Design Classes

- Distribute system functionality across *3 types* of classes
- Simplifies maintenance, revisions, and visualization ...

Design Classes (Continued)

Control Classes

- Contain objects for *application processes*

Entity Classes

- Contain objects for *storing* and *manipulating* data

Boundary Classes

- Contain objects for *frontend interfaces* with actors .

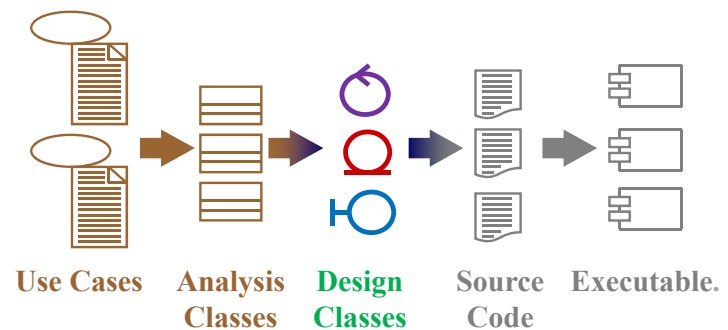*Design Classes*
Motivating Example

Is YouTube still written in hypertext preprocessor?

No, it can't survive the volume

- *Client side: Boundary class*
- *Server side: Control class*
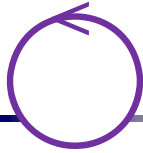- *Database: Entity class* .

Design Classes

Use Cases — Analysis Classes — Design Classes — Source Code — Executable.

Design Classes
Control Classes

- ◆ Contain the logic or rules of events for directing and managing interactions among objects
- ◆ Decouple storage (*entity classes*) and front end (*boundary classes*)
- ◆ Allow system to be tolerant of changes and maintenance
- ◆ Usually *1 control class* per use case .
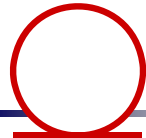
Design Classes
Control Class Example

Student   Course Registration   Registry

**Registration Control** .
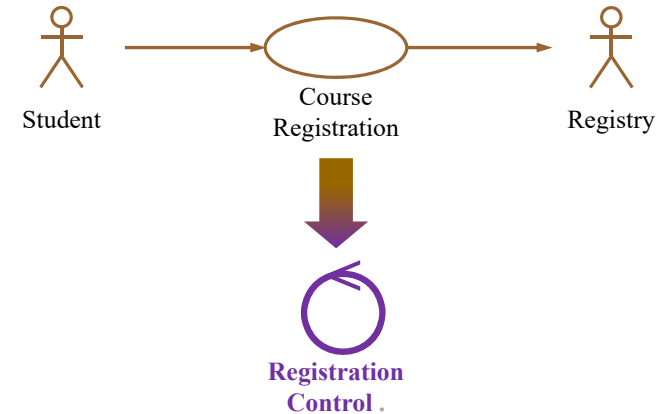
Design Classes
Entity Classes

- ◆ Usually contain real-life objects
- ◆ Encapsulate
  - ▪ attributes and
  - ▪ operations that update the attributes
- ◆ Entity objects are *persistent*
  - ▪ Continue to exist between use case executions
  - ▪ Attributes are typically stored in database
  - ▪ Allow for manipulation and retrieval .

Design Classes
Entity Classes

Student   Course Registration   Registry

Course Object .
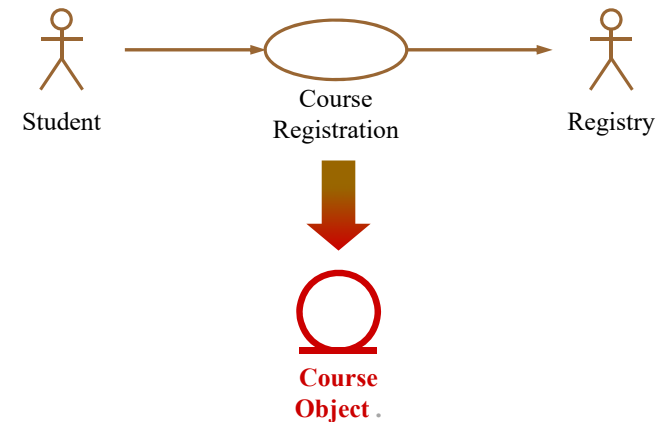
Design Classes
Boundary Classes

- Interface between system and external world
- May include user interface, system interface, and device interface
- Responsibilities:
  - Translate external input data into system information
  - Translate system data into external presentation
- At least *1 boundary class* per actor / use case pair .

Design Classes
Boundary Classes

Student → Course Registration → Registry

Internet Window   **Intranet Window** .