Curriculum Development
Centers Program

Awardee of The Office of the National Coordinator for
Health Information Technology

Component 4: Introduction to Information and Computer Science

Unit 9: Components and Development
of Large Scale Systems
Lecture 3

Topic II: Systems Development Lifecycle (SDLC)

1. Systems Planning
2. Systems Analysis
3. Systems Design
4. Systems Implementation
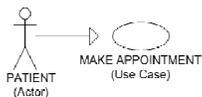5. Systems Support and Security

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Object Modeling

- Overview, terms and concepts
- Unified Modeling Language   (UML)

PATIENT
(Actor)   MAKE APPOINTMENT
(Use Case)

UML Structure Diagrams

- Class
- Object
- Composite Structure
- Package
- Component
- Deployment
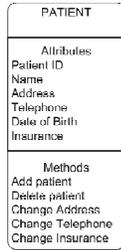
PATIENT

Attributes
Patient ID
Name
Address
Telephone
Date of Birth
Insurance

Methods
Add patient
Delete patient
Change Address
Change Telephone
Change Insurance

UML Behavior Diagrams

- Use Case
- Activity
- State Chart
- State Machine
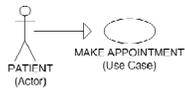
MAKE APPOINTMENT
(Use Case)

PATIENT
(Actor)

UML Interaction Diagrams

- Sequence
- Timing
- Communication
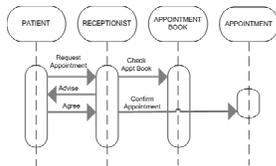
PATIENT   RECEPTIONIST   APPOINTMENT BOOK   APPOINTMENT

Request Appointment   Check Appt Book

Advise

Agree   Confirm Appointment

Logical vs. Physical Models

- Logical model

- Physical model

- Four-model approach:

PHYSICAL MODEL
OF CURRENT SYSTEM
↓
LOGICAL MODEL
OF CURRENT SYSTEM
↓
LOGICAL MODEL
OF THE NEW SYSTEM
↓
PHYSICAL MODEL
OF THE NEW SYSTEM
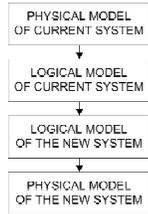
Development Strategies

- Traditional
- Internet
- Outsourcing
- Make or Buy
- Prototyping

Traditional Development

- Systems Development Life Cycle (SDLC)
- Rapid Application Development (RAD)
- Joint Application Development (JAD)

Internet (1 of 2)

- Web-based Development
  - Wikis
  - Learning Management Systems (LMS)

Internet (2 of 2)

- Software as a Service (SaaS)
- Web 2.0
- Cloud Computing

Outsourcing

- Application service providers (ASP)
- Internet business services
- Offshore outsourcing

Make or Buy

- Develop software in-house
- Purchase a software package
- Customize a software package

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Prototyping

- Modern, engineering-based approach to design.
- Replaces the paper-and-pencil physical design.
- An iterative process between designer and users.
- A prototype is a working model that is not quite ready for prime time.

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