Web Modeling

LECTURE 5

Overview

1. Introduction

2. Model Driven Development

3. Reference Scenario

4. Content Modeling

5. Hypertext Modeling

6. Presentation Modeling

Introduction - Why Create Models?

Define an abstract view of a real-world entity

◦ Finding & discovering objects/concepts in a domain
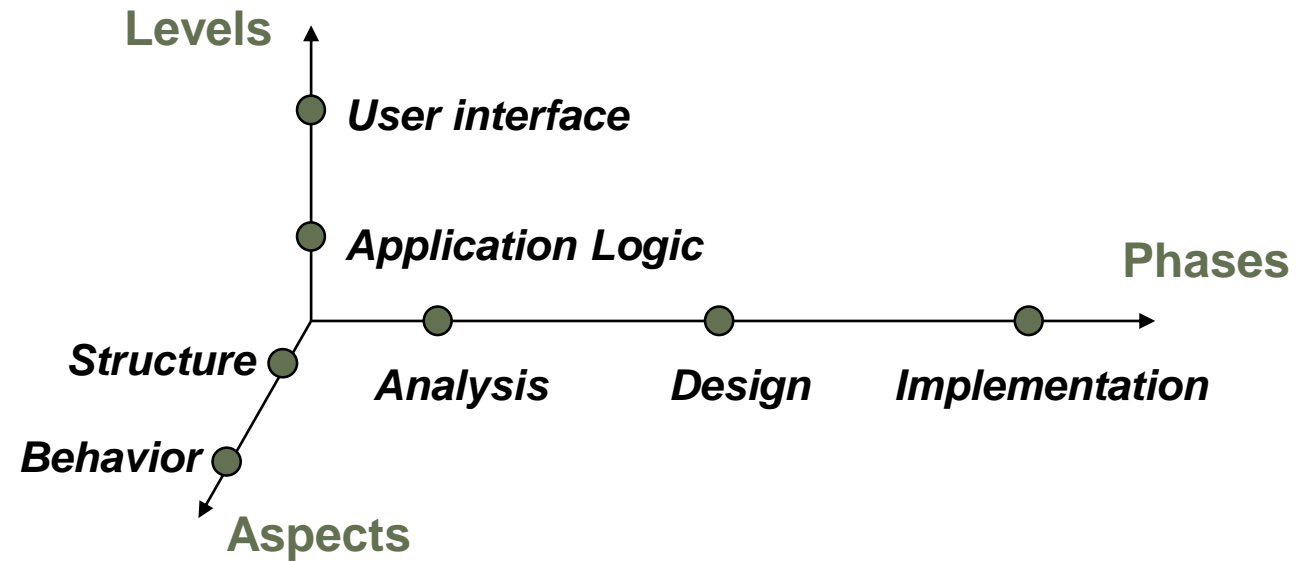
◦ Assigning responsibilities to objects

Tool of thought
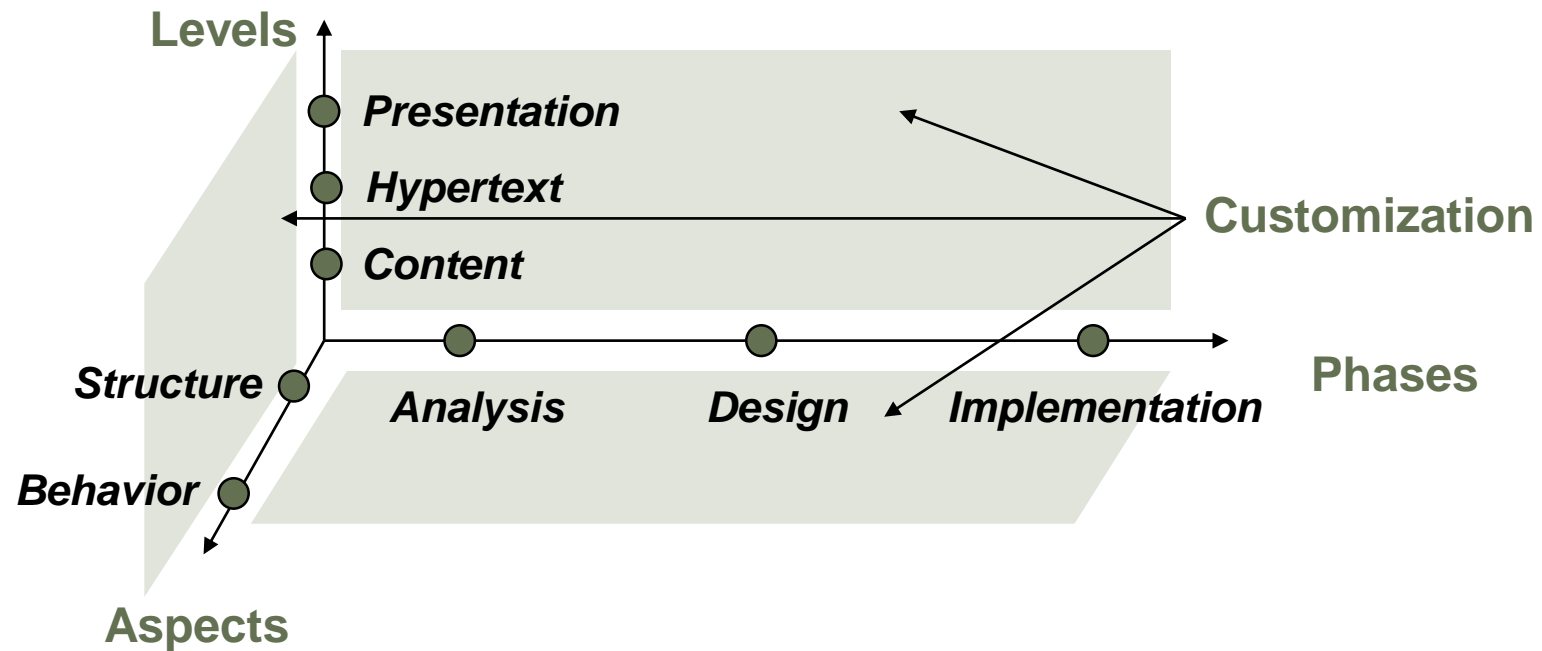
◦ Reduce complexity

◦ Document design decisions

Means of communication

Software Application Modeling

Web Application Modeling

Overview

Why Models at All?

❑Diagrams are, after all, just pretty pictures.

❑No user is going to thank you for pretty pictures; what a user wants is software that executes.

❑**Cost of Diagram or Cost of Code ??**

Unified Modeling Language (UML)

"The Unified Modeling Language is a visual language for specifying and documenting the artifacts of systems."
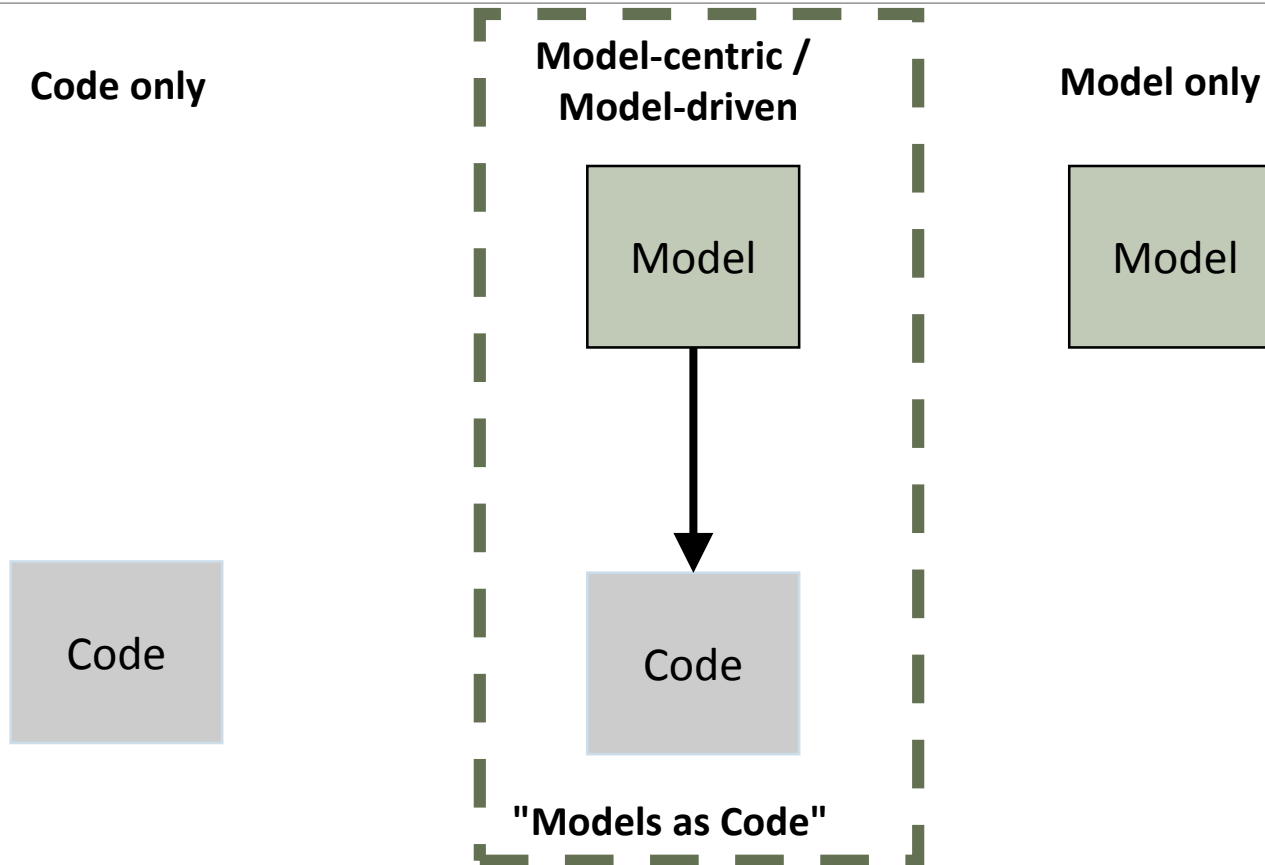
Language of choice (and ISO standard) for diagramming notation in OO development

◦ Structural – Class diagrams (domain models)
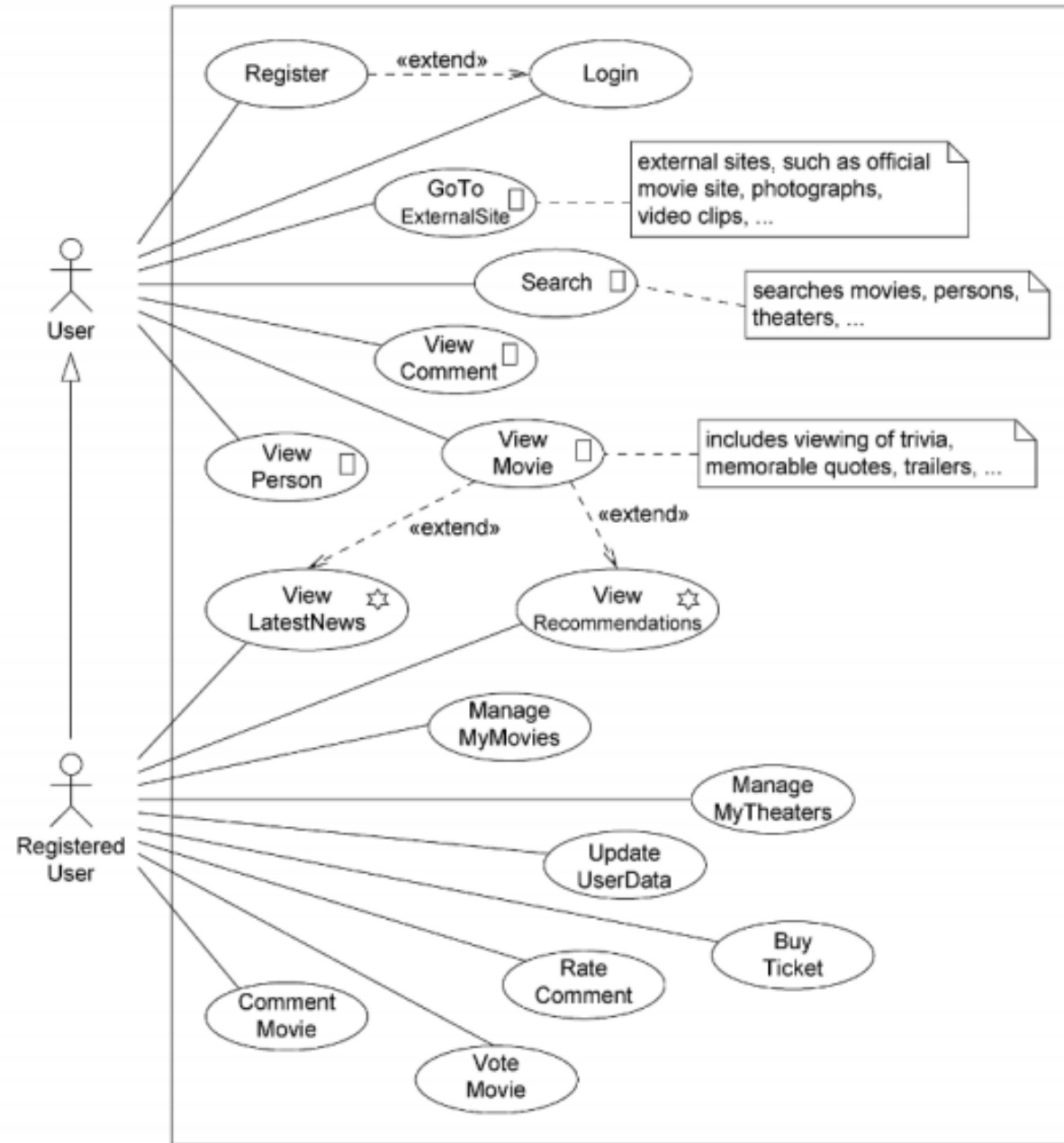
◦ Behavioral – Use Cases, Sequence diagrams

Model - Code Interplay

Examp

Examples of modeling
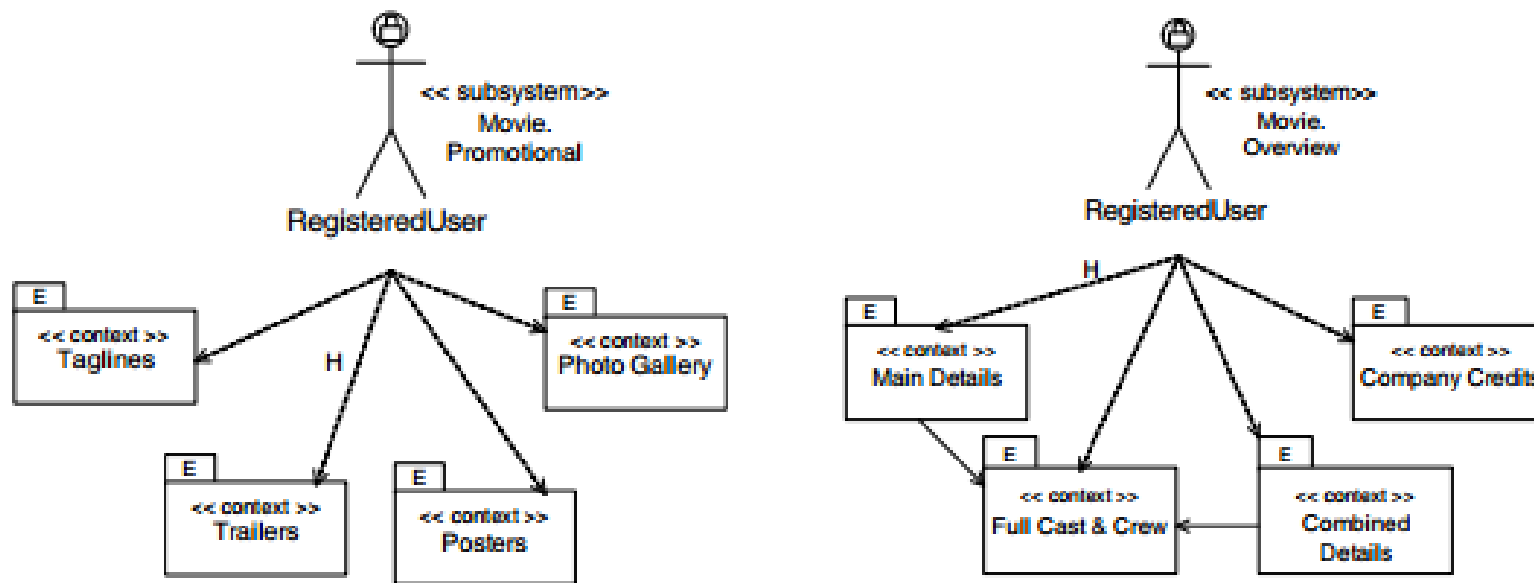
Figure 5.15. *Promotional* and *Overview* navigational subsystems inside the *Movie* subsystem.

Overview

The Conference Review System

This case study was presented at IWWOST 2001 to compare different Web application modeling methods

The purpose of the system is to support the process of submission, evaluation and selection of papers for a conference.

Actors I

PC Chair

- ◦ creating the conference
- ◦ determining the conference topics (or tracks) and subjects
- ◦ establishing the Program Committee
- ◦ defining the final list of accepted and rejected papers
- ◦ defining the conference deadlines: submission, review, and notification.

PC Member

- ◦ evaluating a set of papers assigned to him
- ◦ indicating another person as a reviewer of a paper
- ◦ advising the PC Chair for the final list of accepted papers

Actors II

Reviewer

◦ responsible for reviewing a paper

Author

◦ submitting a paper for acceptance at the conference

◦ PC Members and Reviewers may also be Authors, they must have different Ids for each role

Functions I: Paper Submission

Any registered author may submit a paper

◦ **The author must register:** the title, the abstract, the conference track, and a set of subjects chosen from a list previously determined by the PC Chair, if there is one

◦ The system, after checking the authors' registrations, **assigns a paper ID** to the new paper, and allows the user to submit it by uploading a file

◦ At any moment, an author is allowed **to check the data about his submitted papers**. Until the submission deadline, the author is also allowed to substitute the uploaded file by a new one, **or to change** any of the informed data about the paper

Functions II: Assignment of Papers to PC Members

The PC Chair may indicate potential conflicts of interest between PC Members and submitted papers

Once the submission deadline has been reached

- PC Members may indicate their interest and also conflicts of interest with some papers

- In case of conflict of interest, the PC Member will not see any information about the paper

- The PC Chair assigns papers to PC Members for reviewing, an email message with the list of papers, and a URL to a page where he can access these papers is sent

Functions III: Entering a Review

A PC Member, or a Reviewer, may enter a review for a paper assigned to him

The review is entered by accessing a form containing all the evaluation items

A PC Member may see other reviews (entered by others) for any of the papers he is reviewing, but only after he has entered his own review

The PC Chair has full access to all papers and all reviews

Function IV: Choosing Accepted and Rejected Papers

Once the review deadline has been reached, the review process is closed

The PC Chair, taking into account the recommendations of the PC Members and reviewers, chooses the papers that will be accepted and rejected

Once the process is marked as finalized by the PC Chair, the system issues a notification message to paper authors, which includes the appropriate parts of the reviews submitted by the PC Members and reviewers
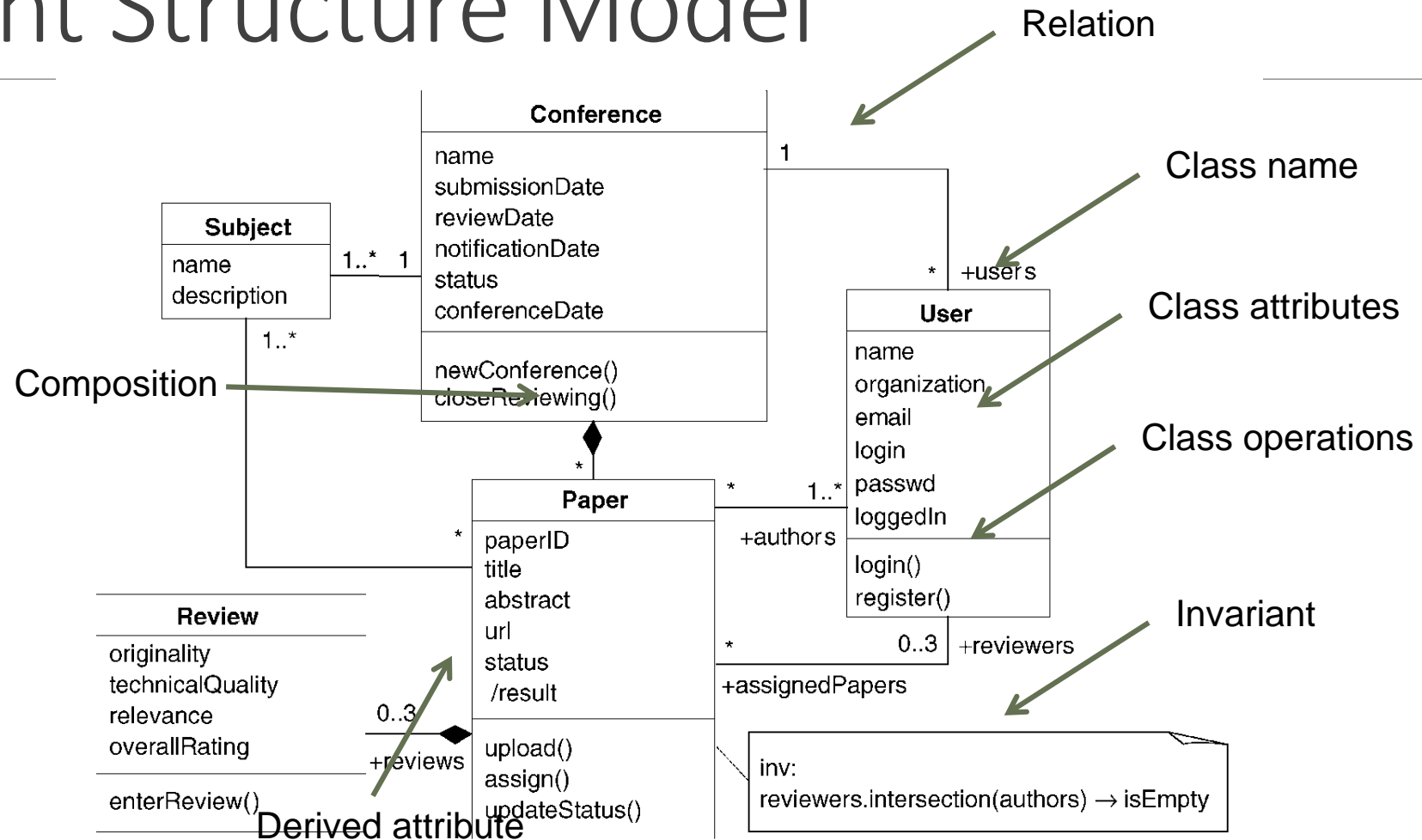
Overview

Introduction

Purpose: To model the information requirements of a Web application

◦ Diagramming the structural (i.e., information objects) & behavioral aspects of the information.

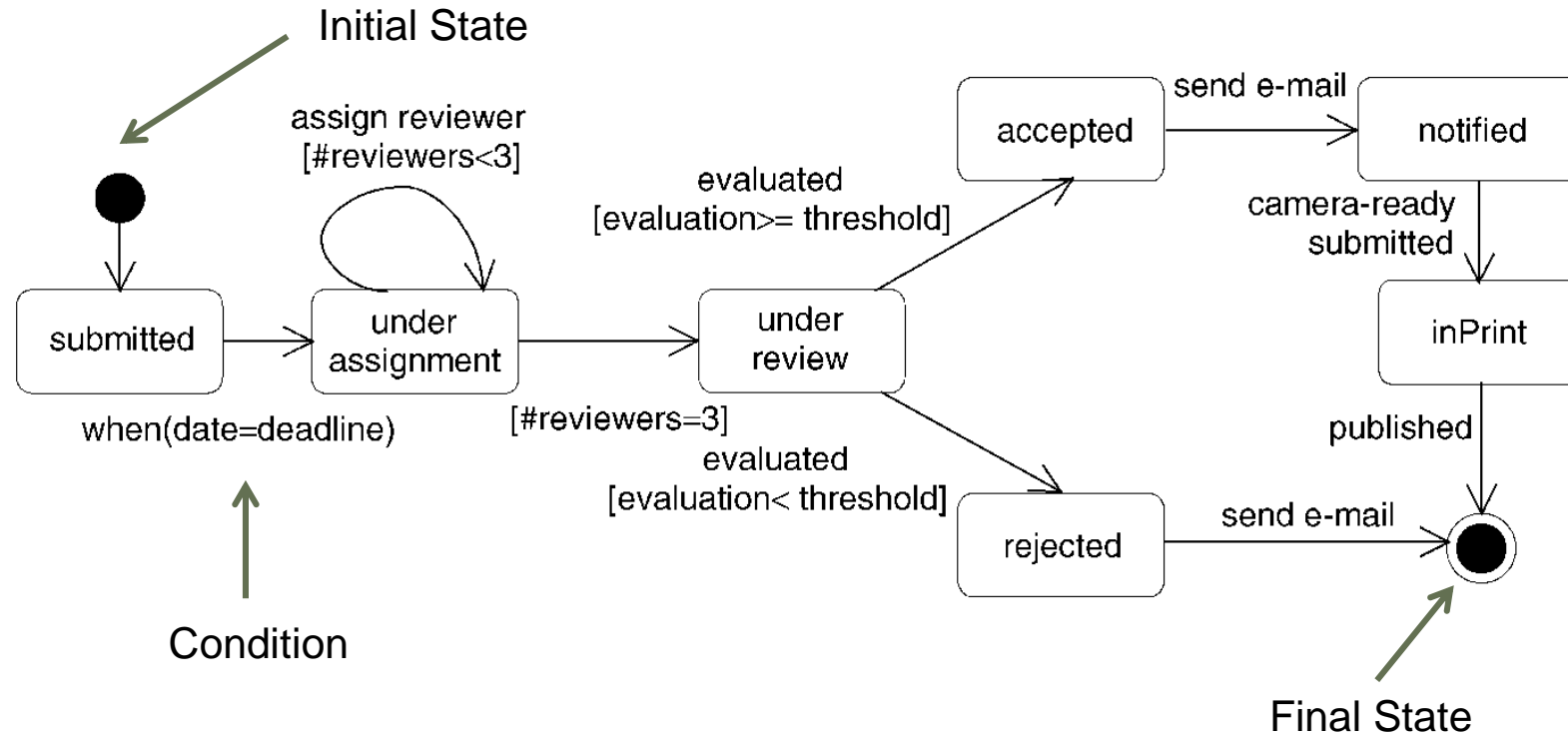◦ NOT concerned with navigation.

Primary Models

◦ Class diagrams – enough for static applications.

◦ State machine diagrams – captures dynamic aspects

Content Structure Model

Relation

Class name

Class attributes

Class operations

Invariant

Composition

Derived attribute

Subject
name
description

1..* 1

1..*

Conference
name
submissionDate
reviewDate
notificationDate
status
conferenceDate

newConference()
closeReviewing()

1

* +users

User
name
organization
email
login
passwd
loggedIn

login()
register()

*

Paper
paperID
title
abstract
url
status
/result

upload()
assign()
updateStatus()

* 1..*
+authors

*

* 0..3 +reviewers

+assignedPapers

Review
originality
technicalQuality
relevance
overallRating

enterReview()

0..3
+reviews

inv:
reviewers.intersection(authors) → isEmpty

22

Content Behavior Model

Overview

Introduction

Purpose: To model the navigation paths available to users

◦ Hypertext Structure Model – navigating among classes

◦ Access Model – UML-compliant site map

Focuses on the structure of the hypertext & access elements

Use "<>" annotation to distinguish from content classes

Based on content models

Different Models... Different Links...

HDM (Hypertext Design Model)
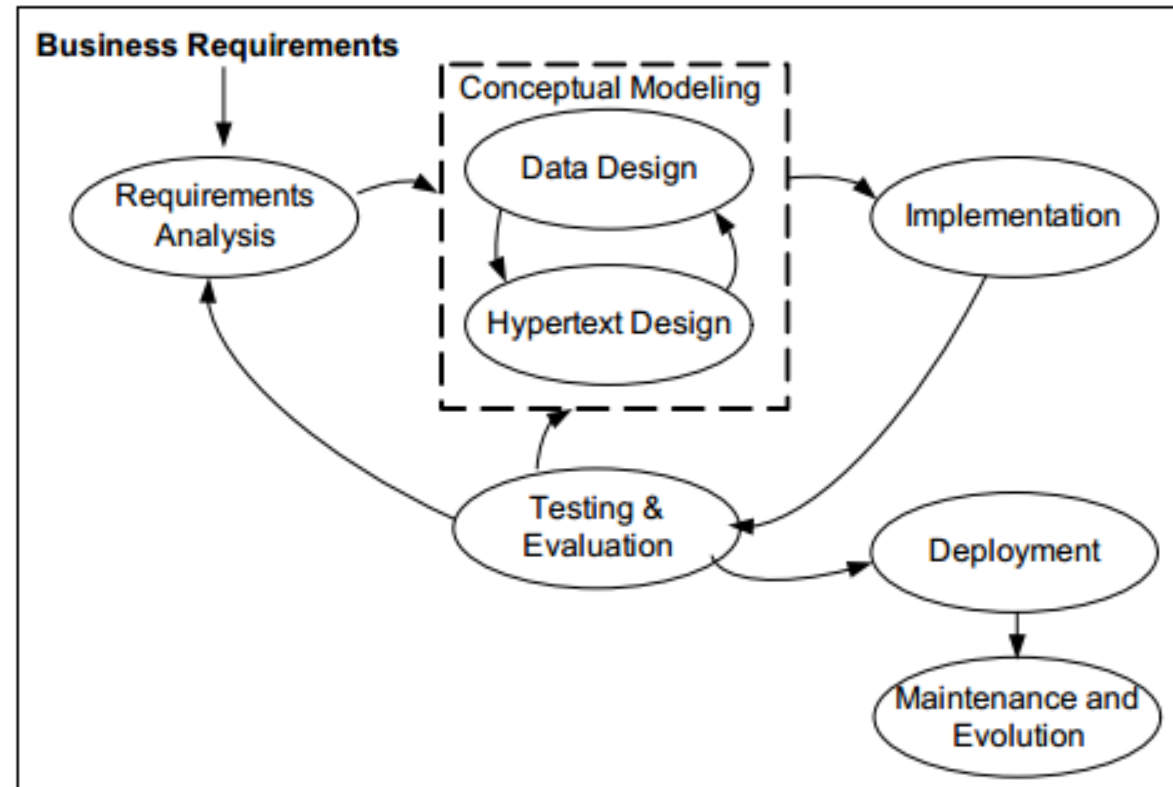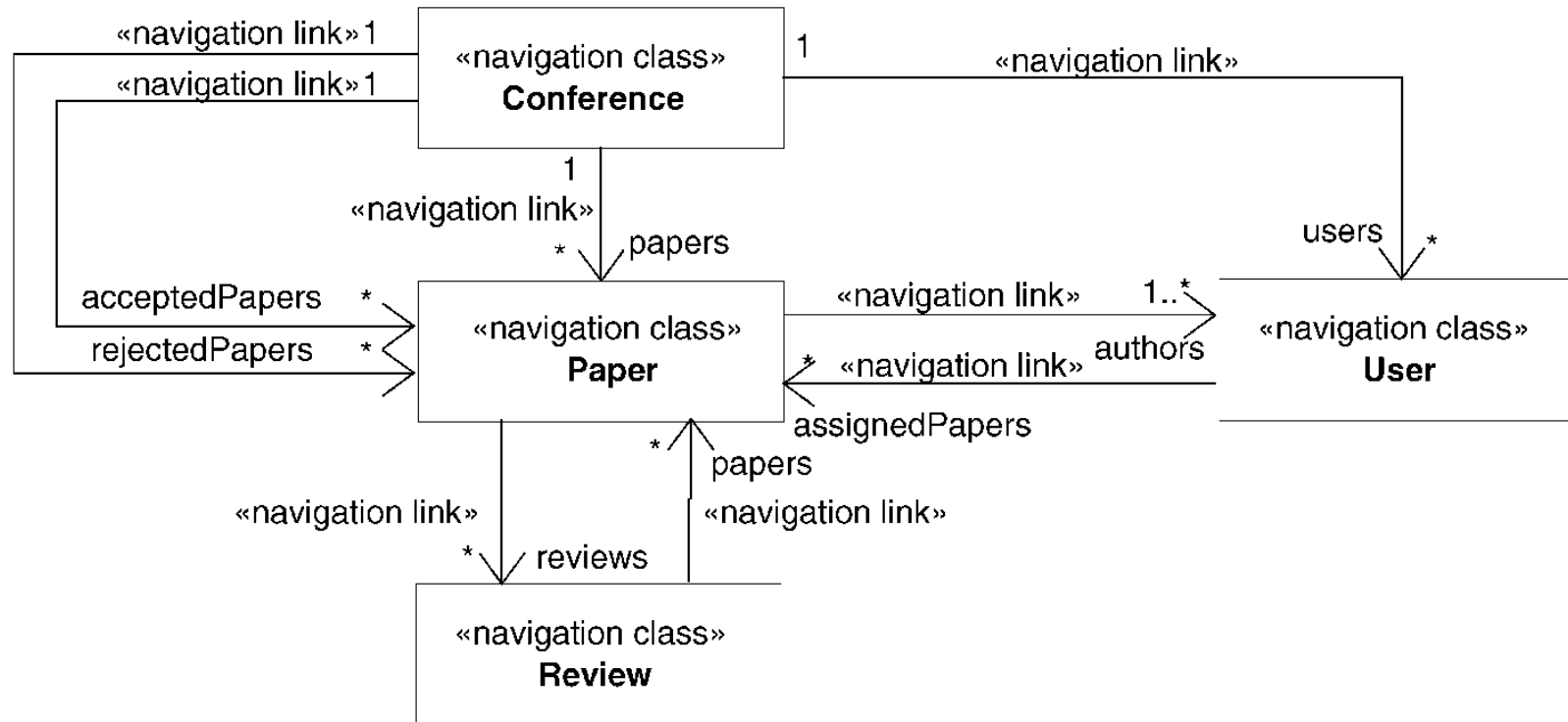
WebML (Web Modeling Language)

Figure 9.1. Phases in the WebML development process.

Navigation Structure Model

Overview

Introduction

Purpose: To model the look & feel of the Web application at the page level.

The design should aim for simplicity and self-explanation.

Describes presentation structure:

◦ Composition & design of each page

◦ Identify recurring elements (headers/footers)

Describes presentation behavior:

◦ Elements => Events

Levels of Presentation Models

Presentation Page – "root" element; equivalent to a page container.

Presentation Unit

◦ A fragment of the page logically defined by grouping related elements.

◦ Represents a hypertext model node

Presentation Element

◦ A unit's (node's) informational components

◦ Text, images, buttons, fields

Presentation Structure Model

Presentation Structure Model Tools

https://moqups.com/

https://wireframe.cc/

https://pencil.evolus.vn/
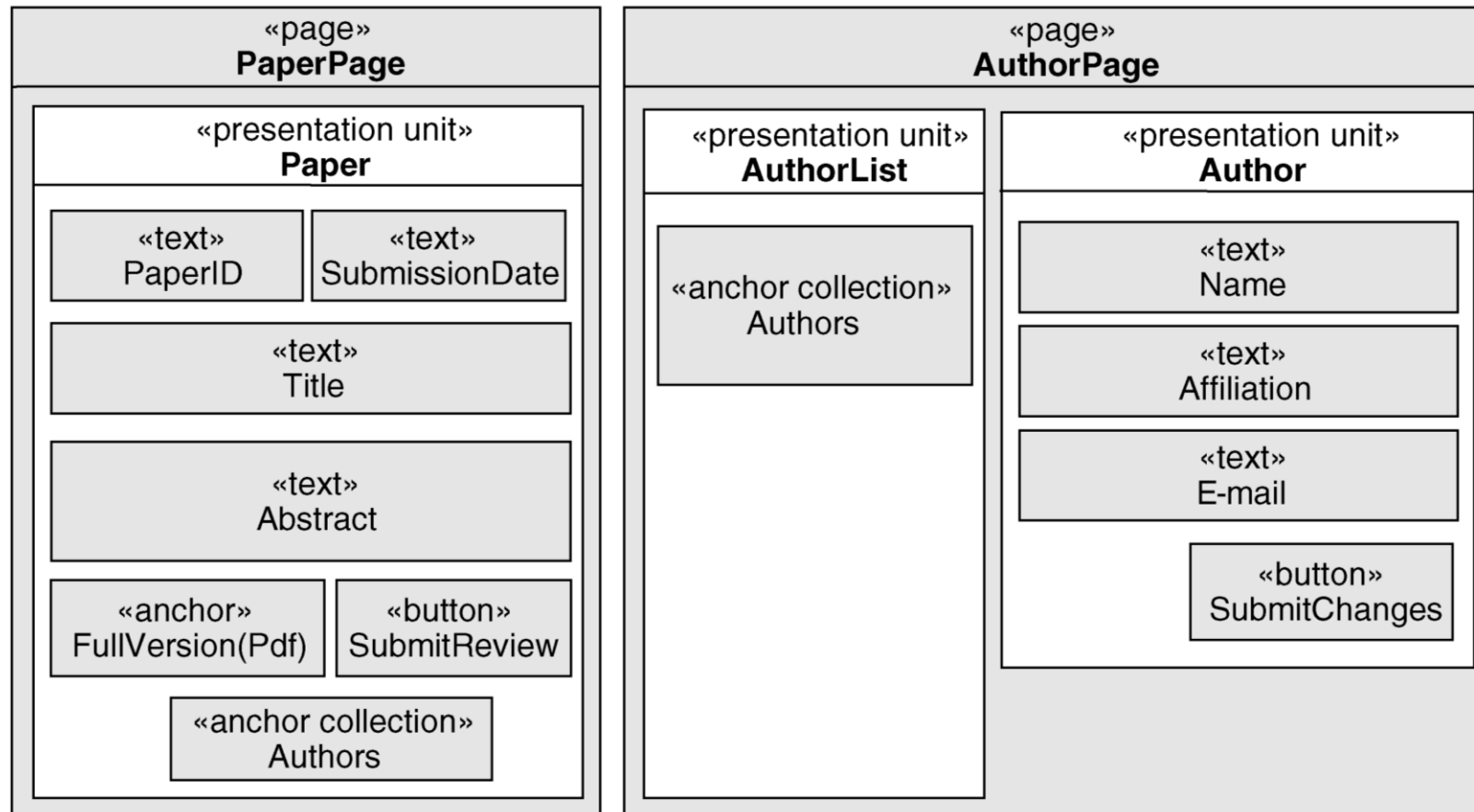
WRAP-up

THAT'S ALMOST ALL FOR DAY…

Things to keep in mind (or summary)

Modeling is fundamental

- Helps development

- Support communication

Model Driven Design and Development

- Automatic code generation of Web applications

One model for each layer

- Content

- Navigation

- Presentation

Different methods have different expressive power

Assignment 3

The application requires different type of user with different functionalities

◦ Patients

   ◦ General Information

   ◦ Reservation of visits

   ◦ Visualization of existing visit reservations

   ◦ Visualization of reports

◦ Doctors

   ◦ Editing of reports

◦ Administrators

   ◦ Editing of data related to visit typology and associated price

Questions?