



# Composite Structures

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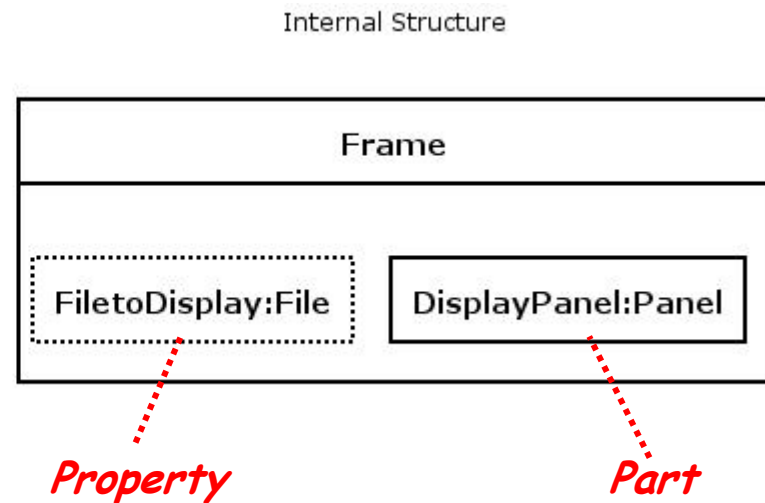
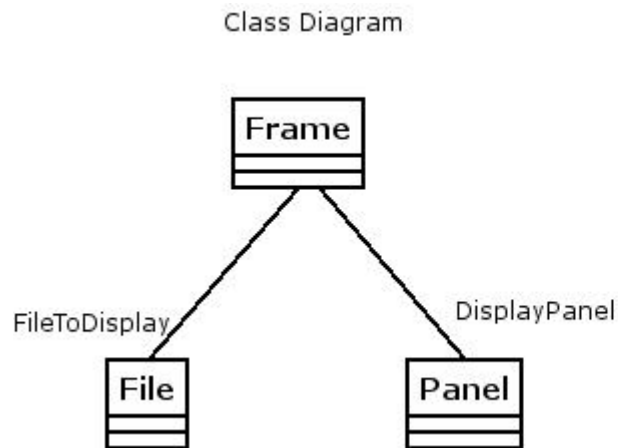
# Composite or Internal Structures

- A **Composite Structure** is a set of interconnected elements that exist at runtime to collectively provide some piece of functionality - **Internal structures**
- **Internal Structures** specify relationship in the context of the class that contain them
- **Internal Structures** model how objects work together inside a class or how they achieve a goal

# Composite Structures: Basics

- **Internal structures** show
  - the parts contained by a class and the relationships between the parts
  - context-sensitive relationships, or relationships that hold in the context of a containing class
- **Ports** show how a class is used on your system with ports
- **Collaborations** show design pattern in your software and, more generally, objects cooperating to achieve a goal

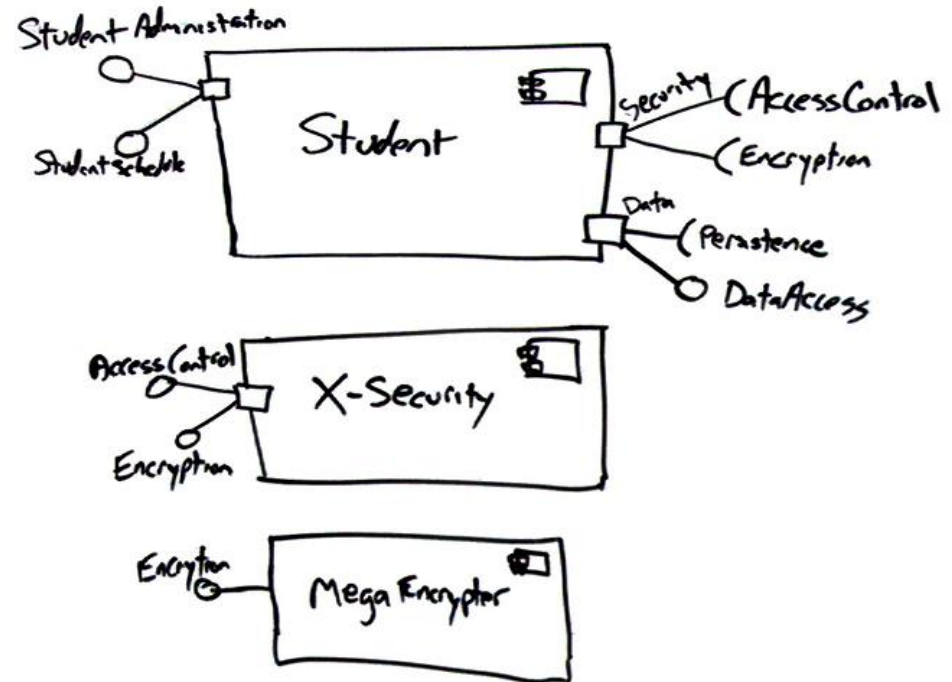
# Internal Structures



- Structured classes and properties
- **Parts of a Class**
  - UML 2.0 defines the term **"property"** to describe the **"part"** piece of the whole relationship
- A **Connector** is a link that enables communication between parts
  - The notation for multiplicities on connectors is the same as multiplicities on associations

# Ports

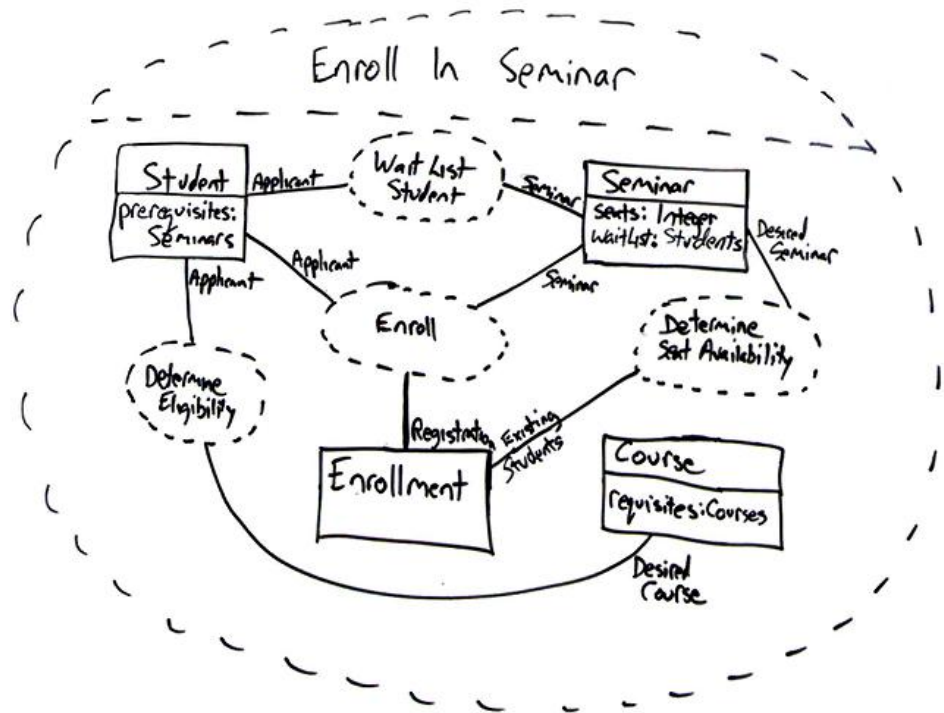
- A port is a way to offer functionality from a composite structure without exposing the internal details of how that functionality is realized
- Ports focus on the outside of a class, showing how a class is used by other classes
  - **Required** and **provided interfaces**
  - **behavioral port**: realizing port implementations
  - **Multiple connectors** - UML 2.0 allows multiple connectors leading from a port to different internal elements
  - Port **multiplicity**; interaction points
  - Port **typing**



[Agile Modeling, Introduction to the Diagrams of UML 2.0]

# Collaborations

- UML 2.0 allows you to attach a collaboration to a specific operation or classifier to show how it is realized by other elements
- When you associate a collaborations, you create a **Collaboration Occurrence**



[Agile Modeling, Introduction to the Diagrams of UML 2.0]