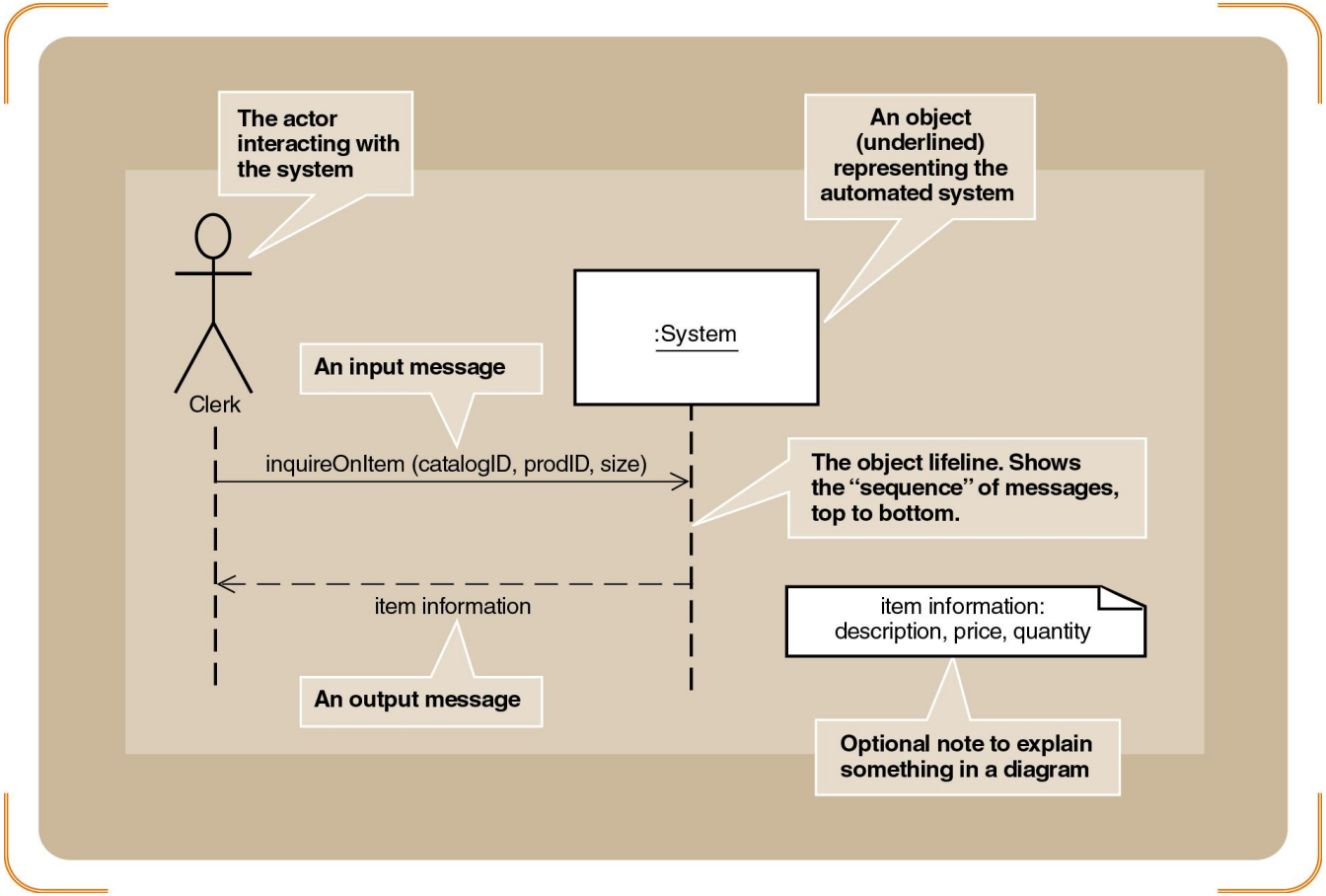
Types of States

- The symbols are similar to activity diagrams:



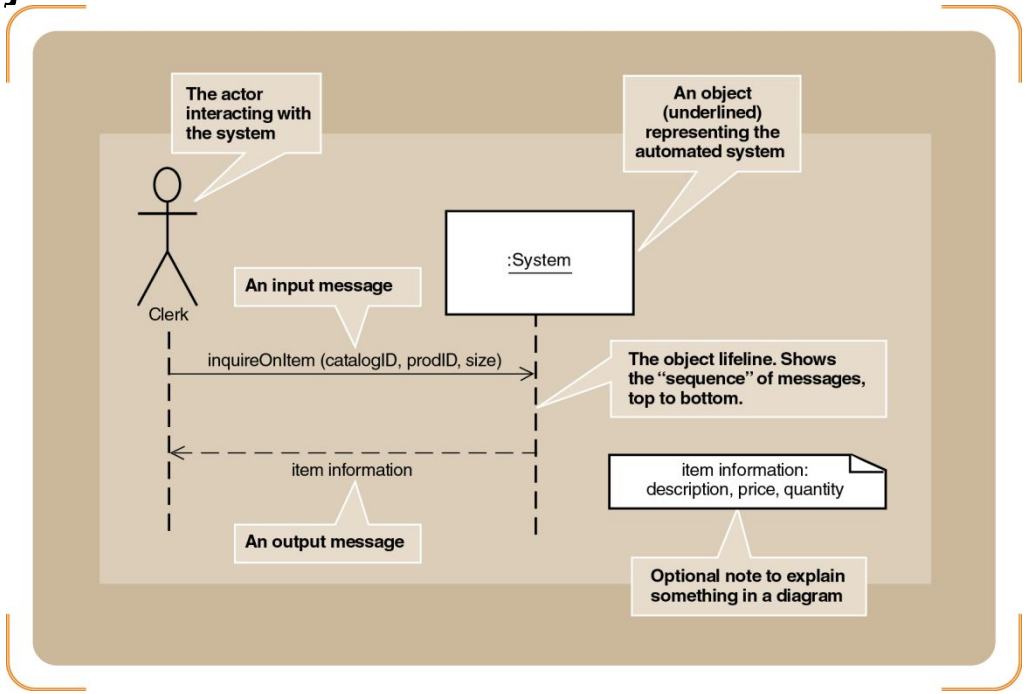
System Sequence Diagram (SSD)

- Sample System Sequence Diagram



System Sequence Diagram Notations

- Important elements in SSD:
  - **Box**
  - **Name** of the object underlined
  - **Messages**
  - **Lifeline**



System Sequence Diagram Notation

- Message syntax can take several forms
  - Depends on send/return direction
- Message semantics: actions invoked on destination object
- Completed message/return value notation:
  - 2 main notations
  - Solid arrow (with message) and dotted return arrow (with return object)
  - Single solid arrow

```
return_object := message(para)
```

Structural Analysis

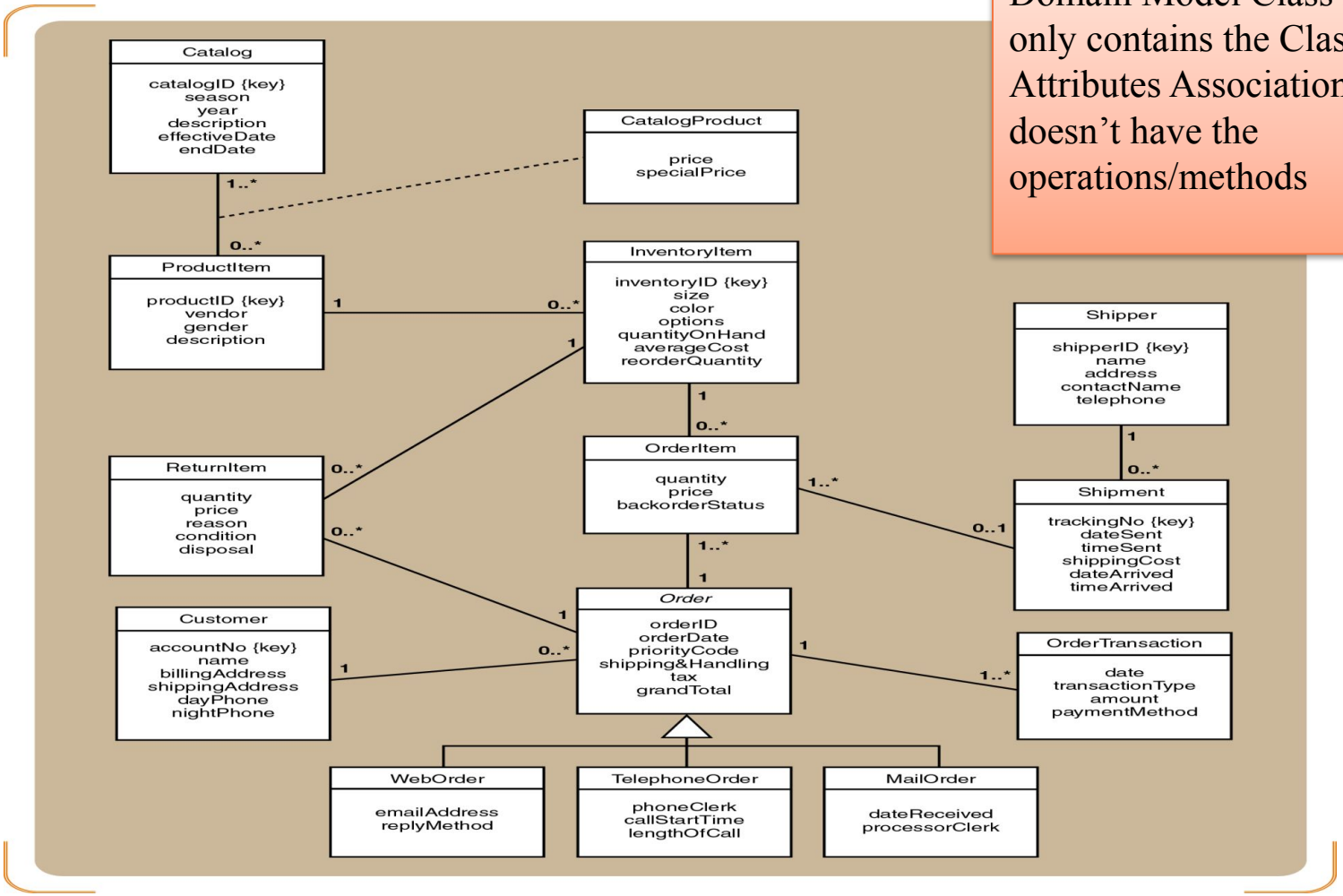
- What is the system?
- An abstract representation of what the system
- What are the components?

Structural Model

- Main diagram = **class diagram**
- Will be performing object-oriented structural analysis:
  - Attributes (of business objects)
  - Operations (of business objects)
  - Numerical relationships (between business objects)
    - » E.g. How many customers may co-own a particular account
- Focuses on the "**nouns**" of the system

Rocky Mountain Outfitters Domain Model Class Diagram

Domain Model Class Diagram only contains the Classes, Attributes Associations. It doesn't have the operations/methods



Specify Testing

- Testing is any activity aimed at **proving that the software system does not do what it is supposed to**
- The term **quality assurance** is sometimes used because it suggests that more than the physical testing of the software may be required
  - e.g. verifying a draft of a system use-case description with stakeholders is a testing activity

Specify Implementation Plan

- The BRD must include an **implementation plan** so that steps required when releasing the system can be planned for in advance
- The issues addressed typically include:
  - Training
  - Conversion
  - Rollout
  - End-user procedures
- Post-implementation follow-up
  - Follow up within a reasonable time frame after implementation to ensure that the project is running successfully and to verify that the project is achieving high-level goals

Set baseline for Development

- Once the BRD is complete, **freeze all analysis documentation**
- Save this "**frozen copy**" so that team members will be able **to refer back to it later**
- This copy becomes the "**baseline**" – or beginning point – for the next step: the actual development of the software