From: The Unified Modeling Language User Guide
by Booch, Rumbaugh, Jacobson

Appendix A

UML NOTATION

A overview of the UML is discussed in Chapter 2.

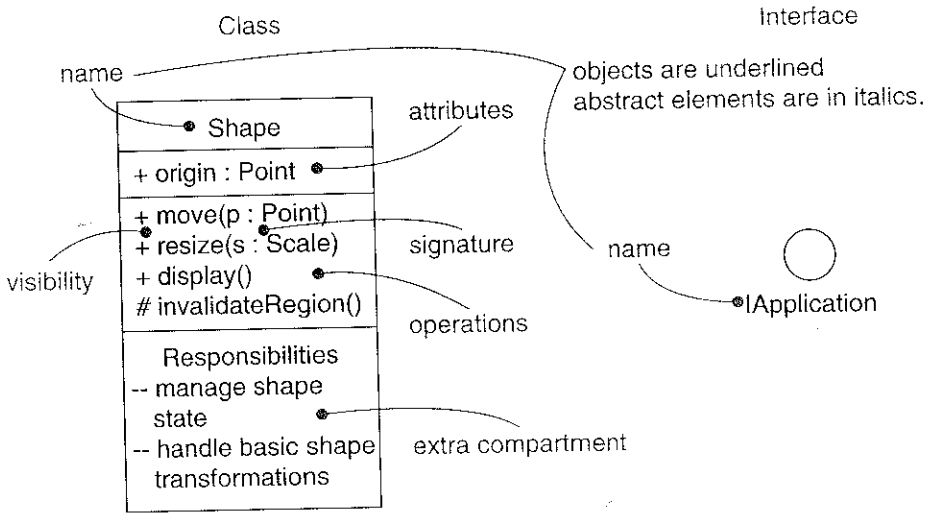
The UML is a language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system. As a language, the UML has a well-defined syntax and semantics. The most visible part of the UML's syntax is its graphical notation.

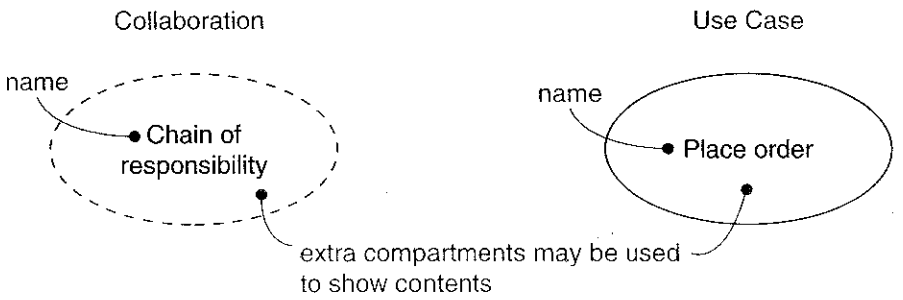
This appendix summarizes the elements of the UML notation.

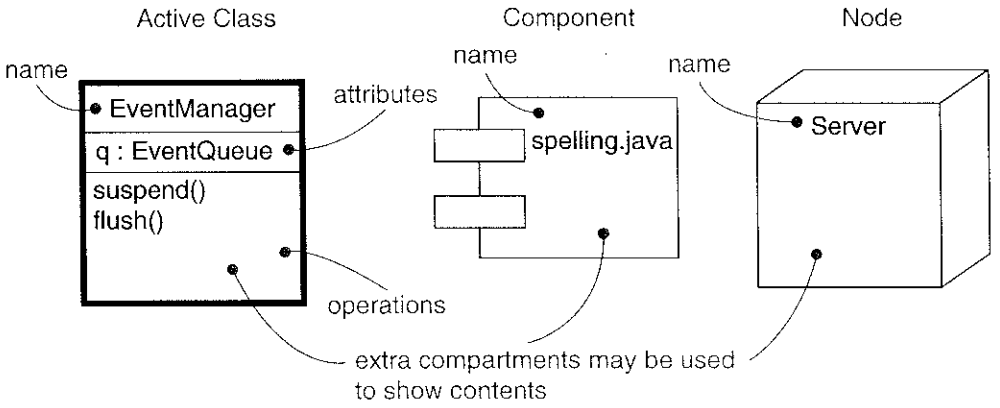
Things

Structural Things

Structural things are the nouns of UML models. These include classes, interfaces, collaborations, use cases, active classes, components, and nodes.

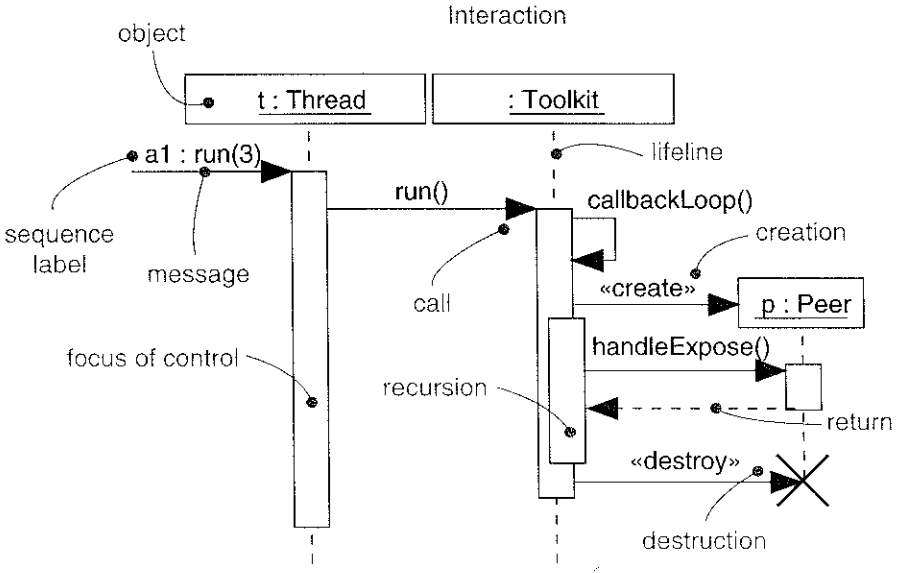


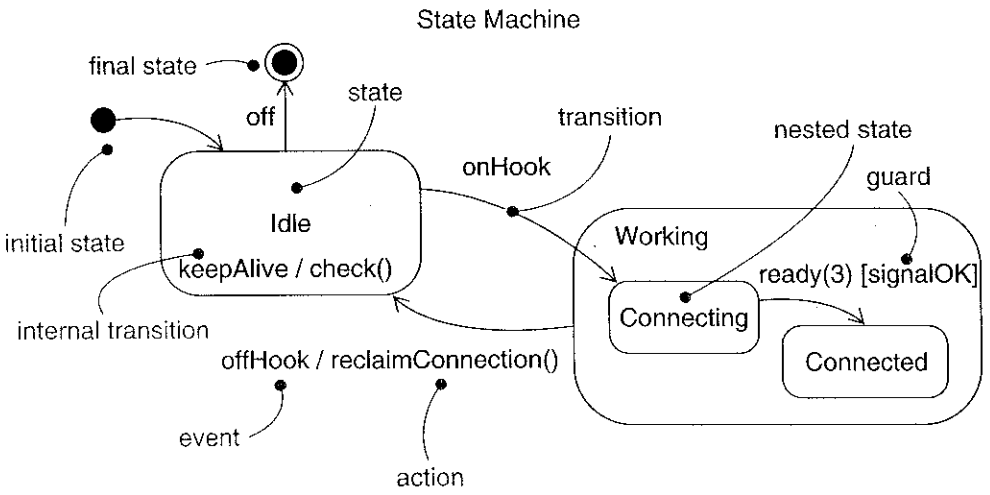




Behavioral Things

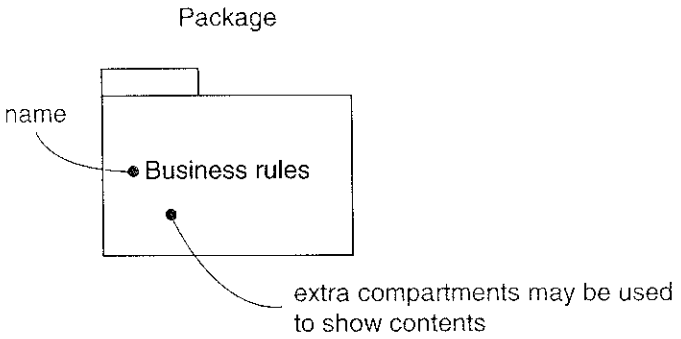
Behavioral things are the dynamic parts of UML models. These include interactions and state machines.





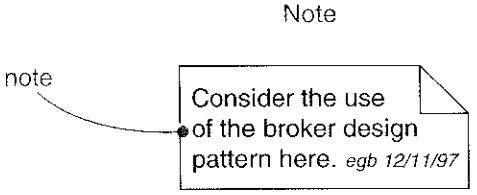
Grouping Things

Grouping things are the organizational parts of UML models. This includes packages.



Annotational Things

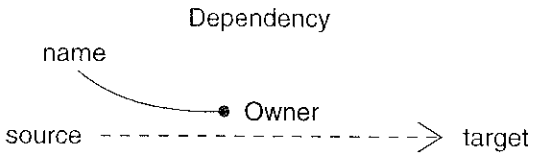
Annotational things are the explanatory parts of UML models. This includes notes.



Relationships

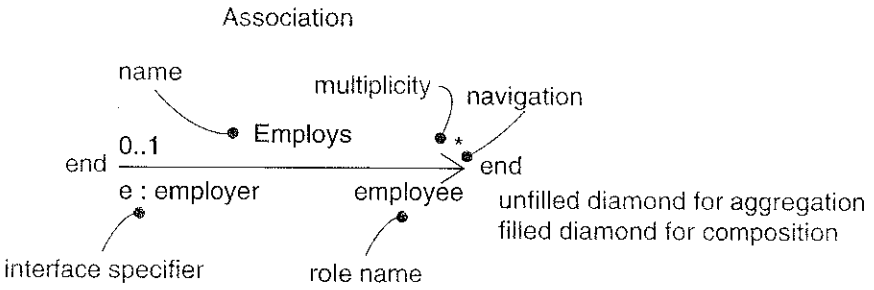
Dependency

A dependency is a semantic relationship between two things in which a change to one thing (the independent thing) may affect the semantics of the other thing (the dependent thing).



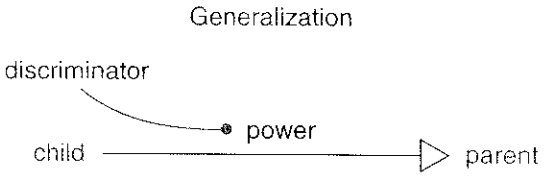
Association

An association is a structural relationship that describes a set of links; a link is a connection among objects.



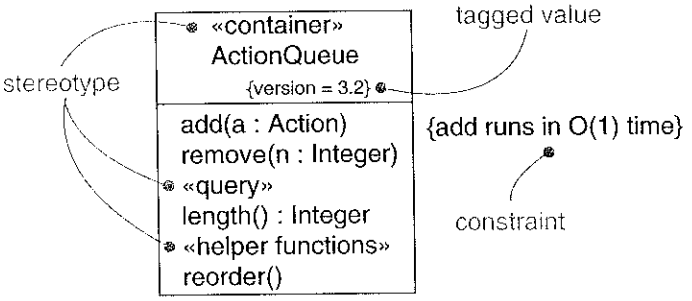
Generalization

Generalization is a specialization/generalization relationship in which objects of the specialized element (the child) are substitutable for objects of the generalized element (the parent).



Extensibility

The UML provides three mechanisms for extending the language's syntax and semantics: stereotypes (which represent new modeling elements), tagged values (which represent new modeling attributes), and constraints (which represent new modeling semantics).



Diagrams

A diagram is the graphical presentation of a set of elements, most often rendered as a connected graph of vertices (things) and arcs (relationships). A diagram is a projection into a system. The UML includes nine such diagrams.

1. Class diagram	A structural diagram that shows a set of classes, interfaces, collaborations, and their relationships
2. Object diagram	A structural diagram that shows a set of objects and their relationships
3. Use case diagram	A behavioral diagram that shows a set of use cases and actors and their relationships
4. Sequence diagram	A behavioral diagram that shows an interaction, emphasizing the time ordering of messages
5. Collaboration diagram	A behavioral diagram that shows an interaction, emphasizing the structural organization of the objects that send and receive messages
6. Statechart diagram	A behavioral diagram that shows a state machine, emphasizing the event-ordered behavior of an object
7. Activity diagram	A behavioral diagram that shows a state machine, emphasizing the flow from activity to activity

8. Component diagram	A structural diagram that shows a set of components and their relationships
9. Deployment diagram	A structural diagram that shows a set of nodes and their relationships

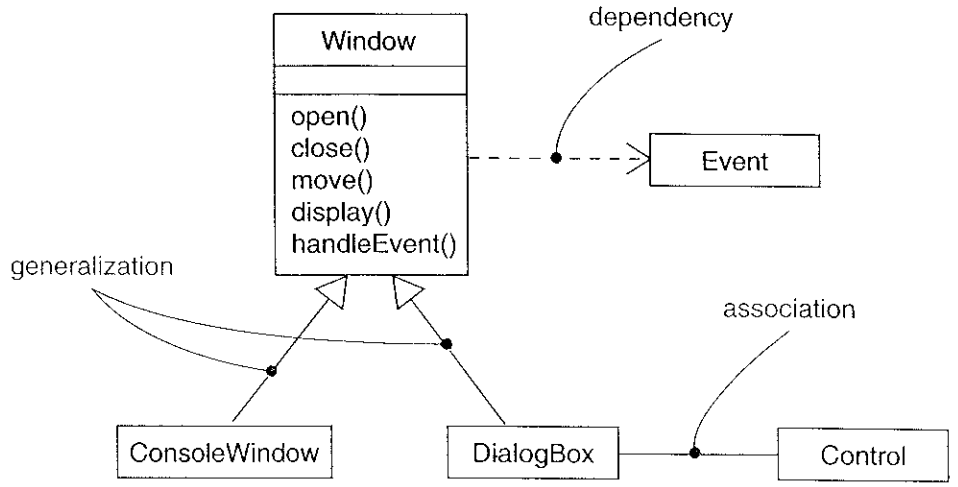


Figure 5-1: Relationships

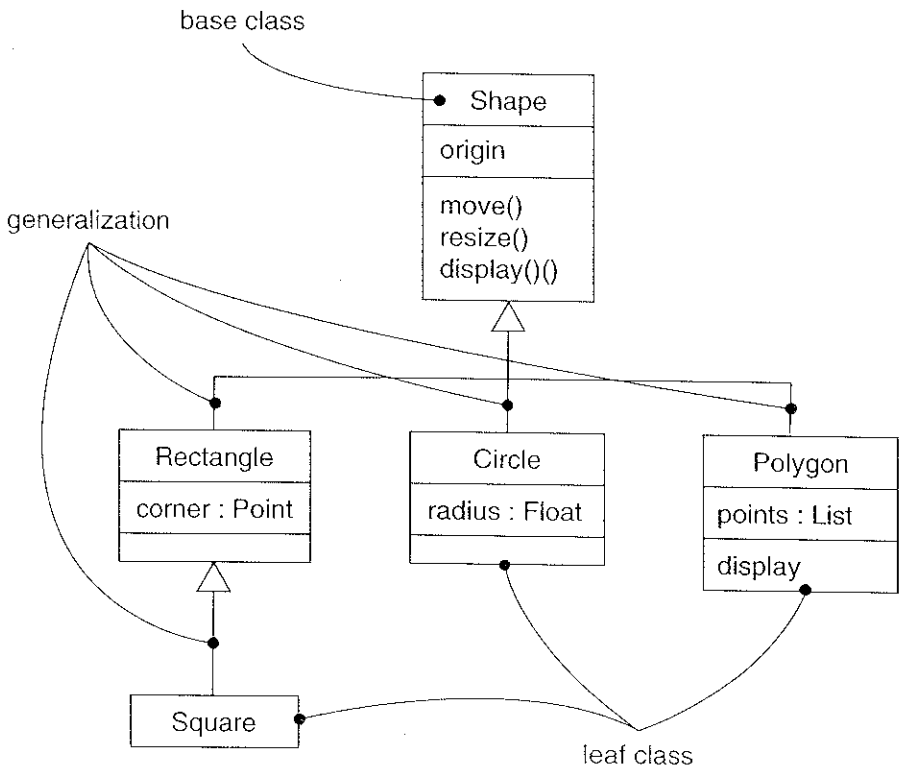


Figure 5-3: Generalization

Note: A generalization can have a name, although names are rarely needed unless you have a model with many generalizations and you need to refer to or discriminate among generalizations.

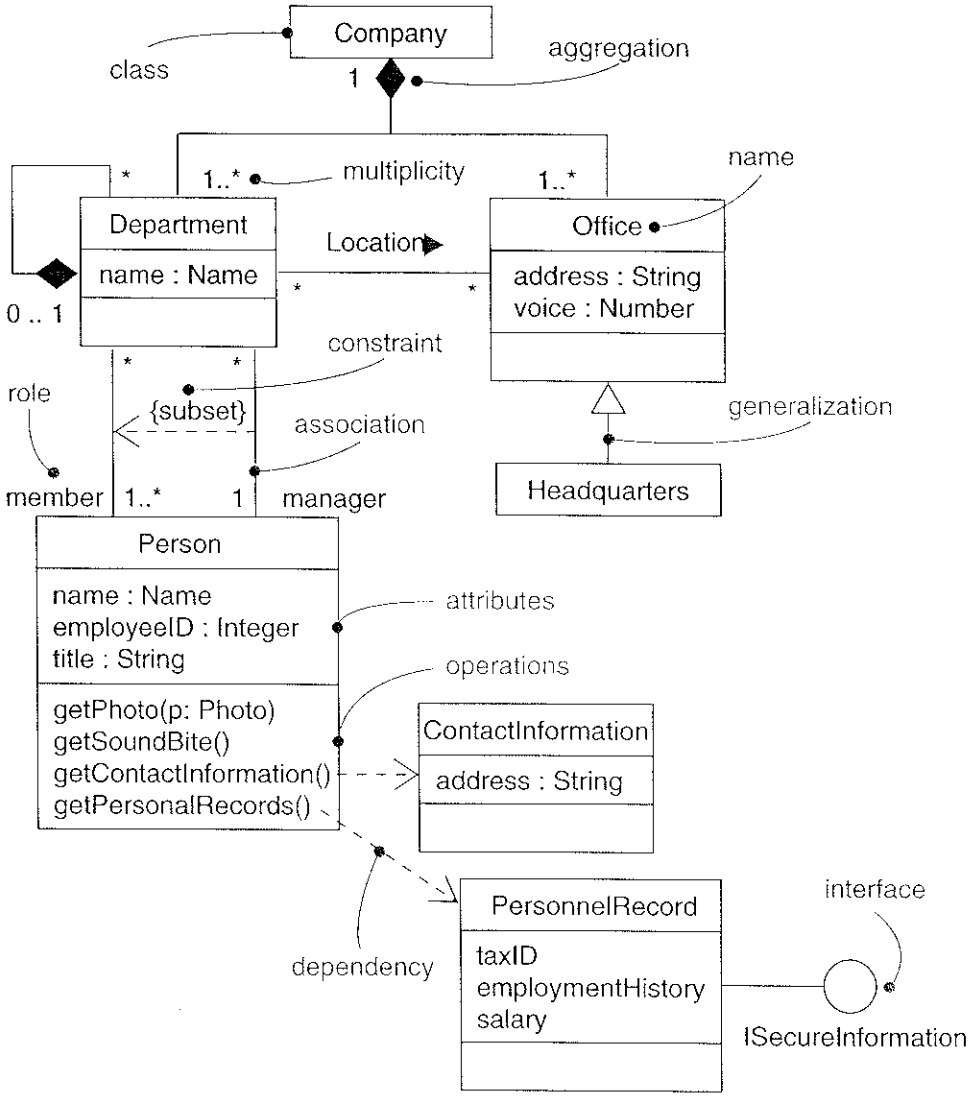


Figure 8-1: A Class Diagram

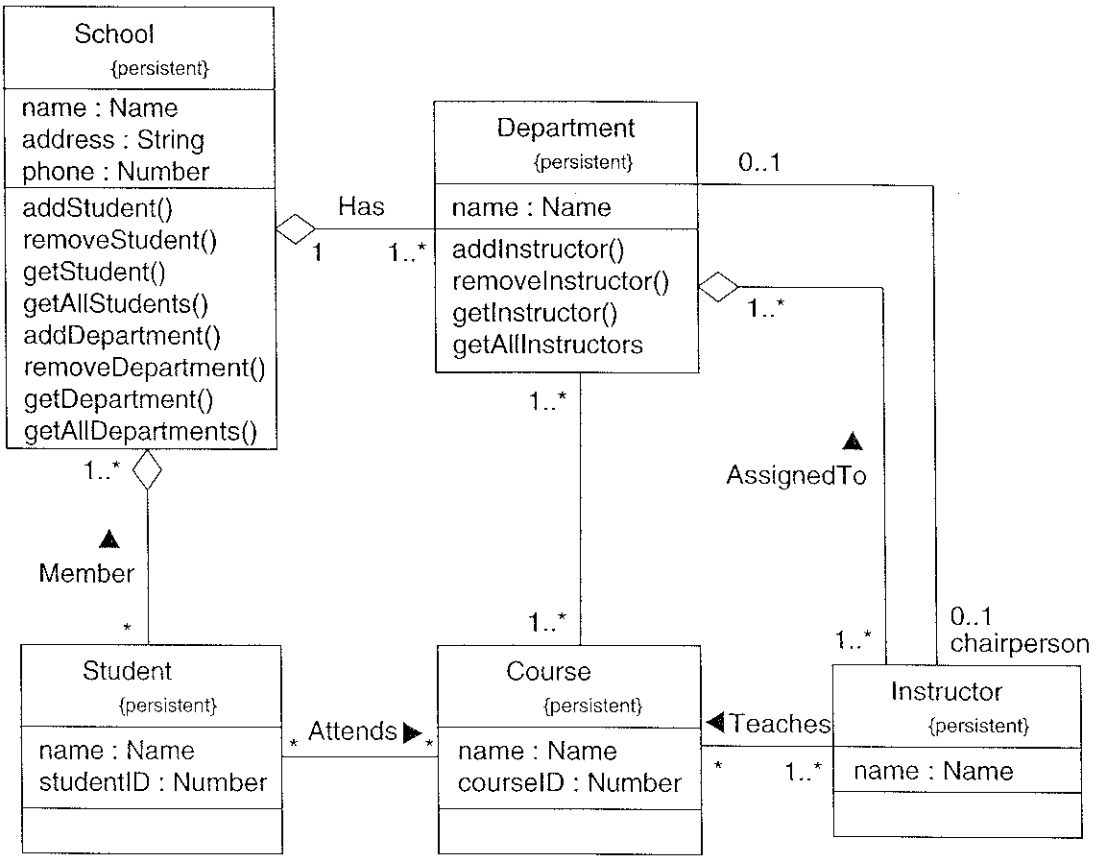


Figure 8-3: Modeling a Schema