UML Diagrams

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for UML 1.xx

9 Diagrams

- Use Case
- Class
- Collaboration
- Sequence
- Object
- State Chart
- Activity
- Component
- Deployment

Component Diagrams

- Piecing together of software applications
- There is a body and an interface for any class

Component Diagrams: 2

- Dependencies (compilation dependency)

Component Diagrams: 3

- SUBSYSTEMS: various components could be grouped to form the structural elements
Packages

- Various components could be grouped with respect to LOGICAL criteria
- Contain other packages, classes, objects, relationships, components, nodes
- Every element belongs to a package
- Imports relation = dependency
- Packages can be nested

Statechart Diagrams

- A state machine representation – corresponding to one “class”
- Actions happen during entry or exit from a state
- Activities last longer, can take place in a state
- States can be aggregated and generalized
- Transactions can be “guard”ed by conditions

Statechart Diagrams: 2

- Actions in a State
- State Generalization

Statechart Diagrams: 3

- State Aggregation: S’s state is a composition of the states of U and T. Composite states: (Z,A), (Y,A), (Z,B) etc.

Activity Diagrams

- A Statechart Diagrams variation: organized according to actions.
- Automatic transitions, decisions, and synch bars

Activity Diagrams: 2

- Synchronization bars represent fork and join controls
Activity Diagrams: Swimlanes

Client
  Inquire
  Order
    Order [made]
    Pay
      Order [paid]
      Deliver
        Deliver receipt
  Bill
    Order
      Segment A
        [guard 1]
        [guard 2]

Interaction Overview Diagrams

Segment A

Segment B

Segment C

Timing Diagrams

User
  Login
  Connecting
  Connected account
  Idle
  Accessed

time
  (precision)
  states
  objects

Composite Structure Diagrams

- "Element" roles at run-time, for a classifier
- Classifier: General model element that has instances - (use case, collaboration, class, node...)
- Element: An abstract base class for UML, mechanisms can be attached – (class, object, state, activity, use case, node, interface, package, comment, component, message, event ...)

Composite Structure Diagrams - 2

Tire Storage
  Tire Bin: Storage Bin
  Packaged: Tire
  Loose: Tire

Car
  Leftfront: Tire
  Rightfront: Tire
  Leftback: Tire
  Rightback: Tire