

Data Flow Diagrams



UML Diagram Types

Dynamic Models

- activity diagrams
- statechart diagrams
- interaction diagrams
 - sequence diagrams
 - collaboration diagrams
- use case diagrams

Structural Models

- class diagrams
- object diagrams
- packages

Architectural Models

- component diagrams
- deployment diagrams

Object Modeling Technique

Object Model

- Class/Object Diagrams

Dynamic Model

- State Diagram

Functional Model

- Data Flow Diagram

Elements of a DFD

Process

def'n: part of a DFD that transforms data values

- shows possible functional paths
- does not show control information
- does not show/imply sequence of operations
- processes may be expanded
- Convention: oval with name

Elements of a DFD

Actor

def'n: producer or consumer of data

- shows boundary of system
- Convention: rectangle with name

Elements of a DFD

Data Store

def'n: passive object within data flow diagram that stores data for later access

- shows temporary/permanent storage
- allows values to be accessed in different order than generated
- can be aggregate (tables, arrays)
- Convention: two parallel lines with name

Relationships of a DFD

Data Flow

def'n: connects the output of an object or process to the input of another object or process

- shows interim data flow in computation
- can have composition, duplication, decomposition
- Convention: directed arc with name

Similarity to UML Diagrams

Use Case Diagram

- because DFD shows system border

Collaboration Diagram

- because DFD shows message passing between objects

Deployment Diagram

- because data stores imply some form of architecture

To Draw Data Flow Diagrams

- Determine all data needed by system
- Determine what system produces
- Determine producers of bullet 1 and consumers of bullet 2
- Determine overall process name and content
- Expand overall system process
- If elemental, then done
- If not elemental, the iterate
