

Activity diagrams

Larman Chapter 28

Drawing Activity Diagrams

Purpose:

- to model a business process
 - You can use activity diagrams for visualizing off workflows and business process
- to describe a function of a system represented by a use case
- to describe the logic of an operation

Data flow diagram

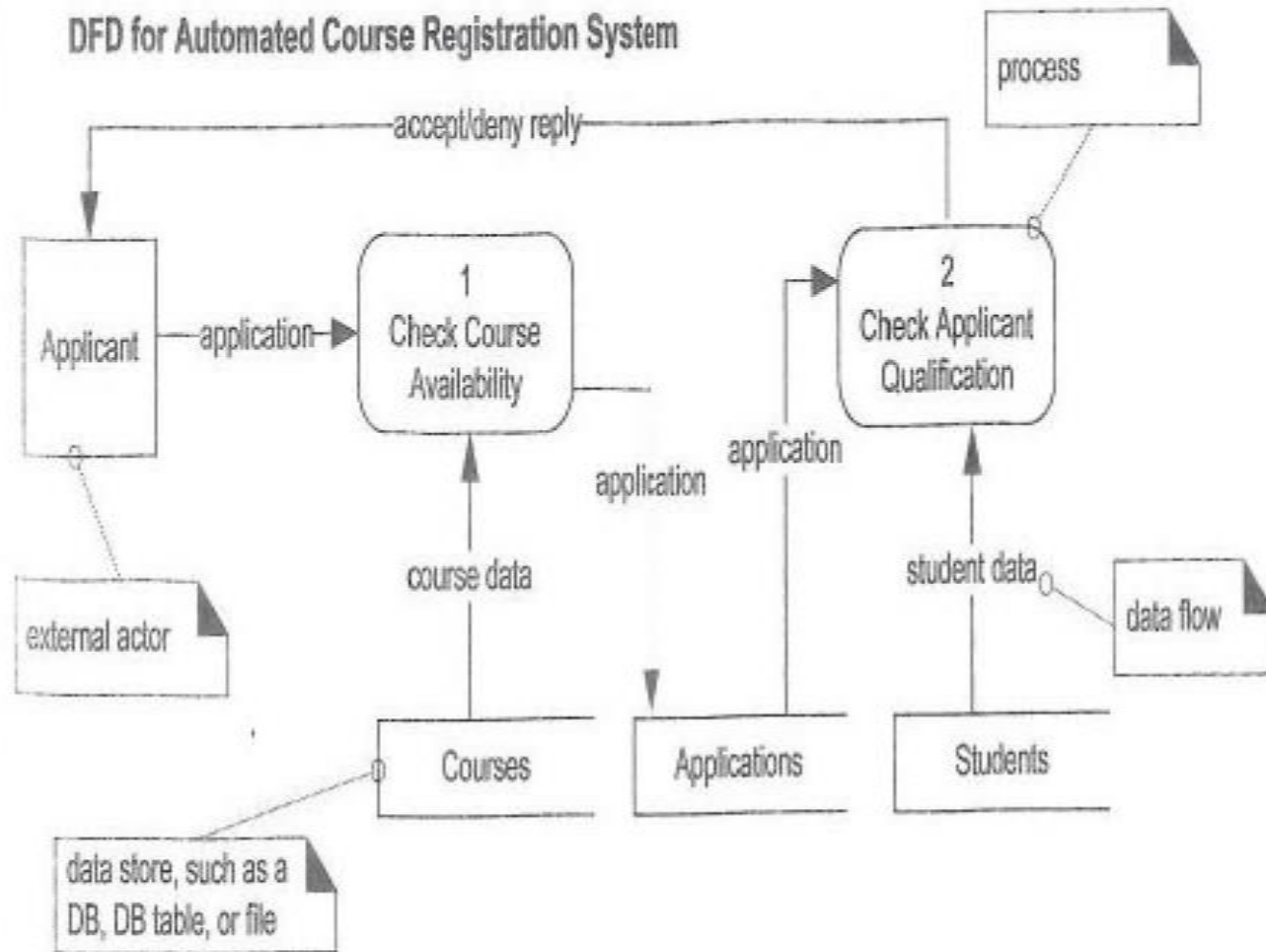


Figure 28.2 Classic DFD in Gane-Sarson notation.

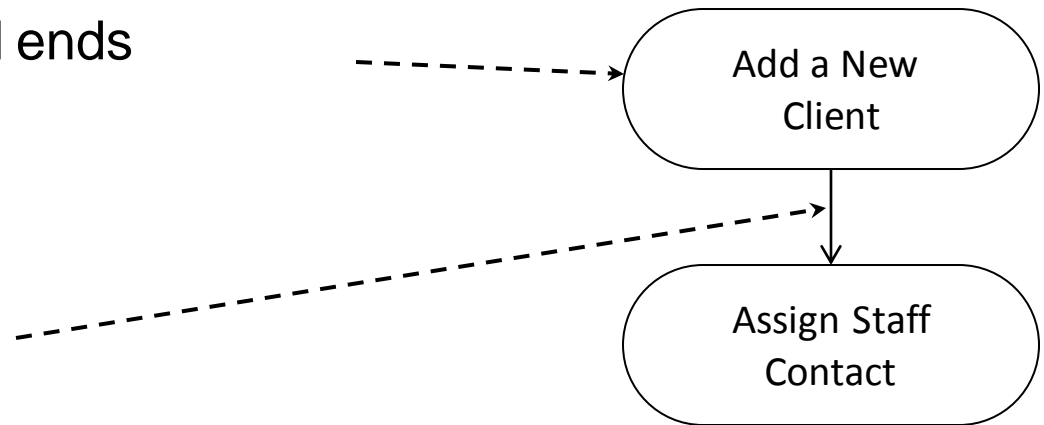
Notation of Activity Diagrams

- **Activities**

- rectangle with rounded ends
- meaningful name

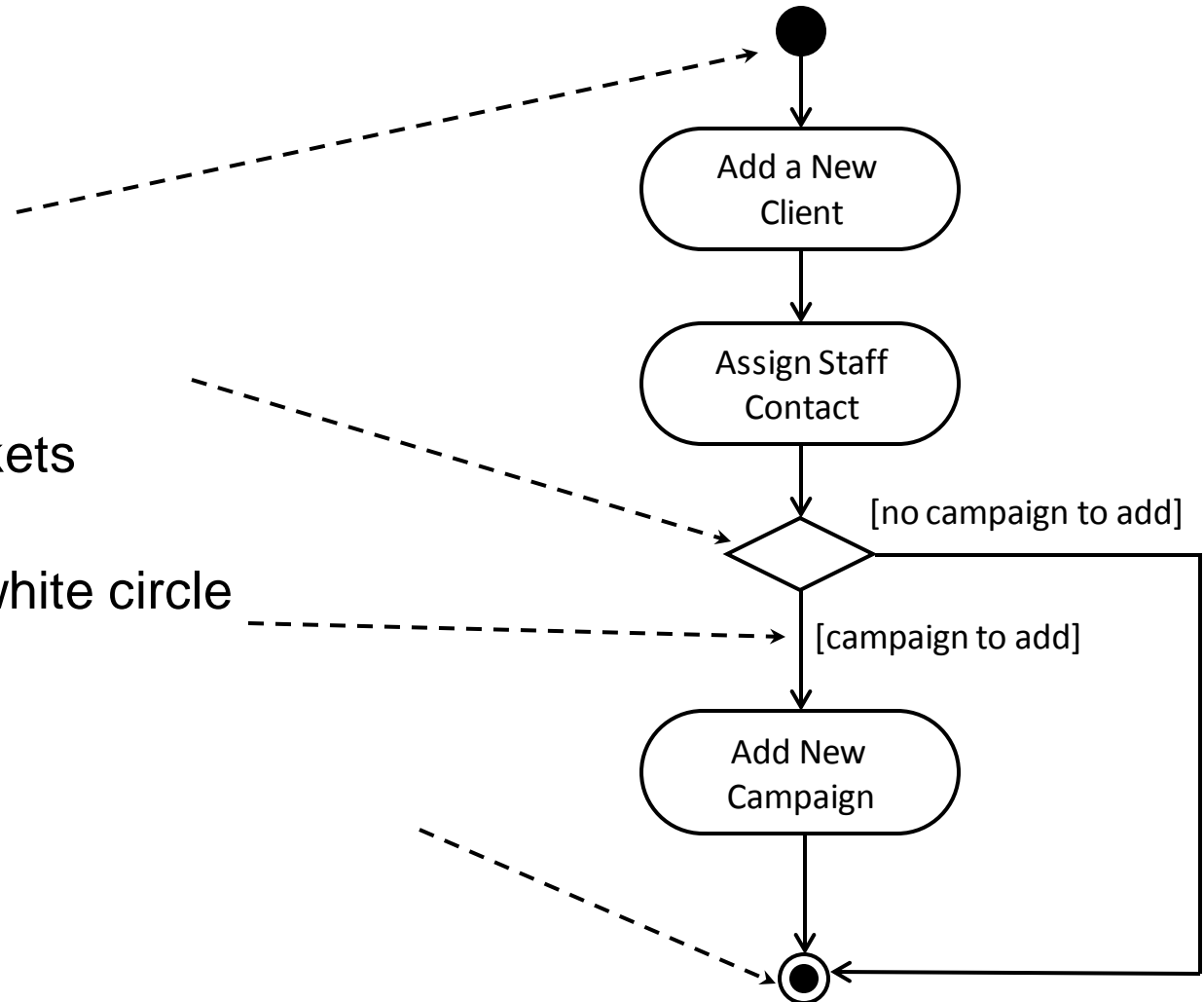
- **Transitions**

- arrows with open arrowheads



Notation of Activity Diagrams

- **Start state**
 - black circle
- **Decision points**
 - diamond
- **Guard conditions**
 - in square brackets
- **Final state**
 - black circle in white circle



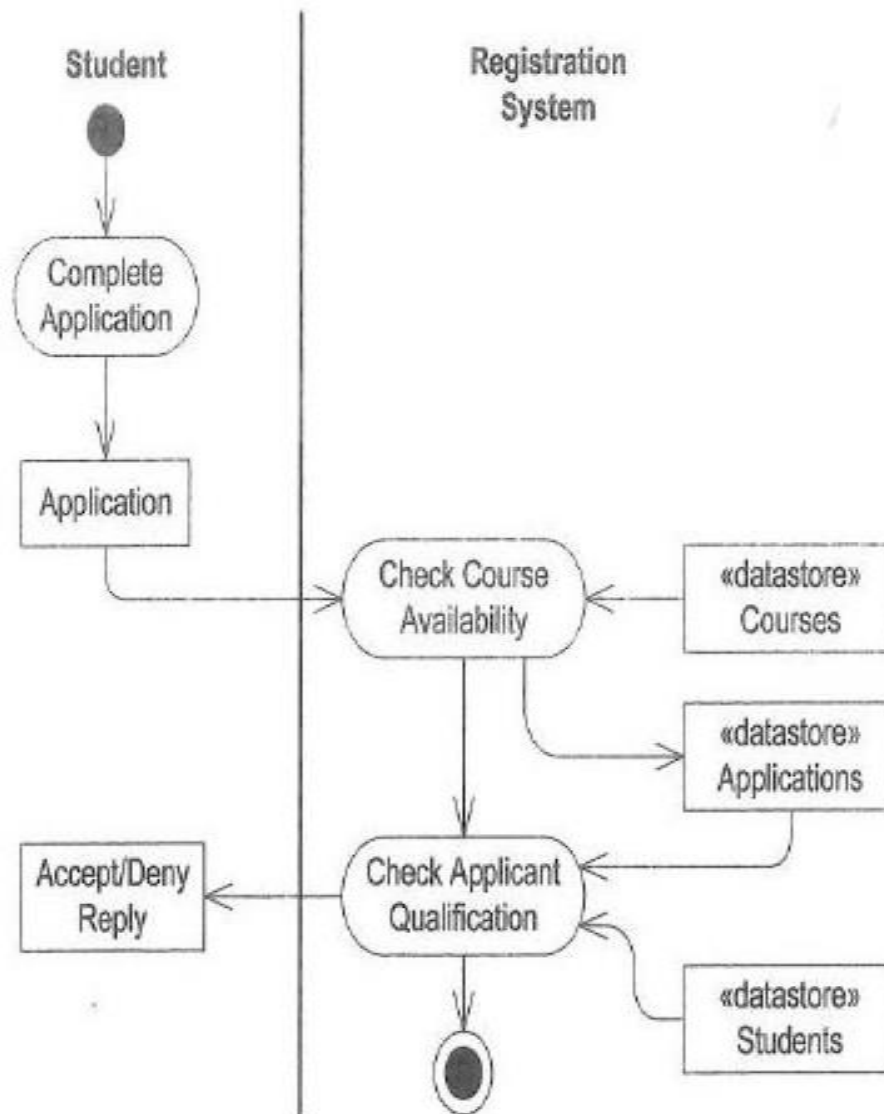
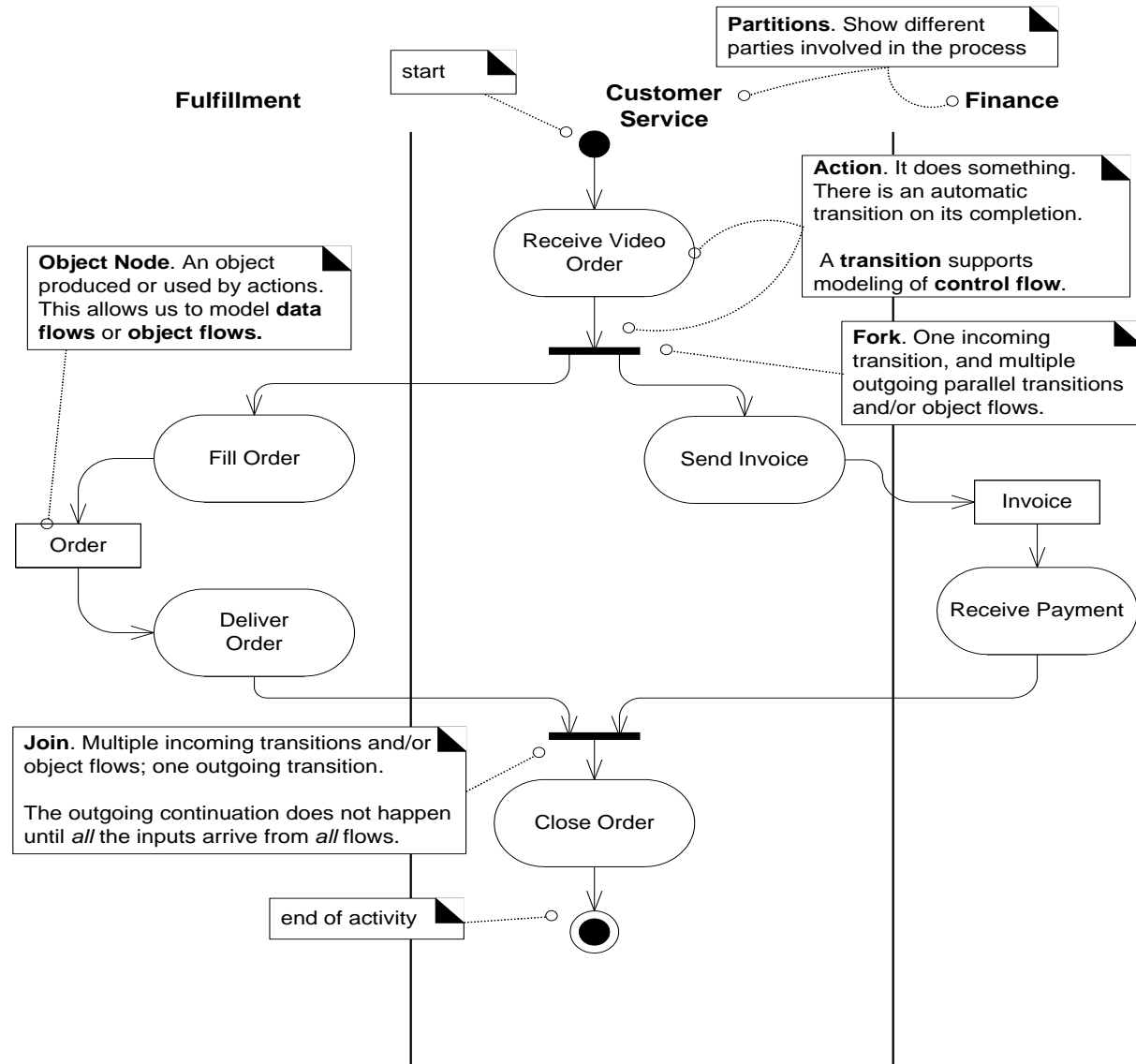


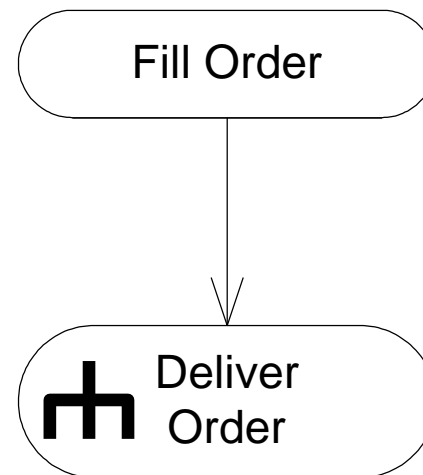
Figure 28.3 Applying activity diagram notation to show a data flow model.

Activity diagrams with forks and object Nodes



Sub-activity diagrams

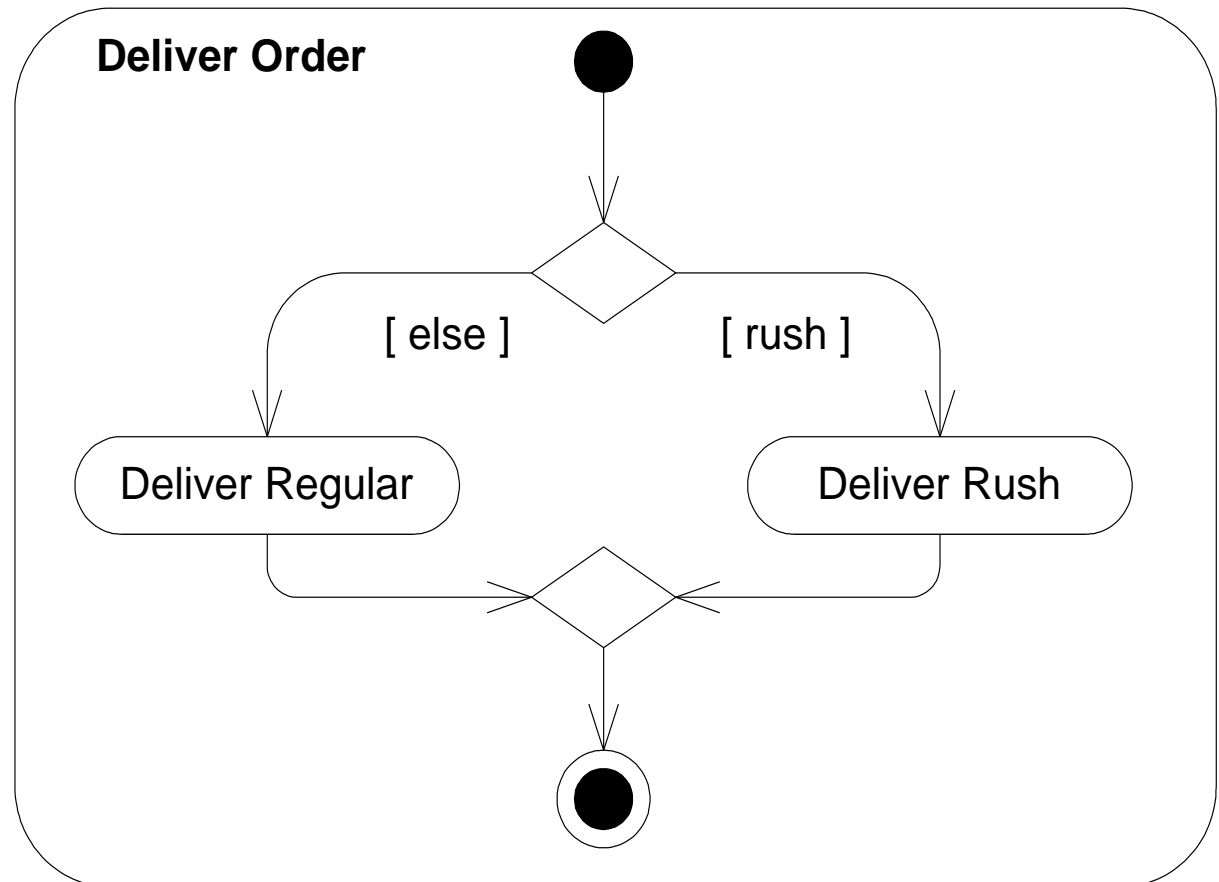
the “rake” symbol (which represents a hierarchy) indicates this activity is expanded in a sub-activity diagram



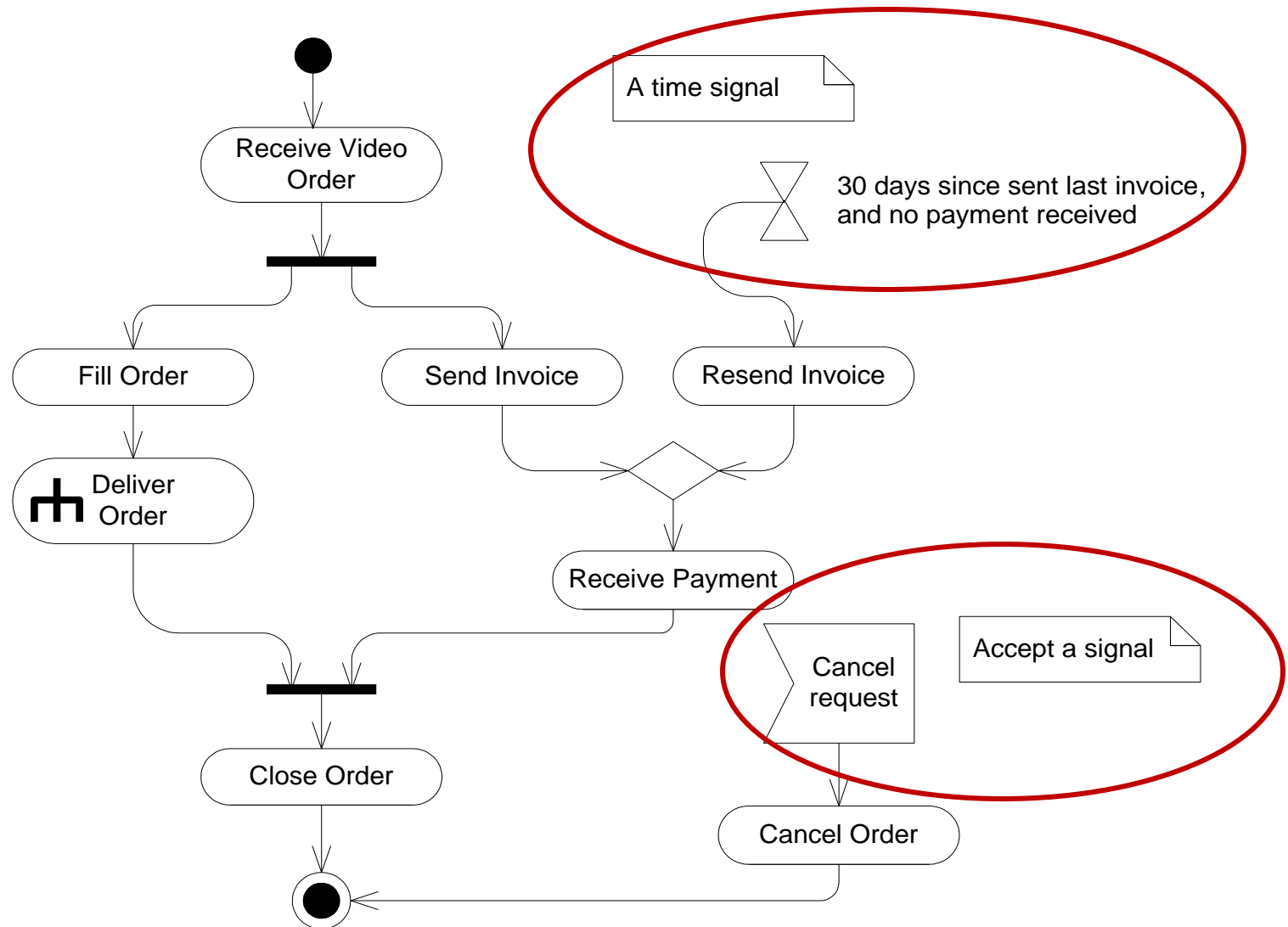
Sub-activity diagrams

Decision: Any branch happens. Mutual exclusion

Merge: Any input leads to continuation. This is in contrast to a *join*, in which case *all* the inputs have to arrive before it continues.



More UML Activity Diagram notation



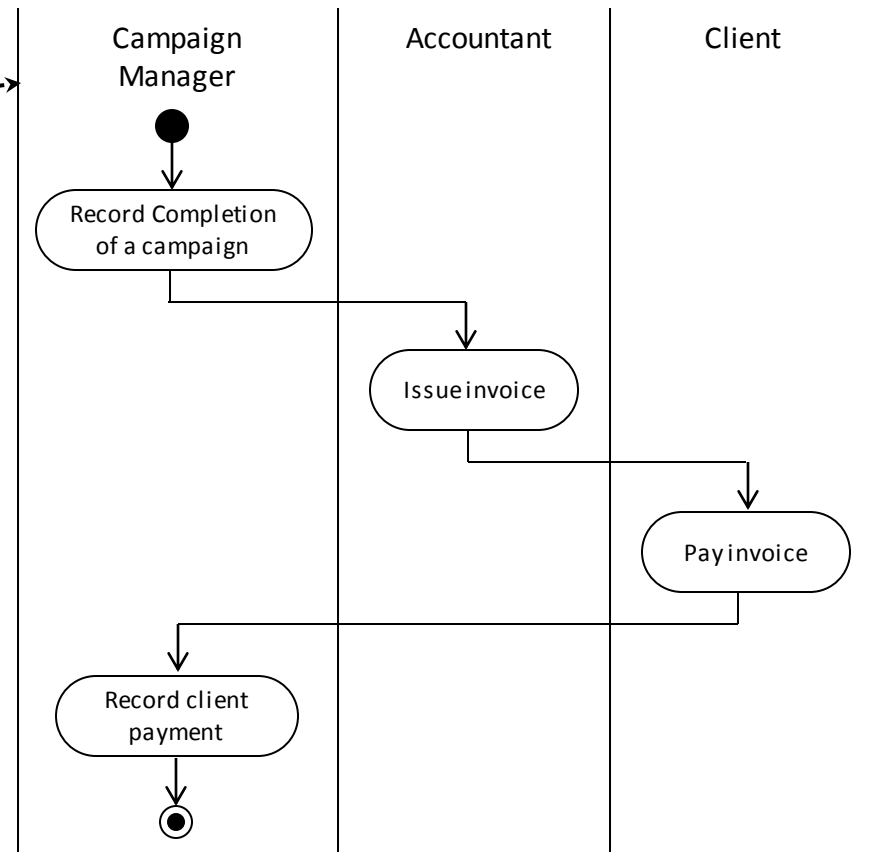
Drawing Activity Diagrams

- Are all the activities carried out by the same person, organisation or department?
- If not, then add swim lanes to show the responsibilities
- Name the swim lanes
- Show each activity in the appropriate swim lane

Notation of Activity Diagrams

- **Swim lanes**

- vertical columns
- labelled with the person, organisation or department responsible for the activities in that column



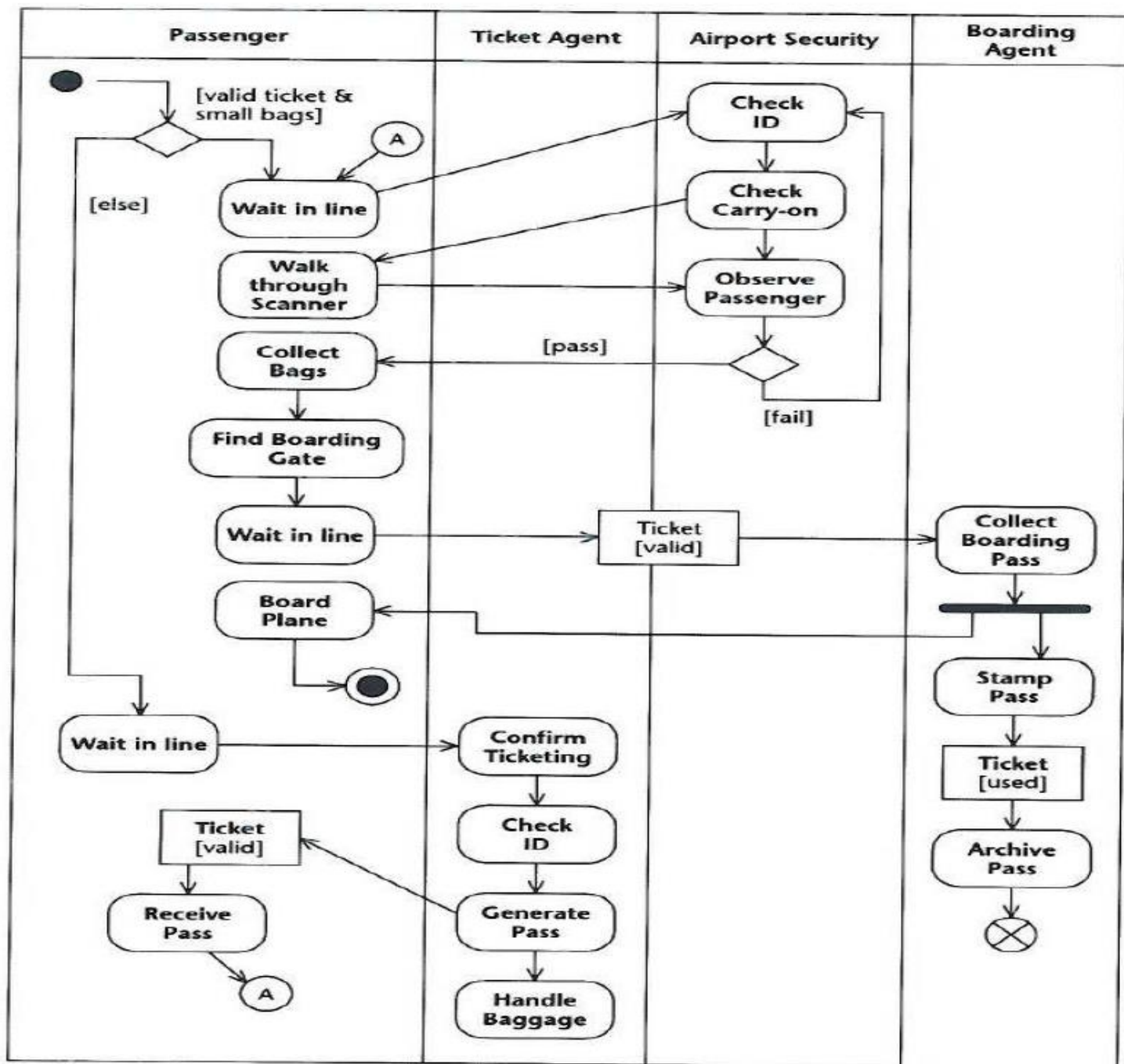
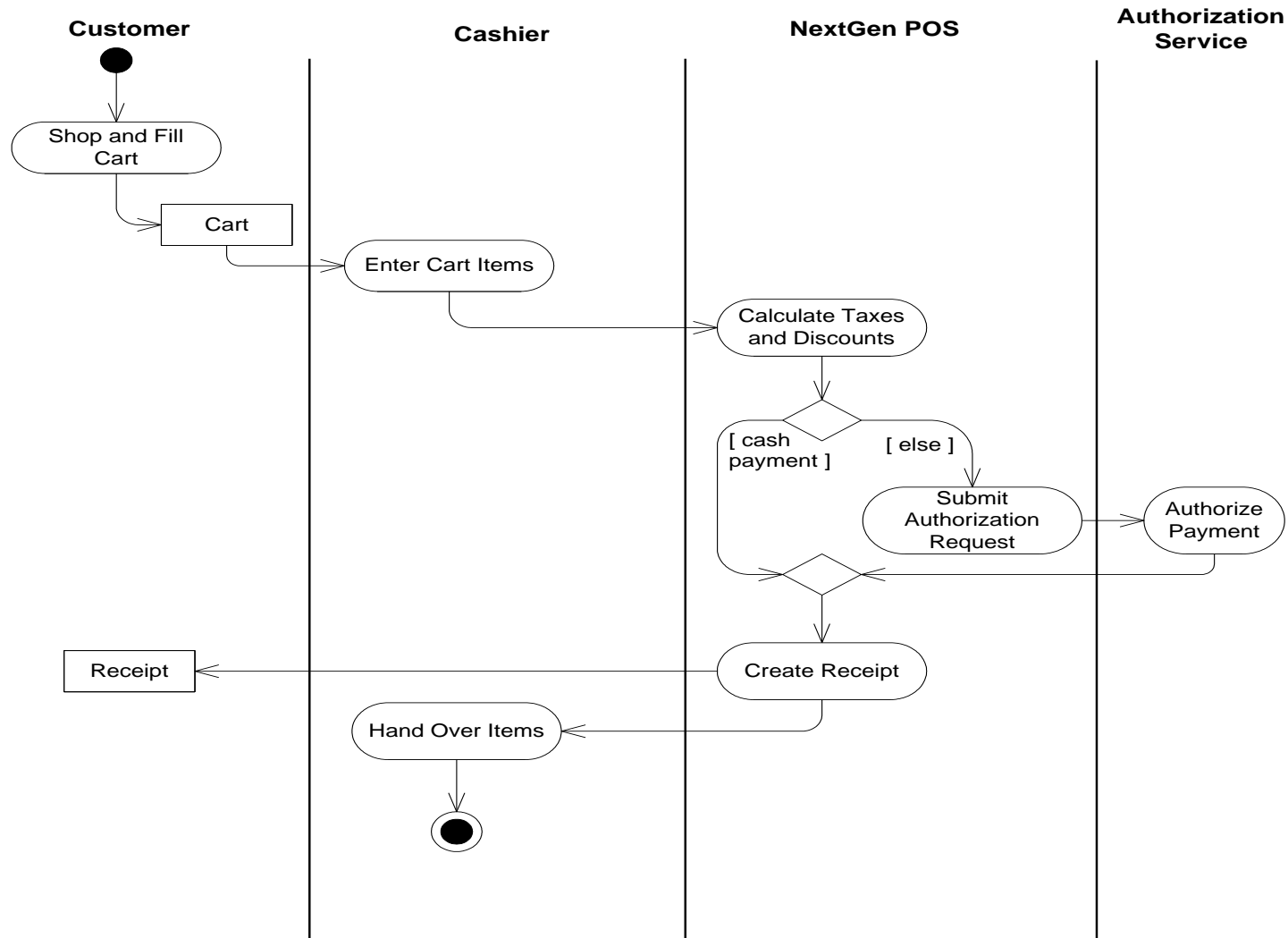


Figure 13-5:
Activity
diagram
showing a
business
process.

Process sale use case



Activity Diagrams in UP

- Activity diagrams are especially valuable in the UP **Business Modeling** discipline
- Activity diagrams can help to understand and communicate the structure and the dynamics of the organization

Guidelines:

- *Activity diagrams are best suited for complex processes. Use case text suffices for simple processes*
- *Take advantage of the possibility to make sub-activity diagrams*
- *Strive to make the level of abstraction of action nodes roughly equal within a diagram*