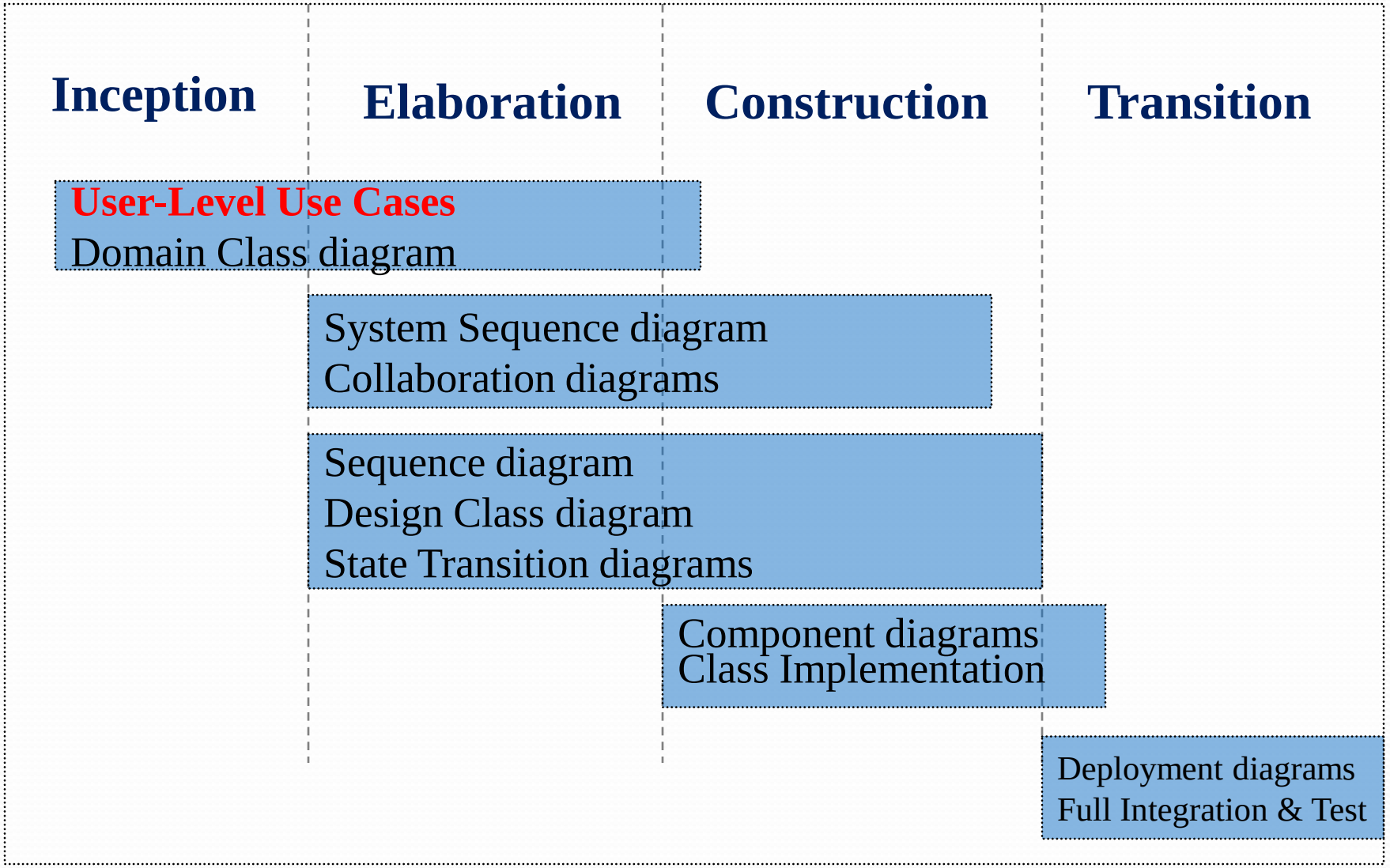
COMP 3711

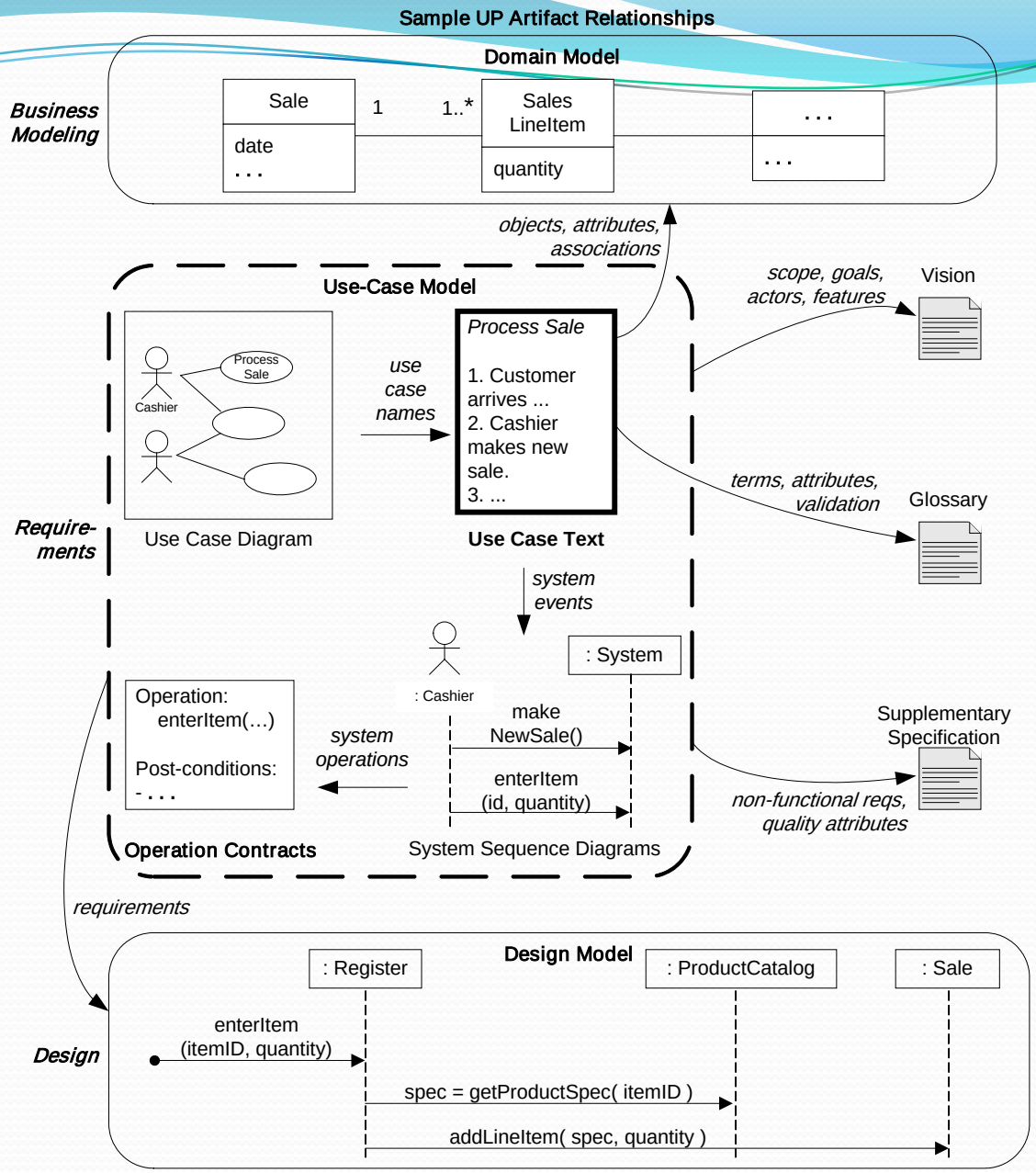
(OOA and OOD)

Use Case Text Stories

Larman Chapter 6, 30

UML IN UP (Iteration)





Larman Fig 6.1

What are Use Cases?

- Text stories, widely used to discover and record requirements.

- *Involve writing Use Case Descriptions and Use Case Diagrams.*

Use Case Definition

- Ivar Jacobson's
  - *A set of use-case instances, where each instance is a sequence of actions a system performs that yields an observable result of value to a particular actor.*

More Definitions

- Actor
  - Something with behaviour
    - E.g such as a person, a system
  - Primary Actor
    - E.g. customer
  - Supporting Actor
    - E.g. auto payment authorization service
  - Offstage Actor
    - E.g. external tax agency

More Definitions

- Scenario (use case instance)
  - A specific sequence of actions and interactions between actors and the system
    - E.g. scenario of purchasing an item through the web

Writing Use Case @ Inception

- *Write requirements focusing on the users or actors of a system, asking about their goals and typical situations.*
- *Identify actors and goals (via Event Analysis).*
- *Write terse use cases.*

Writing Use Case @ Inception

- *Focus on understanding what the actor considers a valuable result.*
- *Define system responsibilities by specifying what the system must do and not how it will do it.*
- *Name Use Case by starting with a verb.*

Fully Dressed Use Case Text

Use Case Section	Comment
Use Case Name	Start with a verb
Scope	The system under design
Level	User goal or sub-function
Primary Actor	Calls on the system to deliver its services
Stakeholders and Interests	Who cares about this use case
Preconditions	What must be true on start and worth telling
Success Guarantee	What must be true on successful completion
Main Success Scenario	A typical unconditional happy successful path scenario
Extensions	Alternate scenarios of success or failure
Special Requirements	Related non-functional requirements

Larman 6.8

Use Case Name:	*Create new order*	
Scenario:	Create new telephone order	
Triggering Event:	Customer telephones RMO to purchase items from the catalog.	
Brief Description:	When customer calls to order, the order clerk and system verify customer information, create a new order, add items to the order, verify payment, create the order transaction, and finalize the order.	
Actors:	Telephone sales clerk.	
Related Use Cases:	Includes: *Check item availability.*	
Stakeholders:	Sales department: to provide primary definition. Shipping department: to verify information content is adequate for fulfillment. Marketing department: to collect customer statistics for studies of buying patterns.	
Preconditions:	Customer must exist. Catalog, Products, and Inventory items must exist for requested items.	
Postconditions:	Order and order line items must be created. Order transaction must be created for the order payment. Inventory items must have the quantity on hand updated. The order must be related (associated) to a customer.	
Flow of Activities:	**Actor**	**System**
	1. Sales clerk answers telephone and connects to a customer.	
	2. Clerk verifies customer information.	
	3. Clerk initiates the creation of a new order.	3.1 Create a new order.
	4. Customer requests an item be added to the order.	
	5. Clerk verifies the item (*Check item availability* use case).	5.1 Display item information.
	6. Clerk adds item to the order.	6.1 Add create an order item.
	7. Repeat steps 4, 5, and 6 until all items are added to the order.	
	8. Customer indicates end of order; clerk enters end of order.	8.1 Complete order. 8.2 Compute totals.
	9. Customer submits payment; clerk enters amount.	9.1 Verify payment. 9.2 Create order transaction. 9.3 Finalize order.
Exception Conditions:	2.1 If customer does not exist, then the clerk pauses this use case and invokes *Maintain customer information* use case. 2.2 If customer has a credit hold, then clerk transfers the customer to a customer service representative. 4.1 If an item is not in stock, then customer can a. choose not to purchase item, or b. request item be added as a back-ordered item. 9.1 If customer payment is rejected due to bad-credit verification, then a. order is canceled, or b. order is put on hold until check is received.	

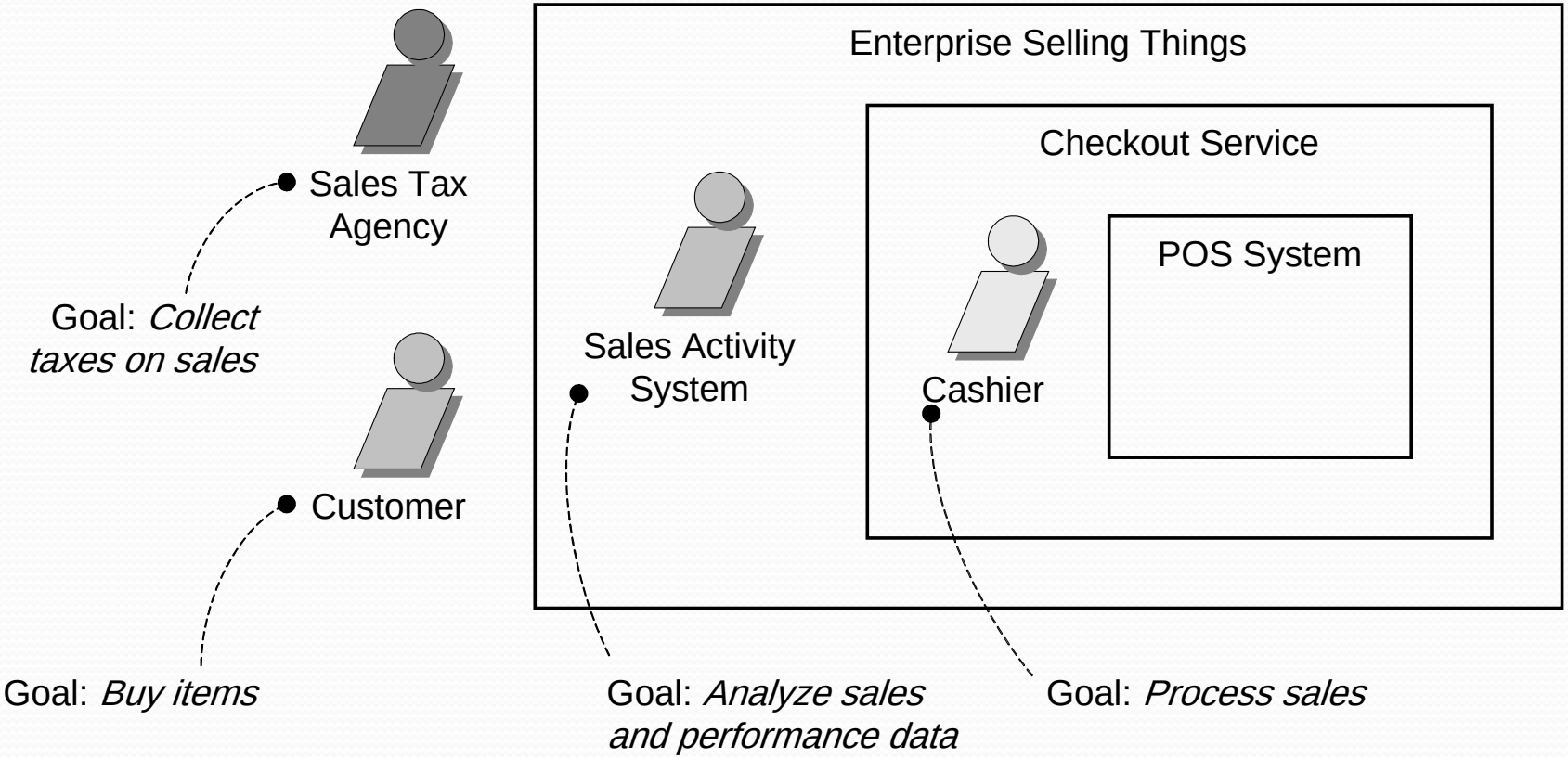
An Example of "Fully Dressed" Use Case Description (Satzinger-Jackson-Burd Figure 7-10)

Use Case Documentation Template

- **Use Case Name**
- **Use Case Scenario**
- **Brief Description Of Use Case**
- **Actors**
- **Related Use Cases**
- **Stakeholders**
- **Preconditions**
- **Postconditions**
- ***Activities Flow (Actor / Action)***
- ***Systems Response***
- **Exception Conditions**

Which is the best format?

Identify Primary Actors and Goals



Goals will become Use Cases in Use Case Diagram

Larman 6.2

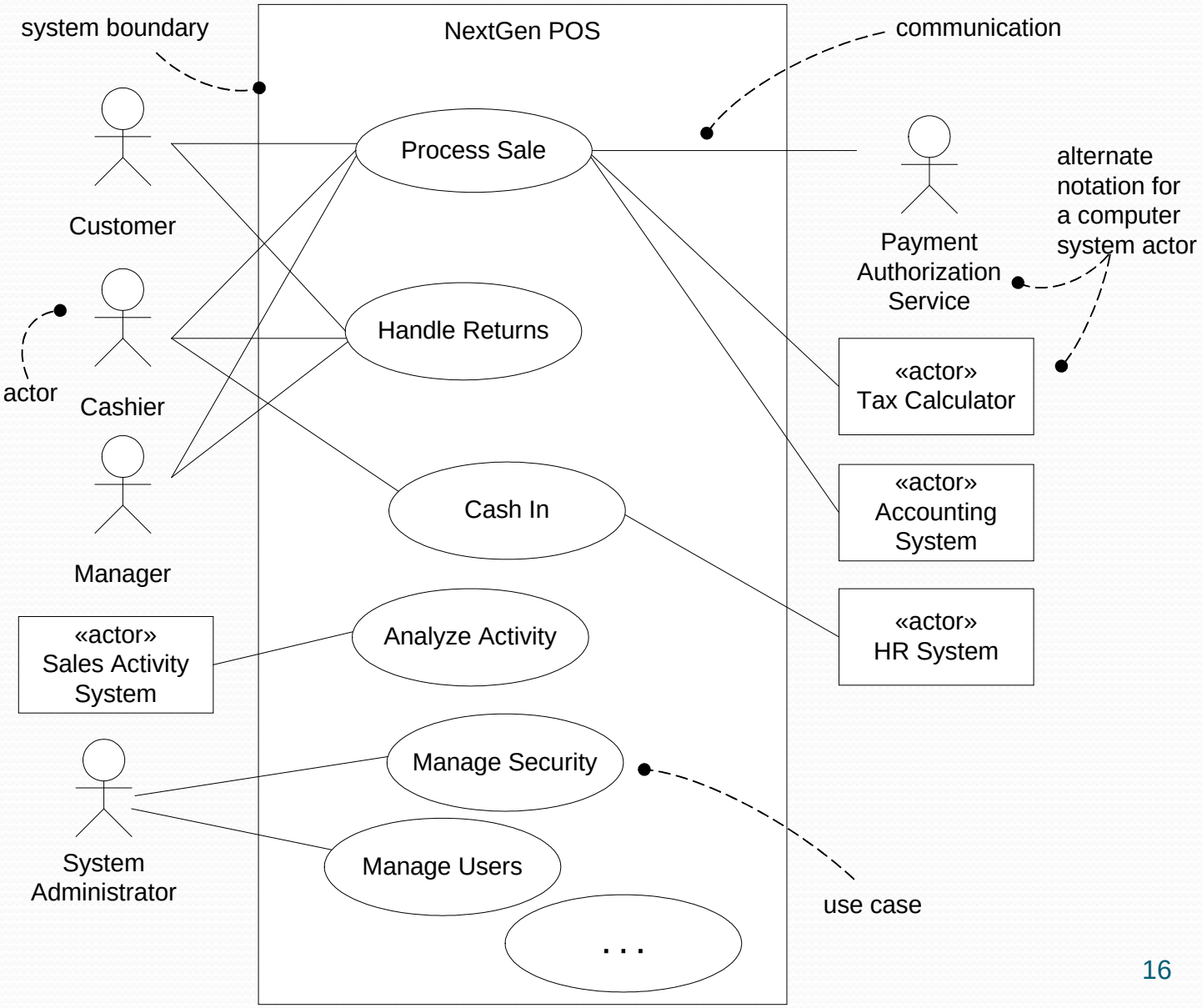
Drawing UML Use Cases

- *Each goal will become a Use Case.*
- *Number of events are grouped into a Use Case.*
  - *Exception is CRUD (Create, Retrieve, Update, Delete can be grouped into a Manage Use Case)*
- *Name Use Case by starting with a verb.*

Finding Useful Use Cases

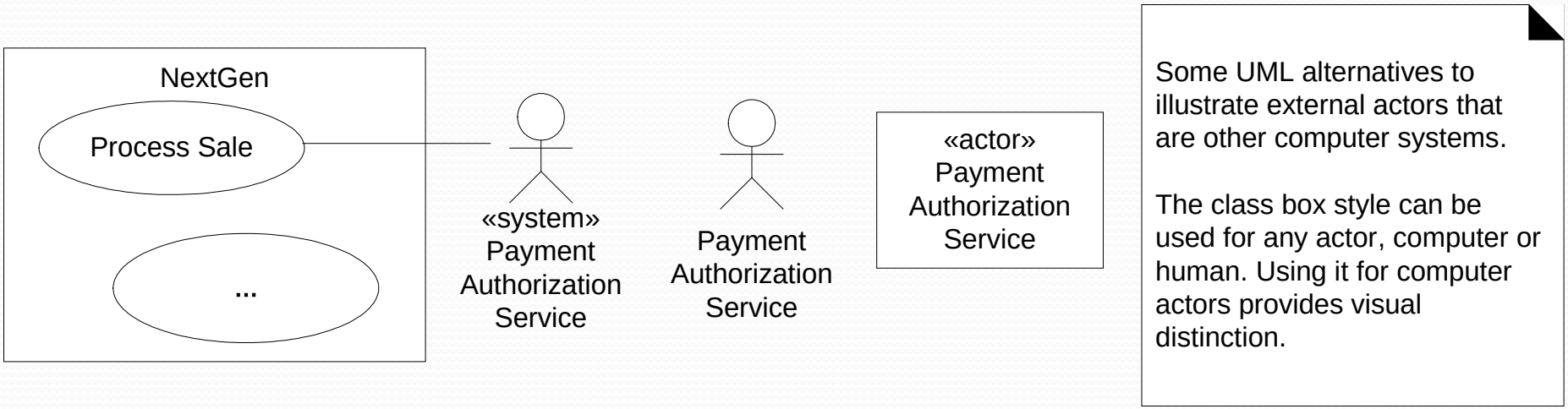
- *Boss Test*
  - *Desirable focus, how important*
- *EBP Test*
  - *Reflect elementary business process*
  - *Measurable business value*
- *Size Test*
  - *More than just one or a few steps*

Drawing UML Use Cases



Larman 6.3

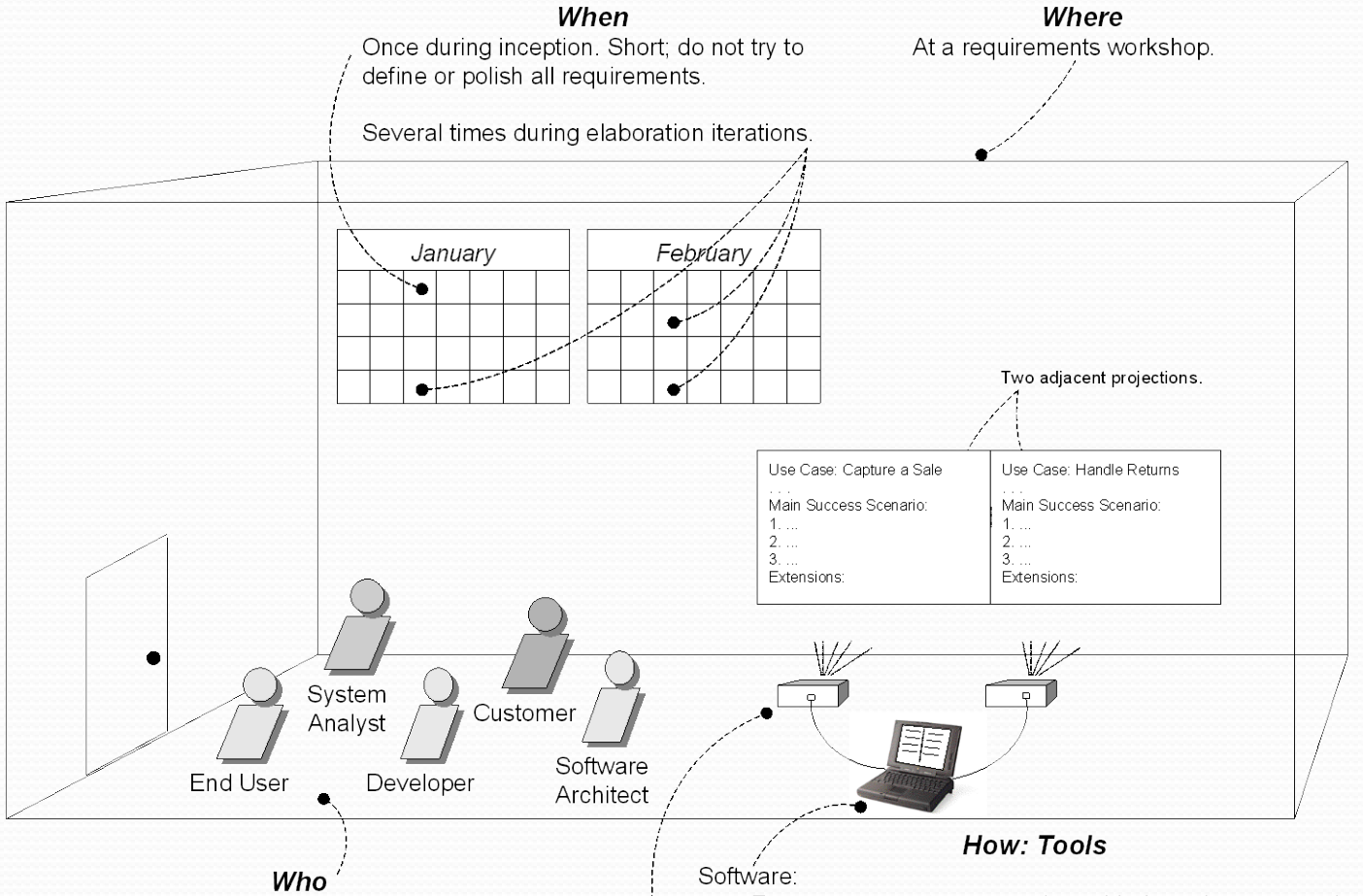
UML Use Case Diagramming



Use UML keywords and stereotypes including guillemet symbols

Larman 6.5

The Gathering Setting



Many, including *end users* and *developers*, will play the role of *requirements specifier*, helping to write use cases.

Led by *system analyst* who is responsible for requirements definition.

Software:

- For use case text, use a web-enabled requirements tool that integrates with a popular word processor.

For use case diagrams, a UML CASE tool.
Hyperlink the use cases; present them on the project website.

Hardware: Use two projectors attached to dual video cards and set the display width double to improve the spaciousness of the drawing area or display 2 adjacent word processor windows .

Larman 6.7

Writing Use Cases Iteratively

- *Write Use Cases in Inception*
  - *10-20% core*
- *Write Use Cases in Elaboration*
  - *80-90% complete*
- *Write Use Cases in Construction*
  - *expand to include the rest*

Questions