Universal Modelling Language

Three amigos

UML created from:

- Grady Booch – Booch method
- Ivar Jacobson (Object-Oriented SE, OOSE)
- Jim Rumbaugh (Object-Modeling Technique, OMT)

UML

Standardized graphical language for visualizing, specifying, constructing, and documenting information about software-intensive systems.

History UML

UML 1.0 (1996) – 9 diagrams

UML 1.1, 1.2, 1.3, …

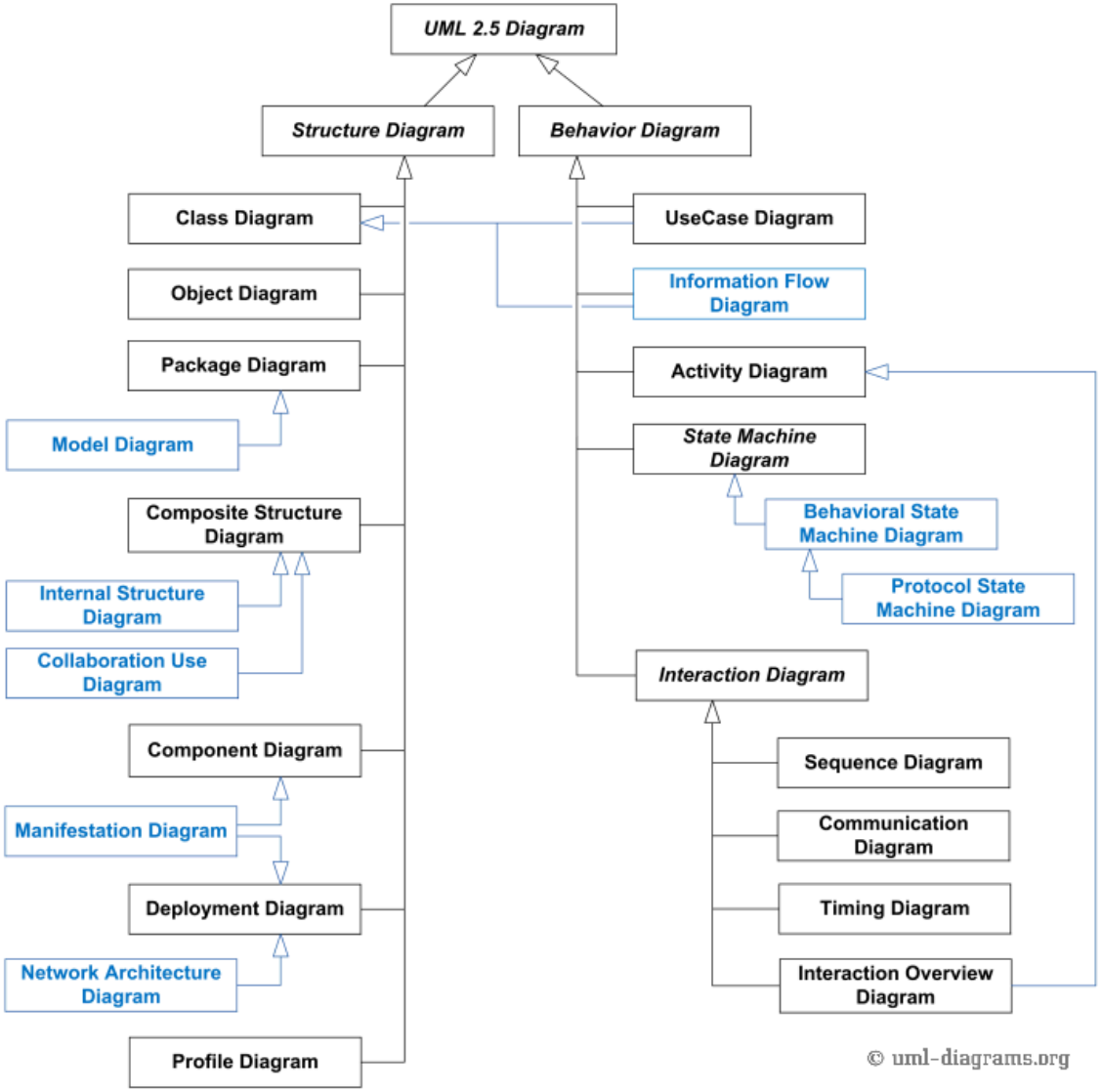
UML 2.0 (2005) – 13 diagrams

UML 2.5 (2015) – 14 diagrams

Structure versus Behavior

Structure – static structure of the system

Behavior – dynamic behavior, changes to the system over time



UML 2.5 Diagrams Overview.
Note, items in blue are not part of official taxonomy of UML 2.5 diagrams.

UML Class Diagram

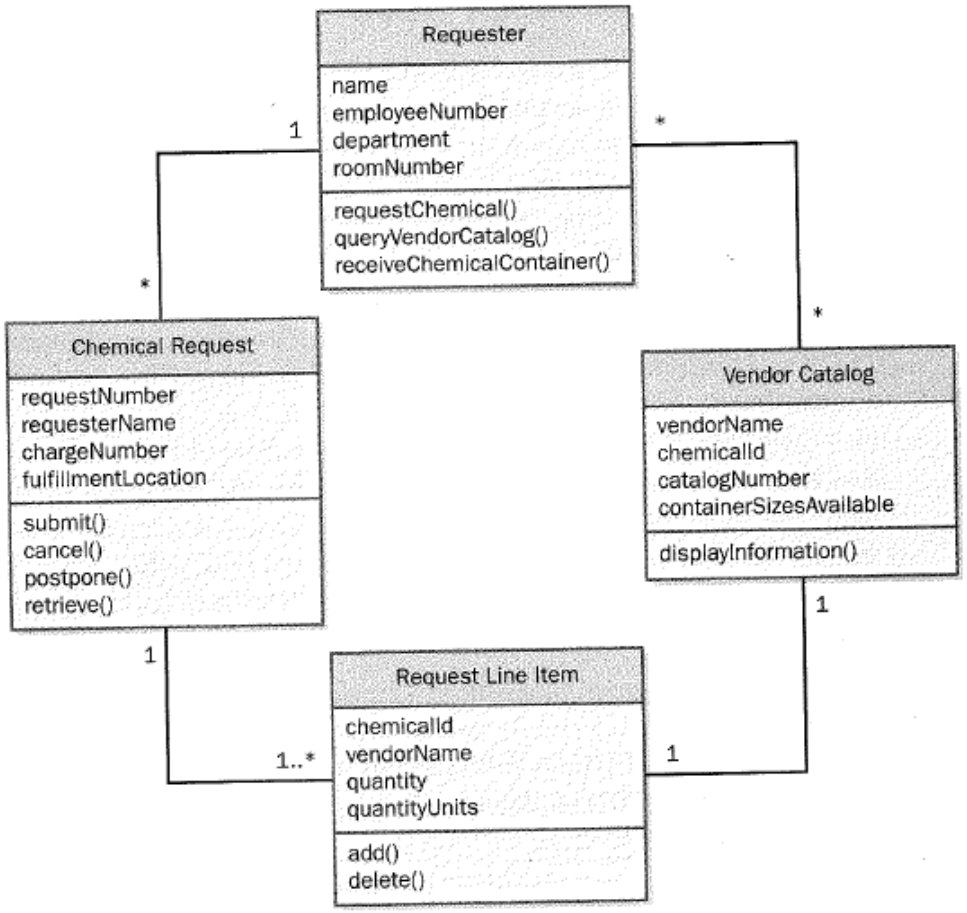
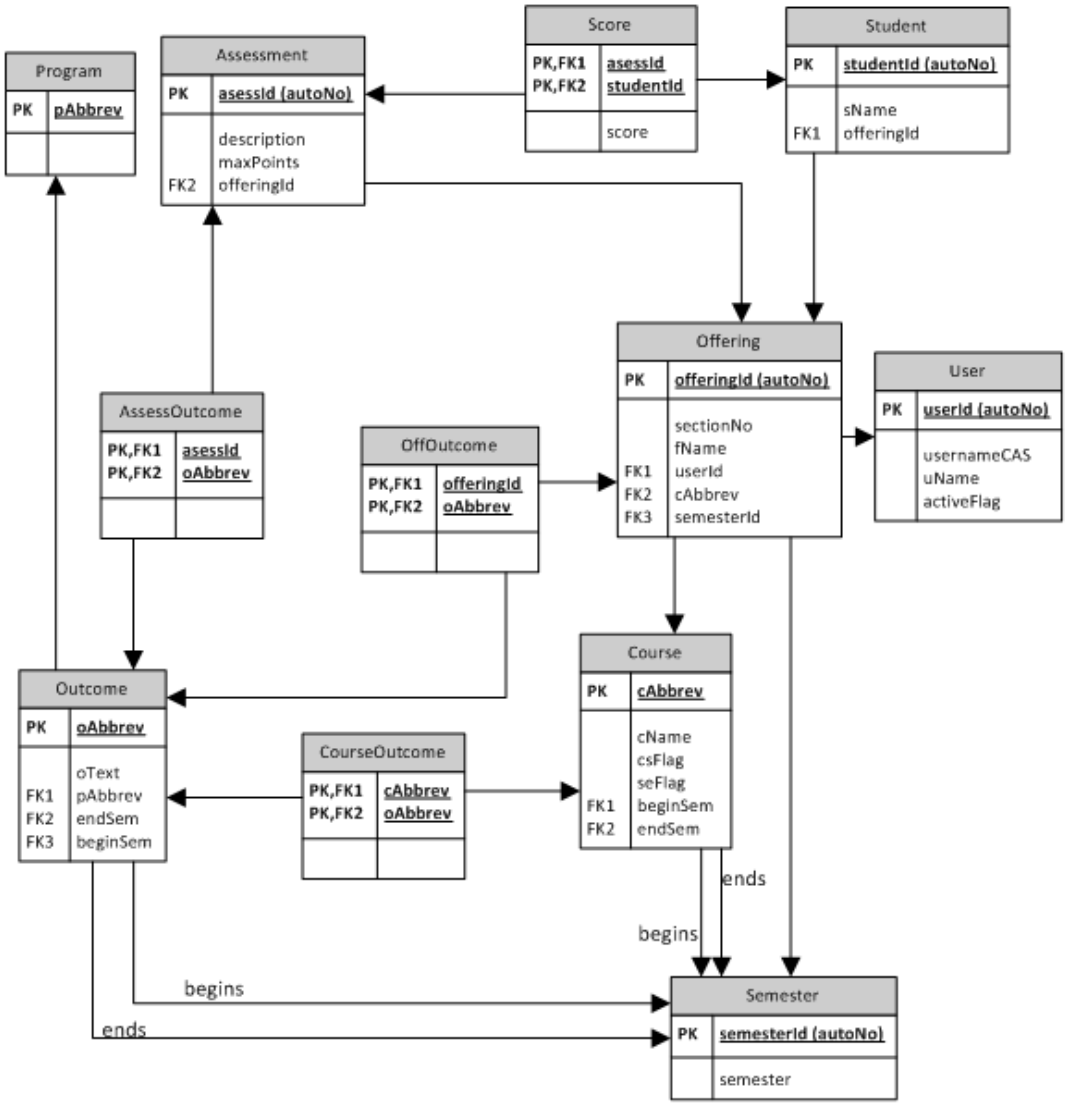


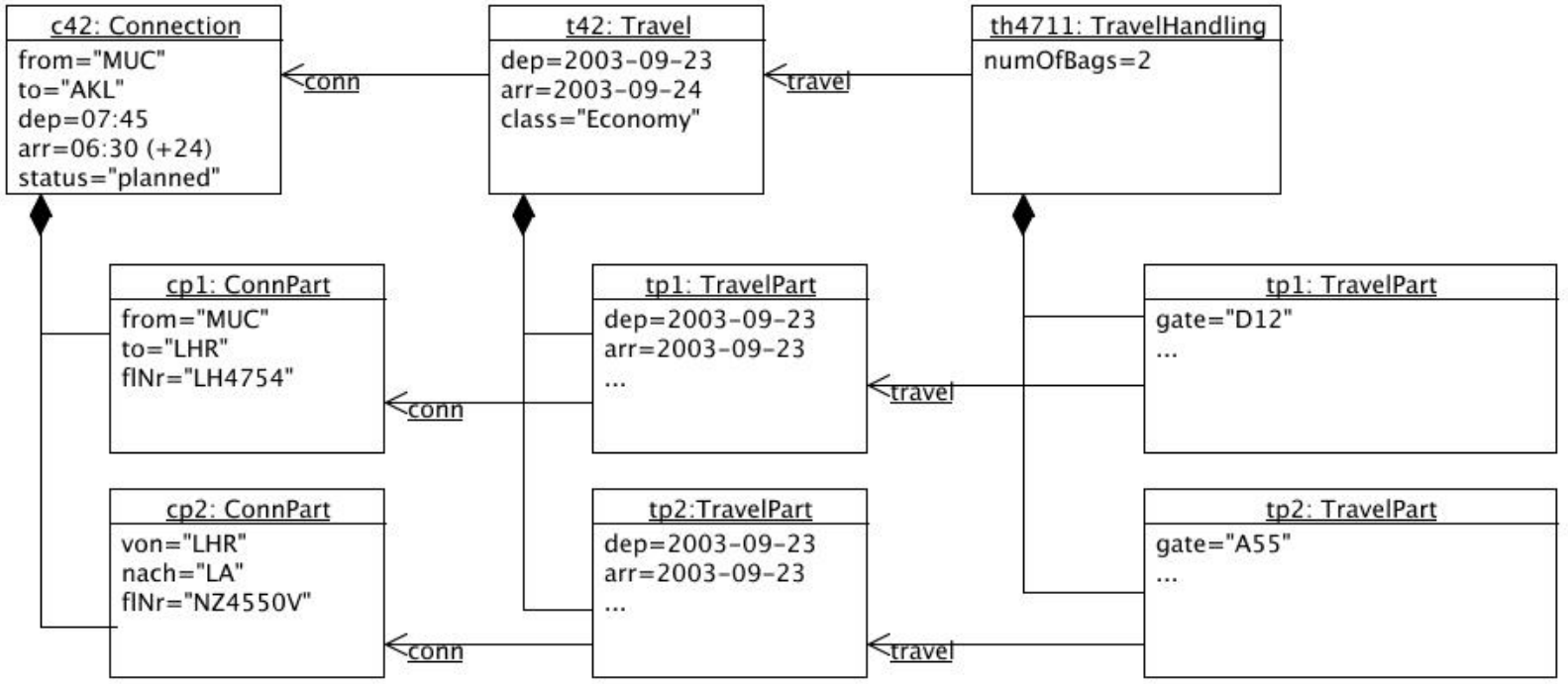
Figure 11-6 Class diagram for part of the Chemical Tracking System.

AbOut DB Schema

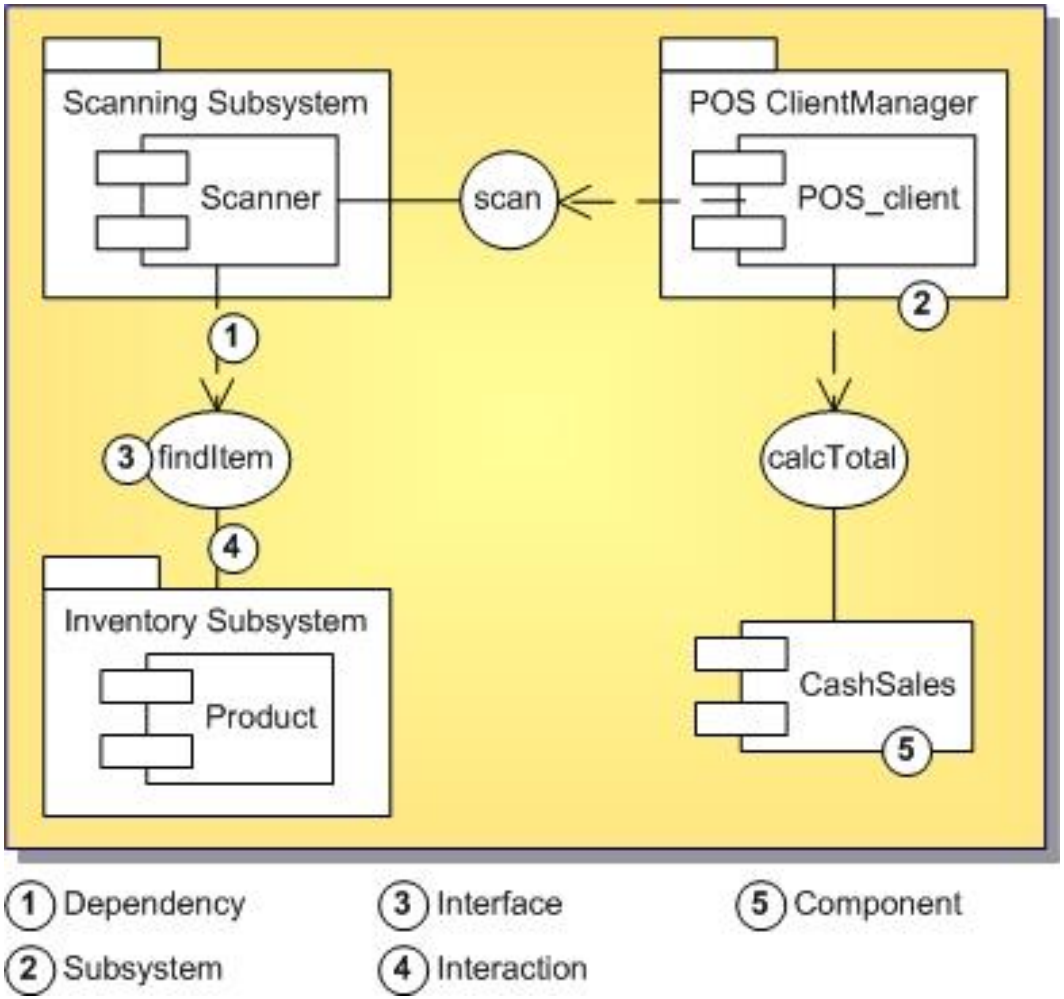
Low Level
5/25/2012



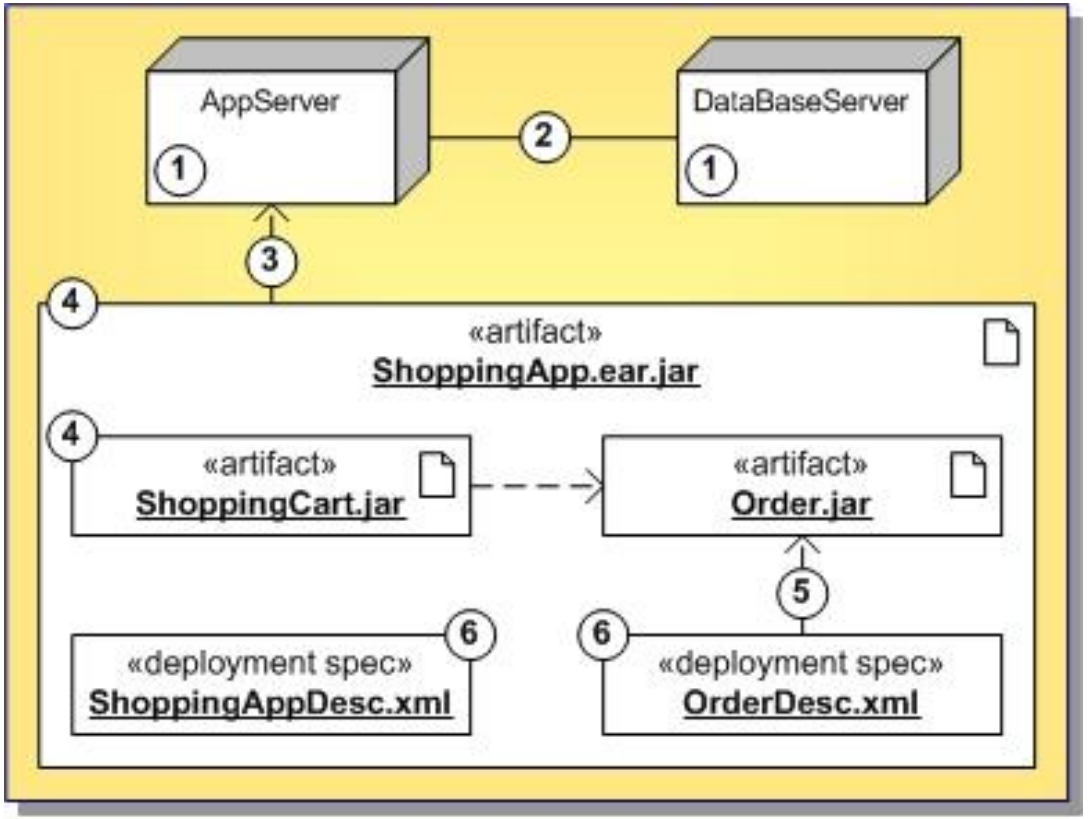
Object Diagram



Component Diagram

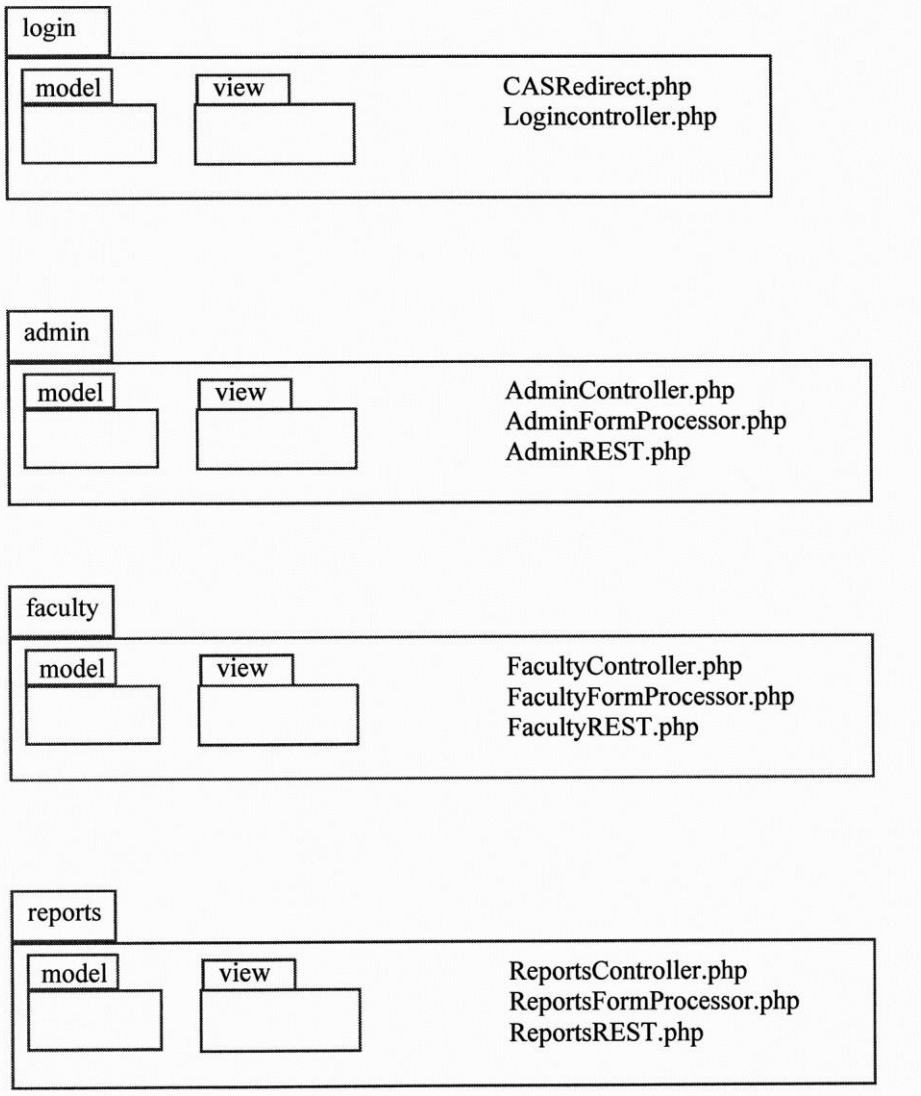


DEPLOYMENT Diagram



1. Nodes
2. Communicaiton Path
3. Deplolyment
4. Artifacts
5. Dependency
6. Deployment Specifications

Package Diagram



Use Case Diagram – Chemical Tracking System

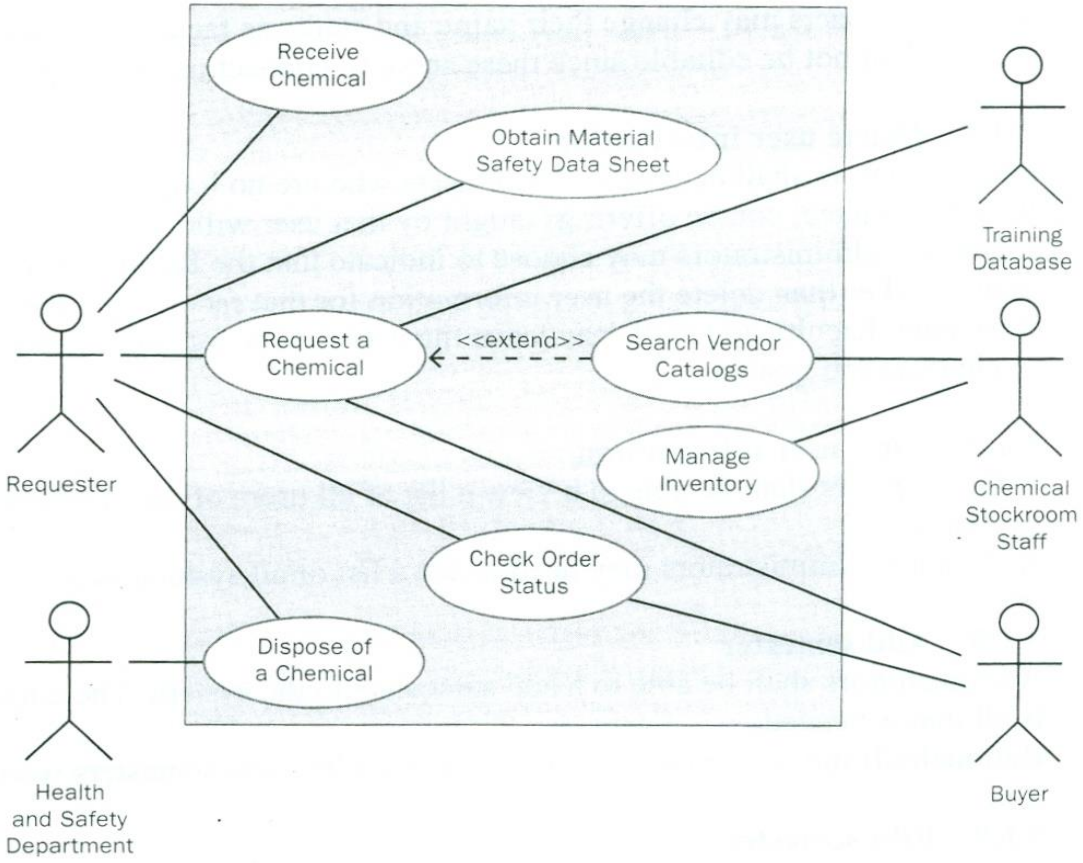
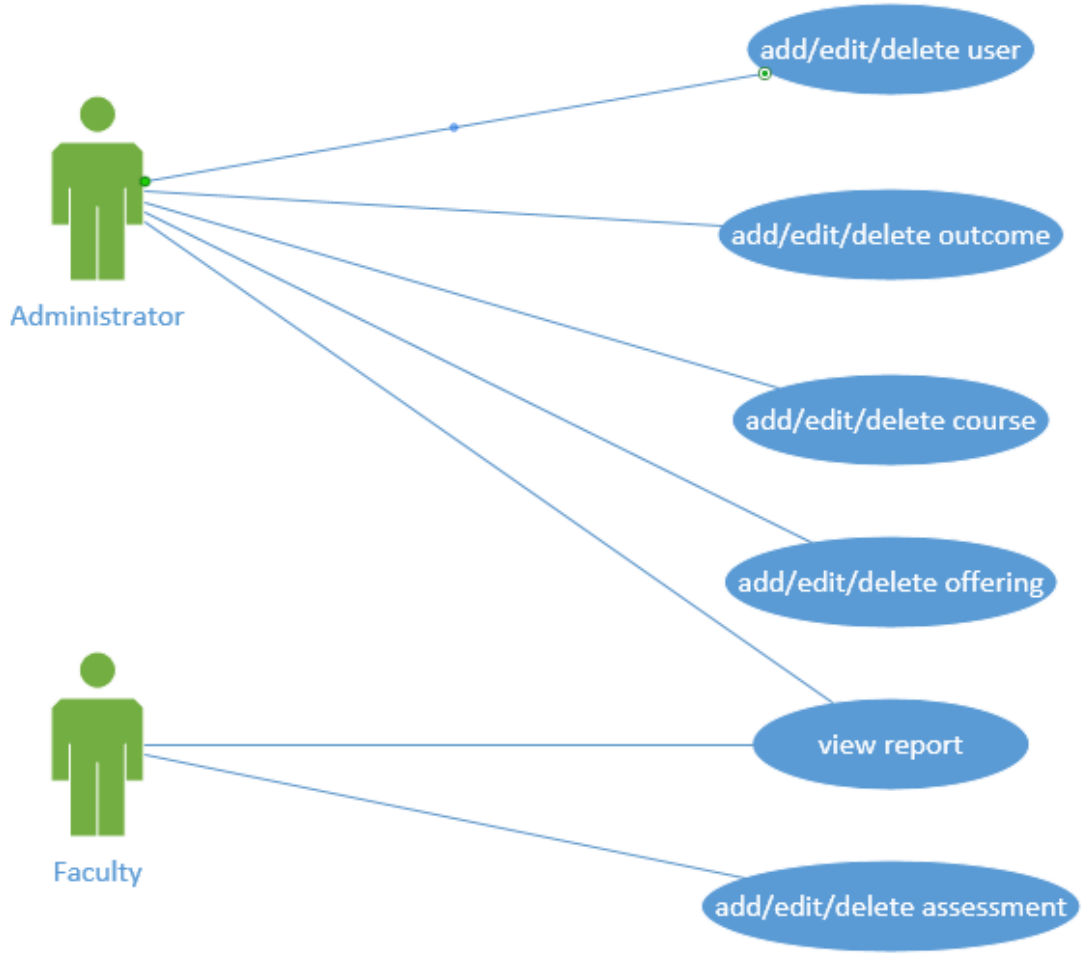
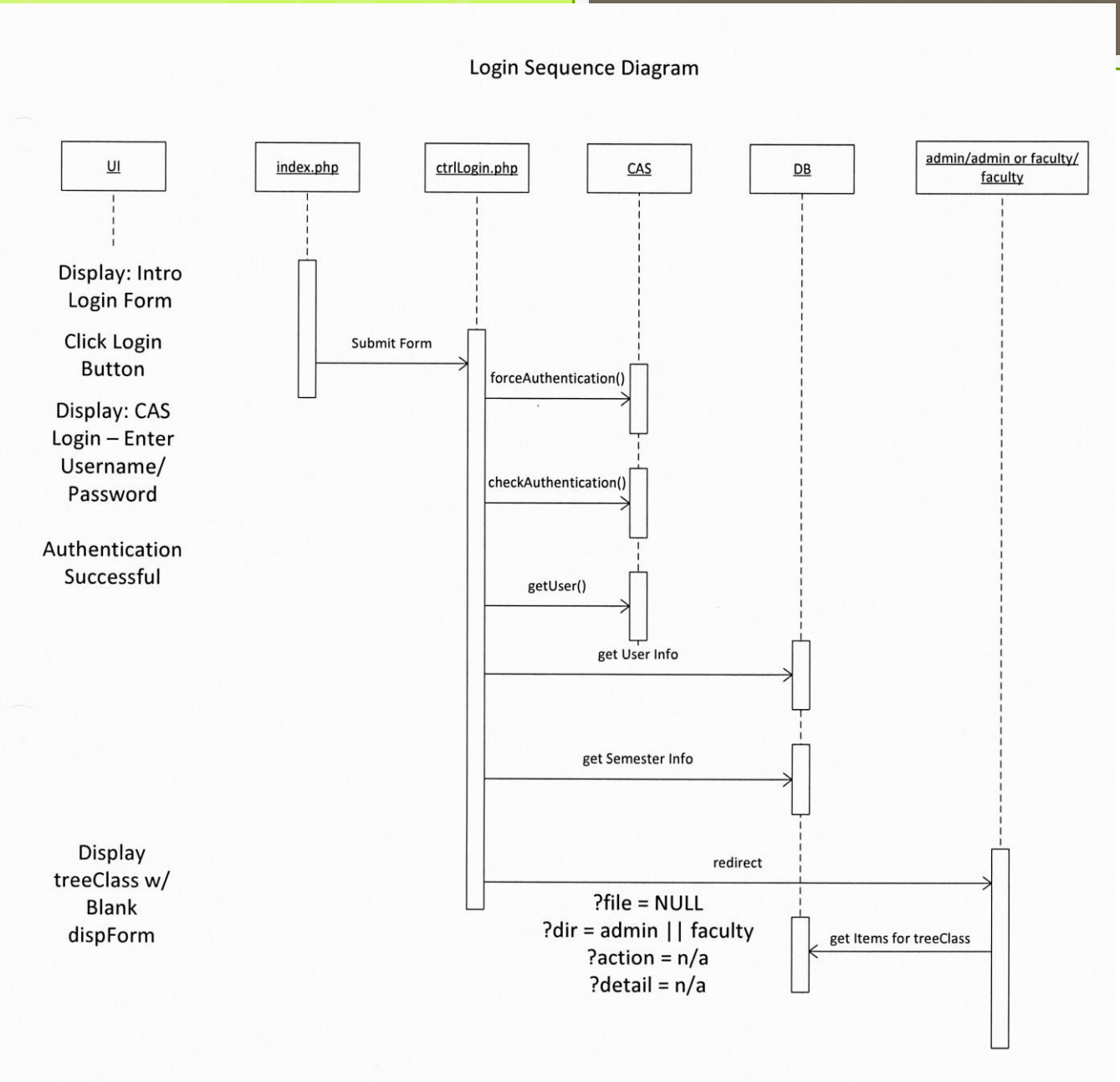


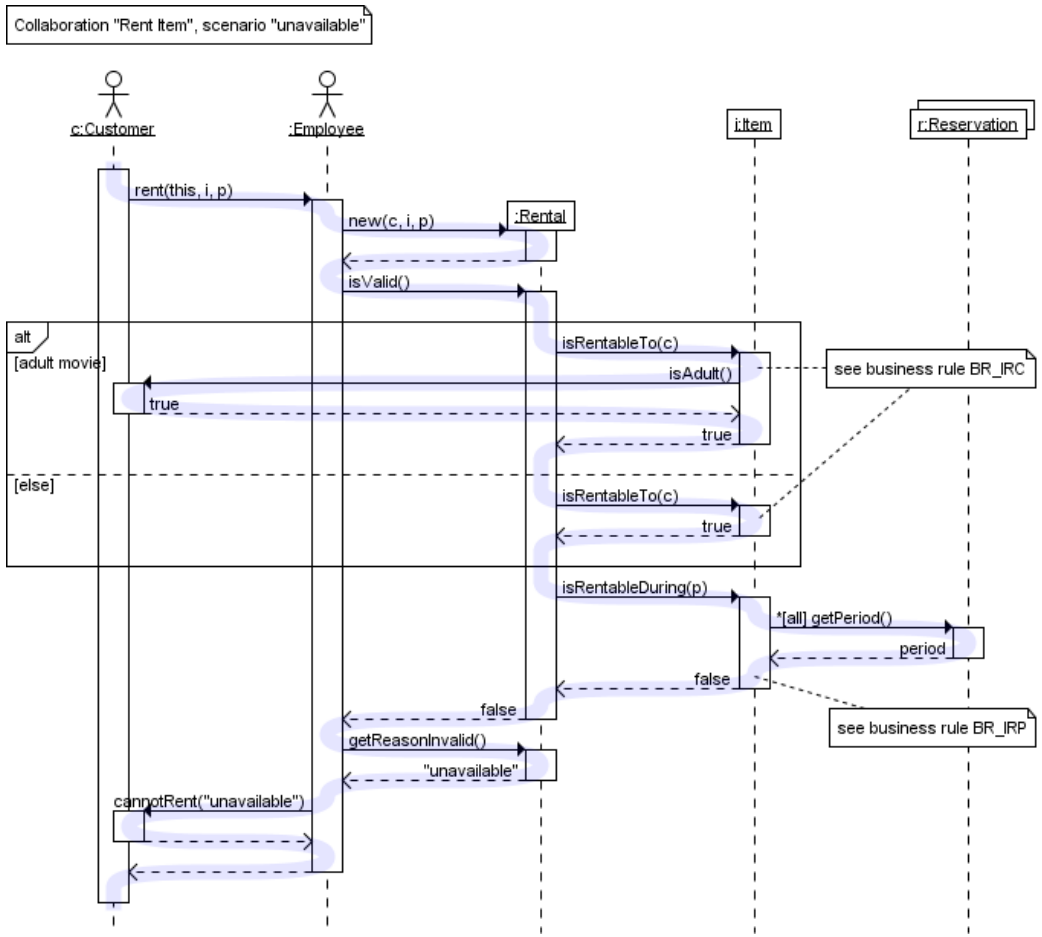
Figure 8-1 Partial use-case diagram for the Chemical Tracking System.

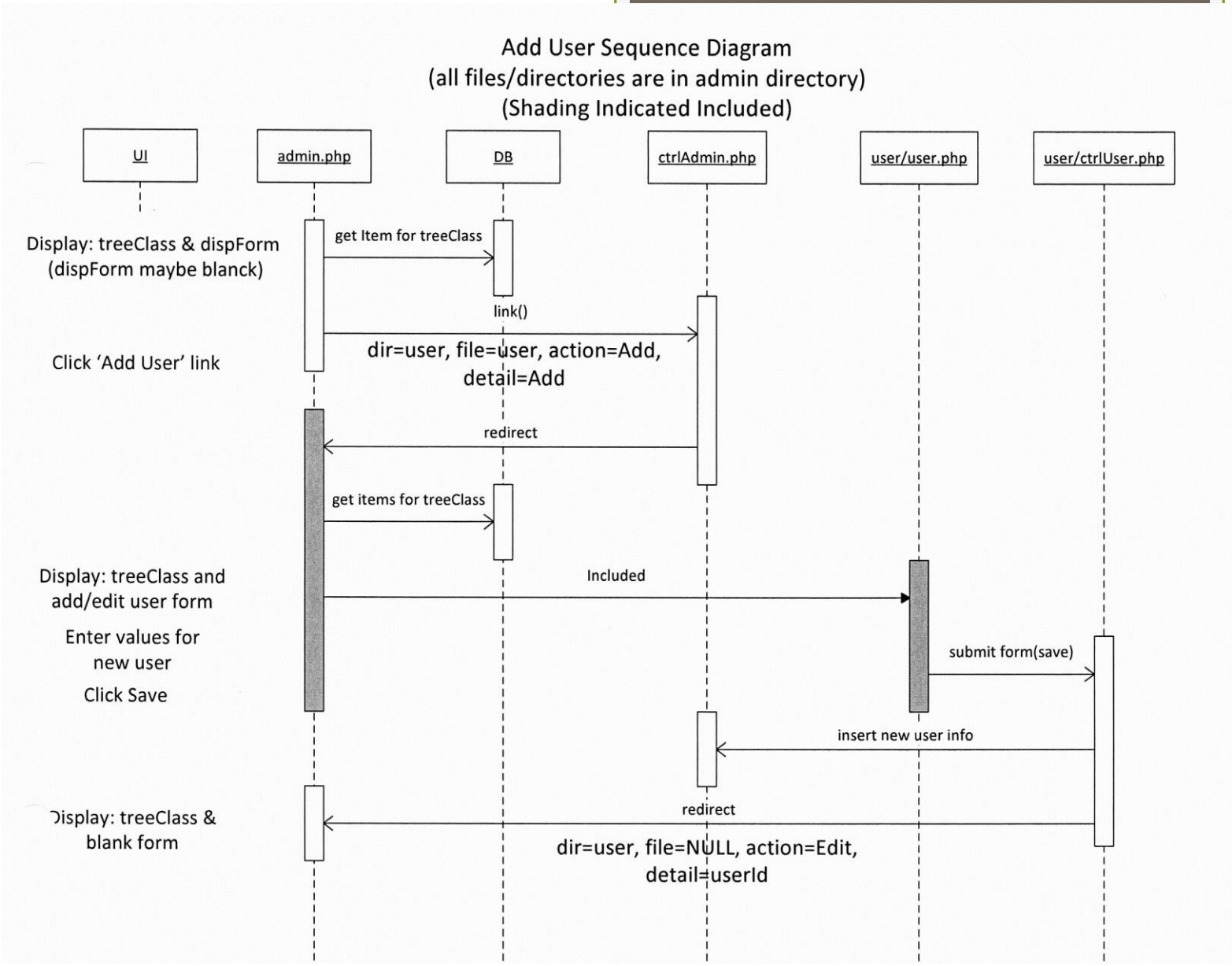
Use Case Diagram



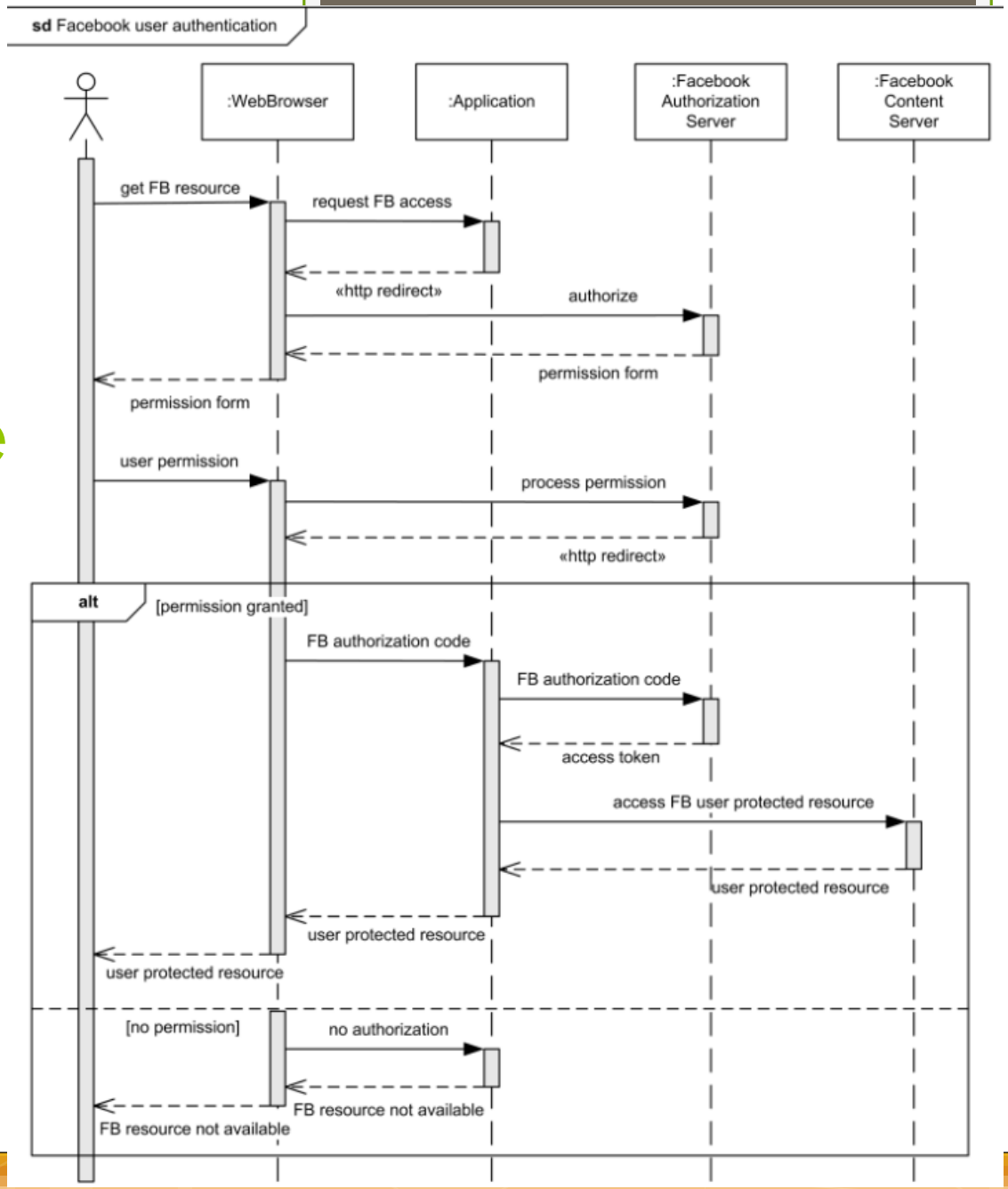

Login Sequence Diagram
UI
index.php
ctrlLogin.php
CAS
DB
admin/admin or faculty/ faculty
Display: Intro Login Form
Click Login Button
Submit Form
forceAuthentication()
Display: CAS Login – Enter Username/ Password
checkAuthentication()
Authentication Successful
getUser()
get User Info
get Semester Info
redirect
Display treeClass w/ Blank dispForm
?file = NULL
?dir = admin || faculty
?action = n/a
?detail = n/a
get Items for treeClass

Sequence Diagram




Add User Sequence Diagram
(all files/directories are in admin directory)
(Shading Indicated Included)
UI
admin.php
DB
ctrlAdmin.php
user/user.php
user/ctrlUser.php
Display: treeClass & dispForm
(dispForm maybe blanck)
get Item for treeClass
link()
Click 'Add User' link
dir=user, file=user, action=Add,
detail=Add
redirect
get items for treeClass
Display: treeClass and
add/edit user form
Included
Enter values for
new user
Click Save
submit form(save)
insert new user info
redirect
Display: treeClass &
blank form
dir=user, file=NULL, action=Edit,
detail=userId

Sequence Diagram



STATE TRANSITION Diagram

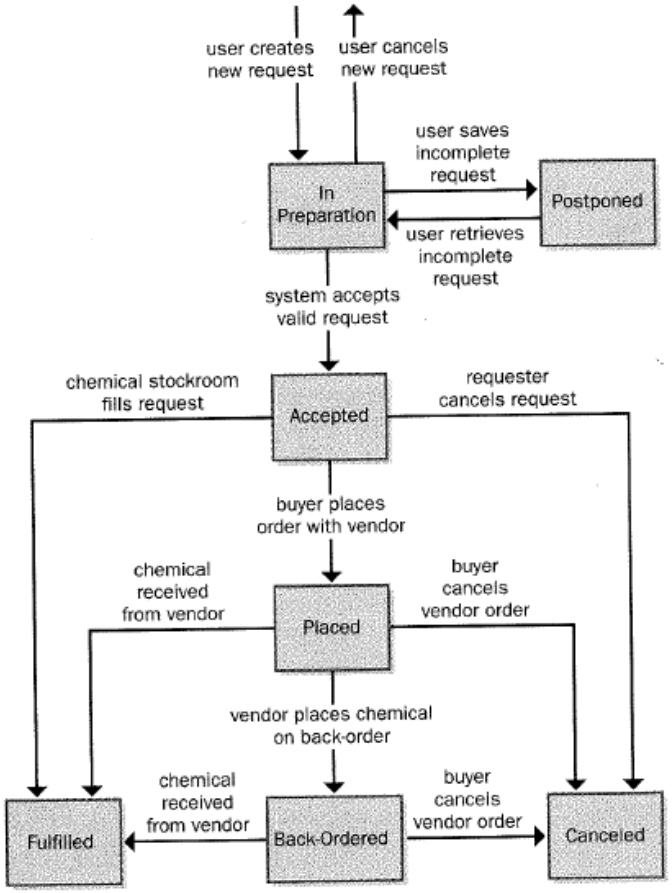


Figure 11-4 State-transition diagram for a chemical request in the Chemical Tracking System.

STATE TRANSITION Diagram

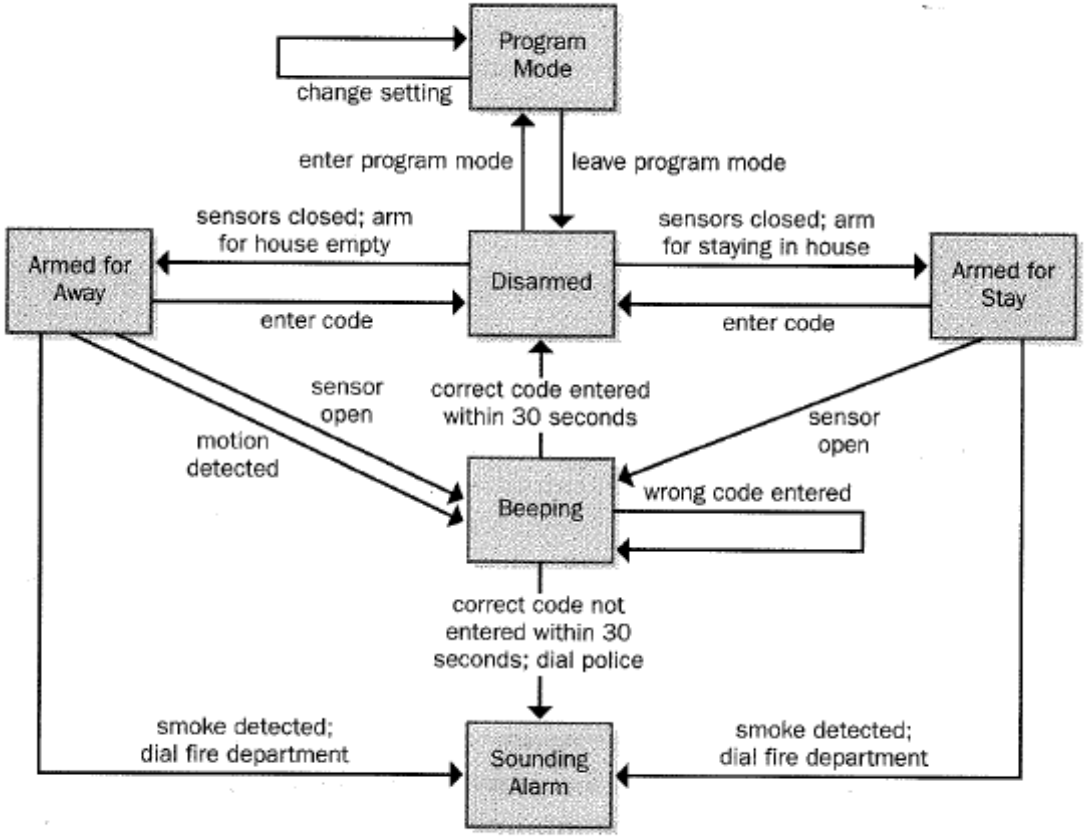


Figure 11-3 Partial state-transition diagram for a home security system.

UML Activity Diagram

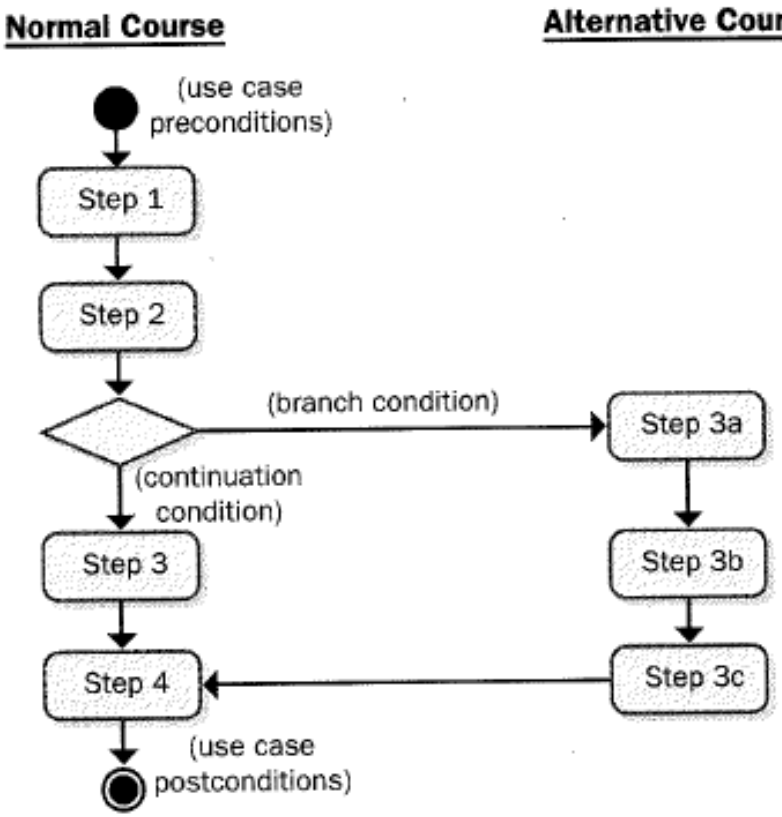
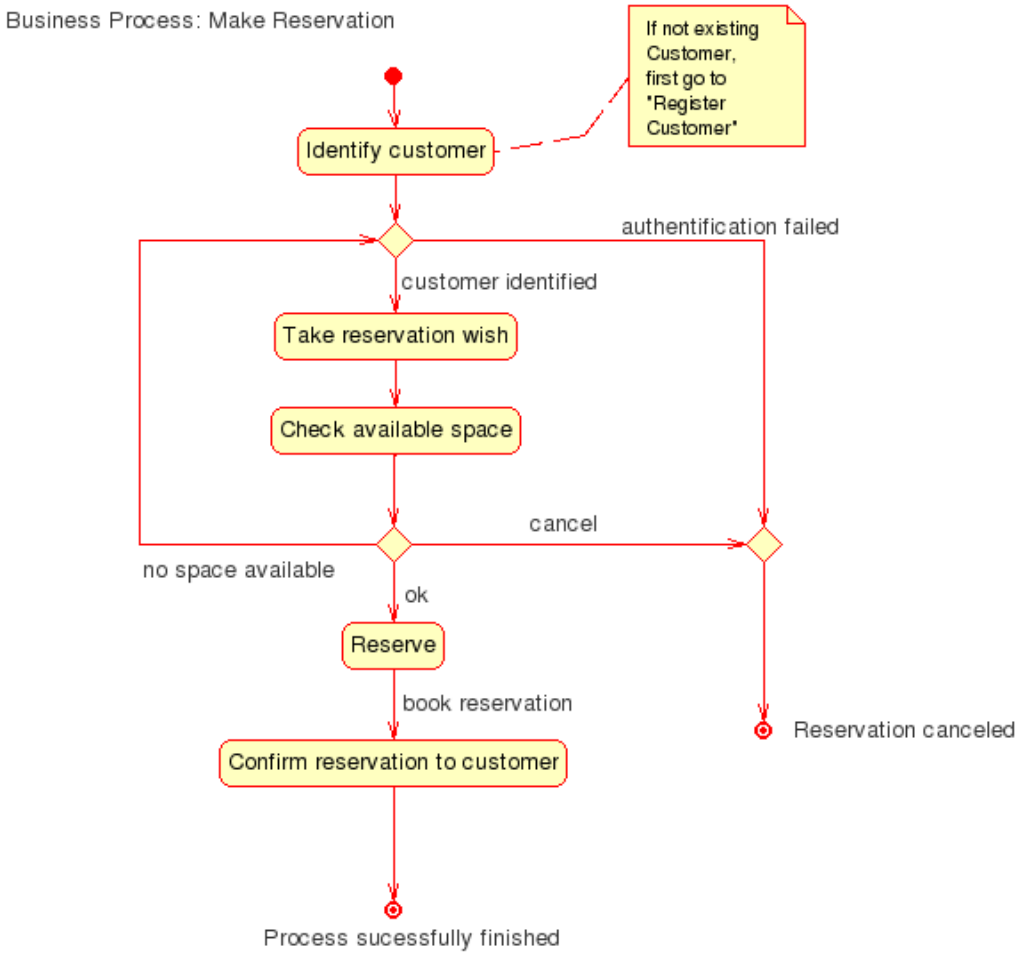
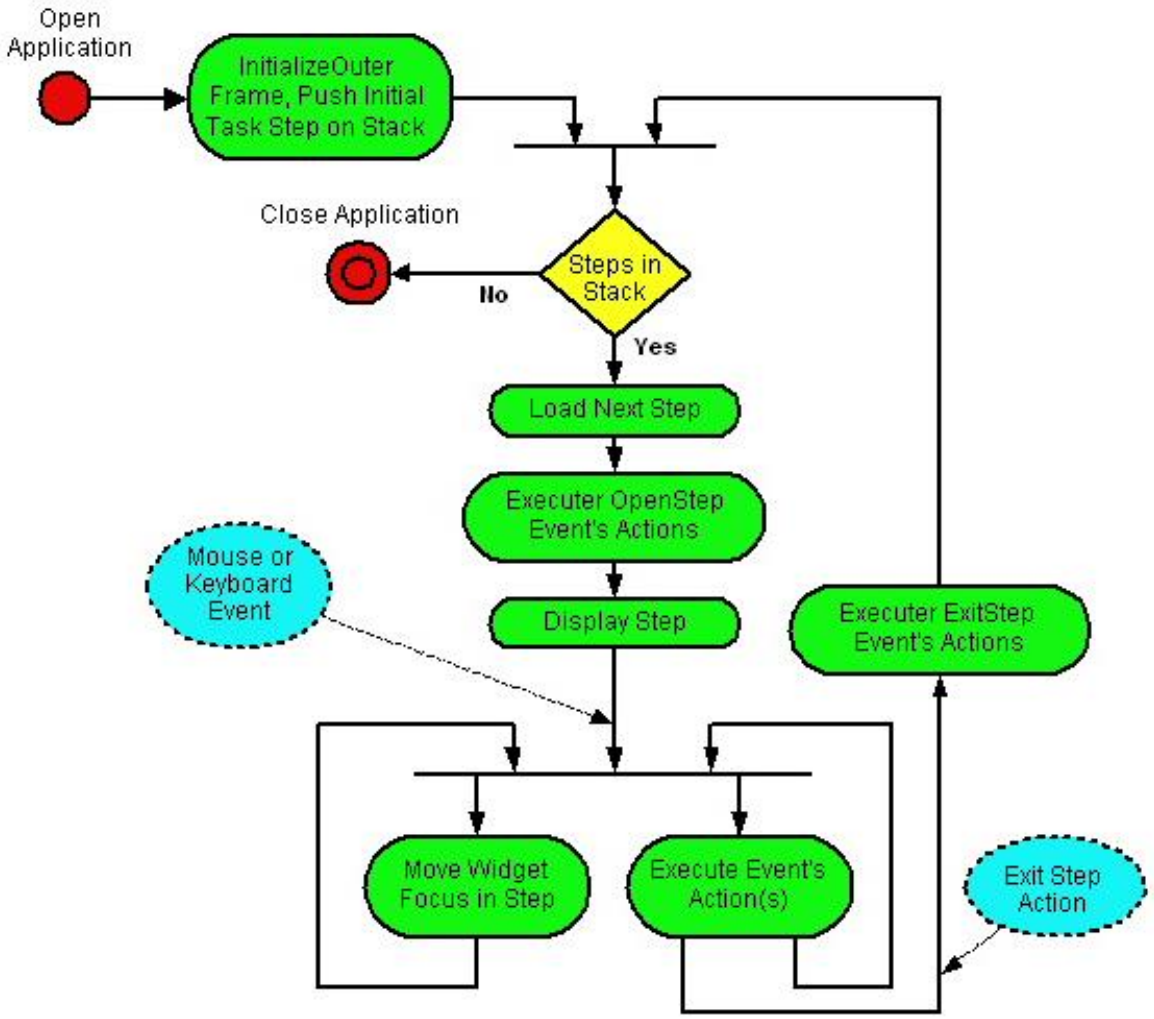


Figure 8-2 UML activity diagram illustrating the dialog flow in the normal and alternative courses of a use case.

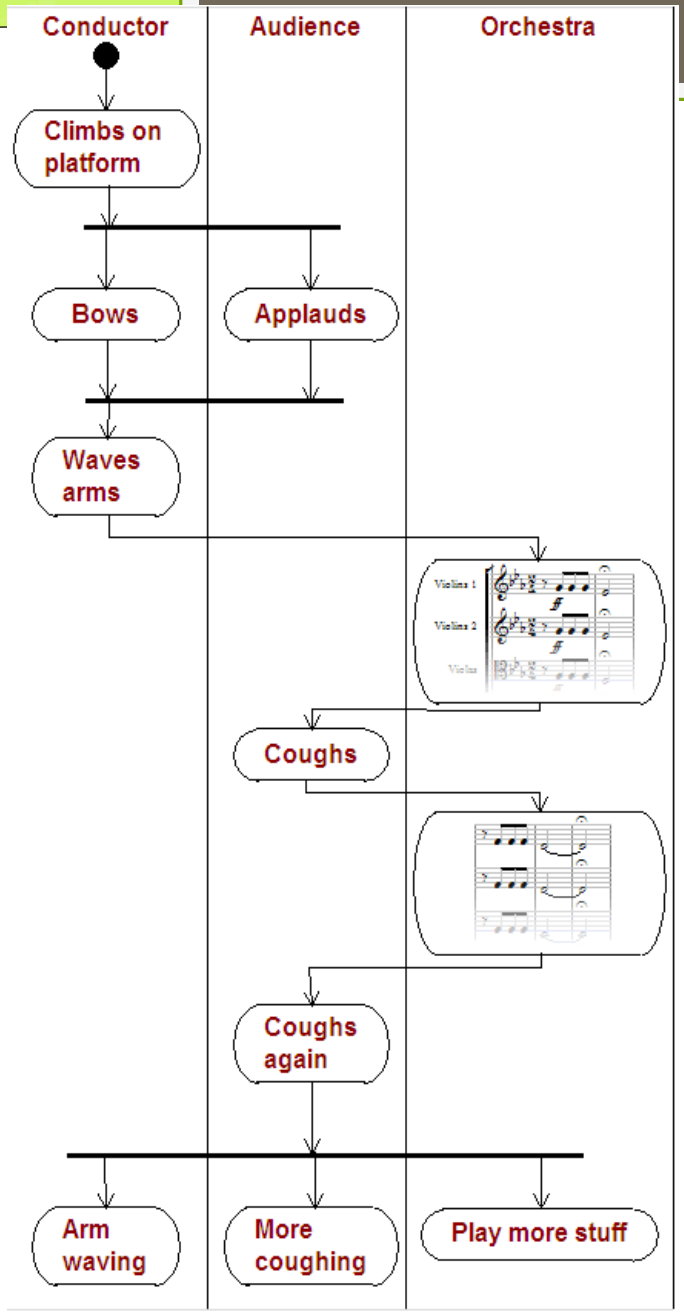
Activity Diagram



Activity Diagram



Activity Diagram



~~Visio and UML~~ Umbrello

Visio is on the campus computers and provides support for:

- Class diagrams
- Activity diagrams
- Sequence diagrams
- Use case diagrams
- State transition diagrams