Lecture 12 – Communication, Object, and Object Interaction Diagrams

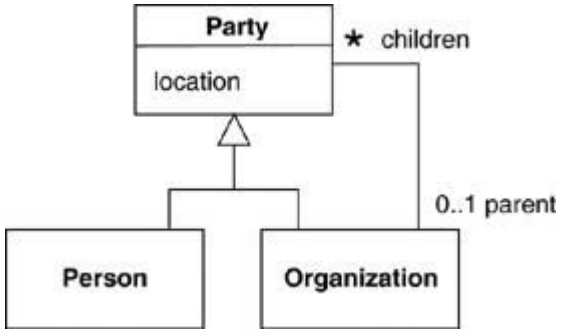
Learning Goals

- Describe the difference between a **sequence diagram** and **communication diagram**
- Describe the difference between a **class diagram** and **Object diagram**
- Given a use-case scenario, sketch out an **object interaction diagram**
- Given a systems problem description, sketch out a **system overview diagram**

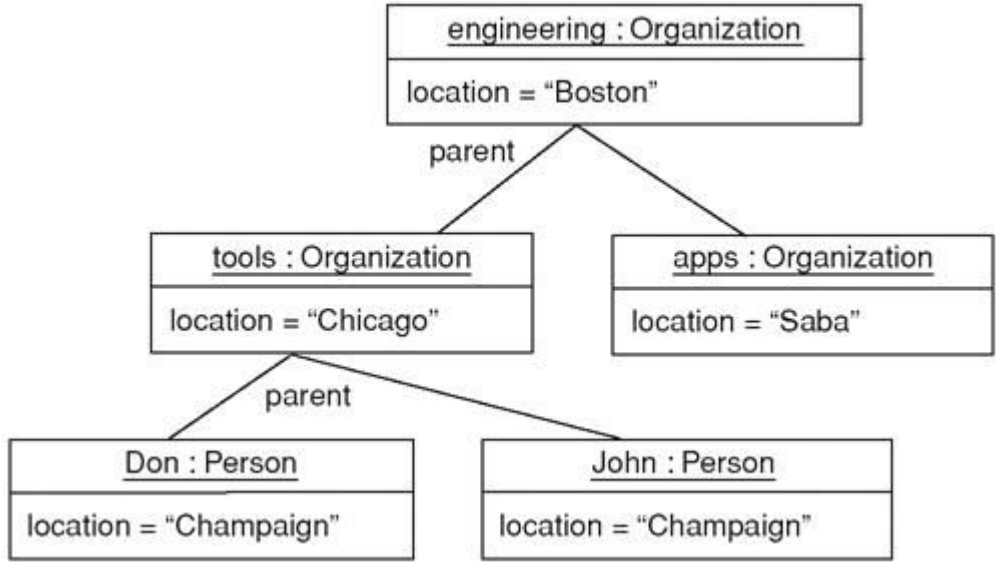
Object Diagram

Like a class diagram, but shows **instances** of classes (i.e. objects).

Underline the **name : class** type to show it is an instance, shows any known values within the instance.



Class Diagram



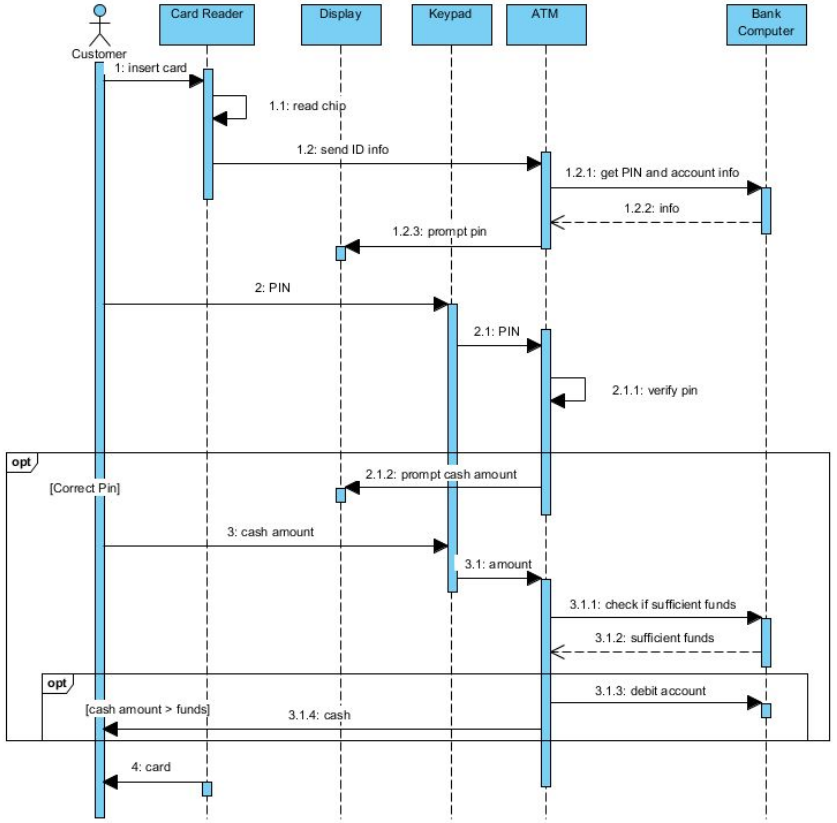
Object Diagram

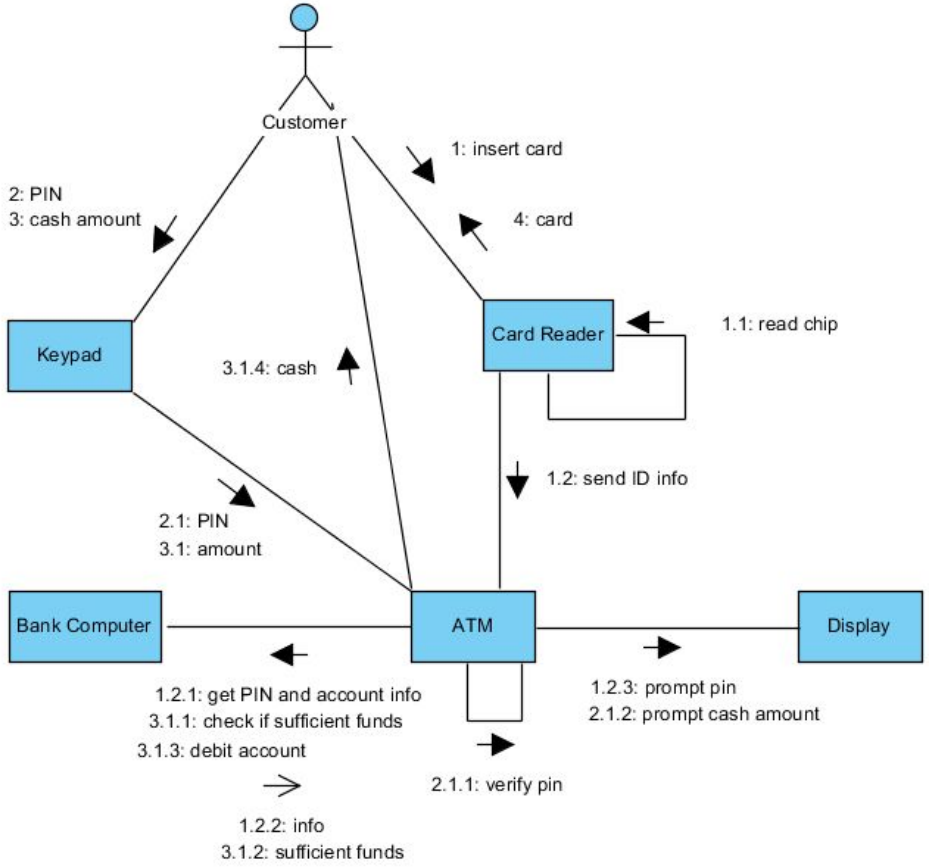
Source: Fowler, Martin. *UML distilled: a brief guide to the standard object modeling language*. Addison-Wesley Professional, 2004.

Communication Diagram

Similar to the object diagram, pictoral version of a sequence diagram.

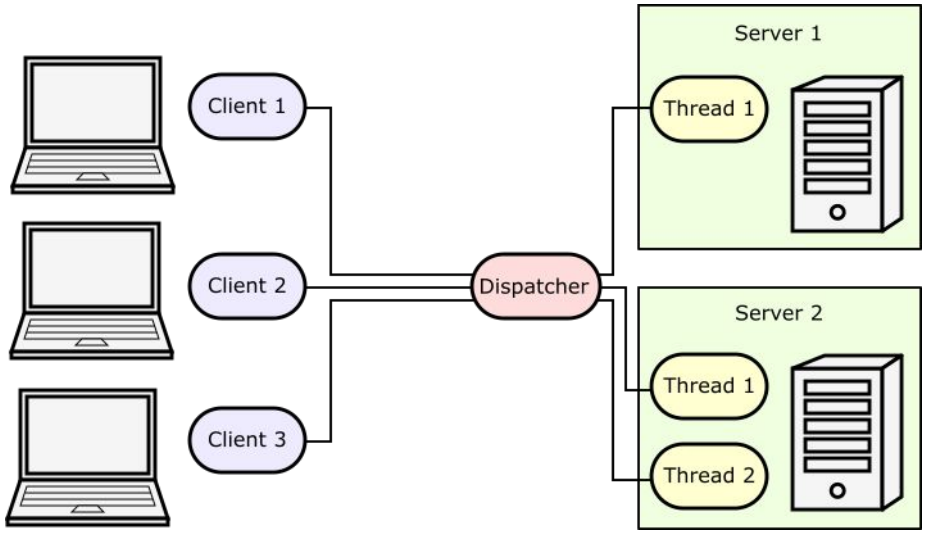
Numbered messages go on the interaction arrows.

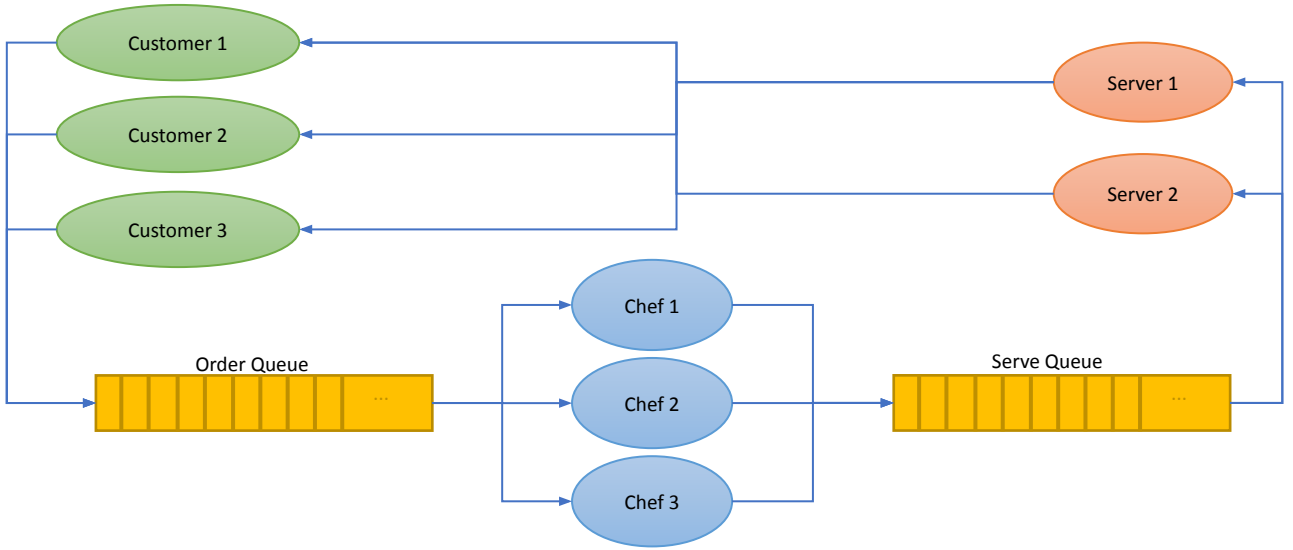




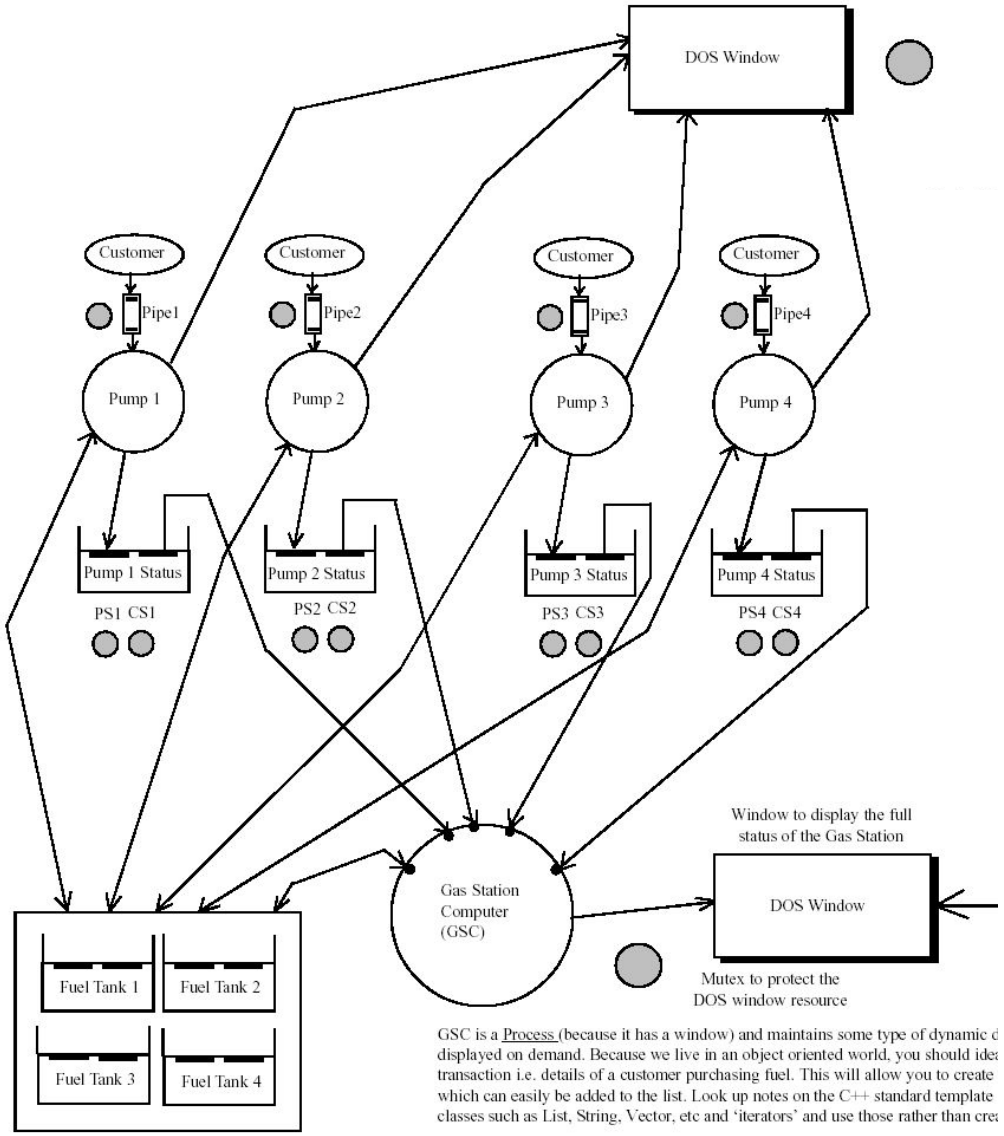
Object Interaction Diagram

- Usually similar to a communication diagram, with messages removed. Use anything you like that helps make it clear what's going on.
- Not an official UML. But used for its simplicity to give an overview about the overall picture

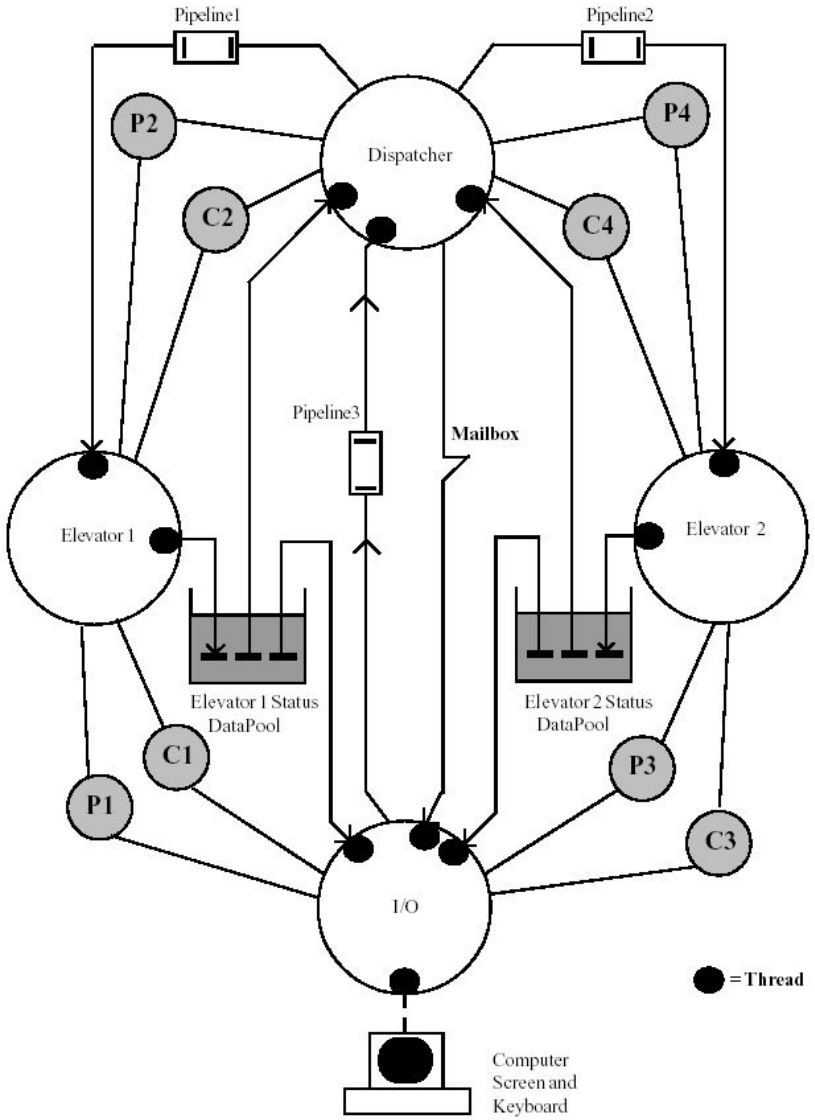




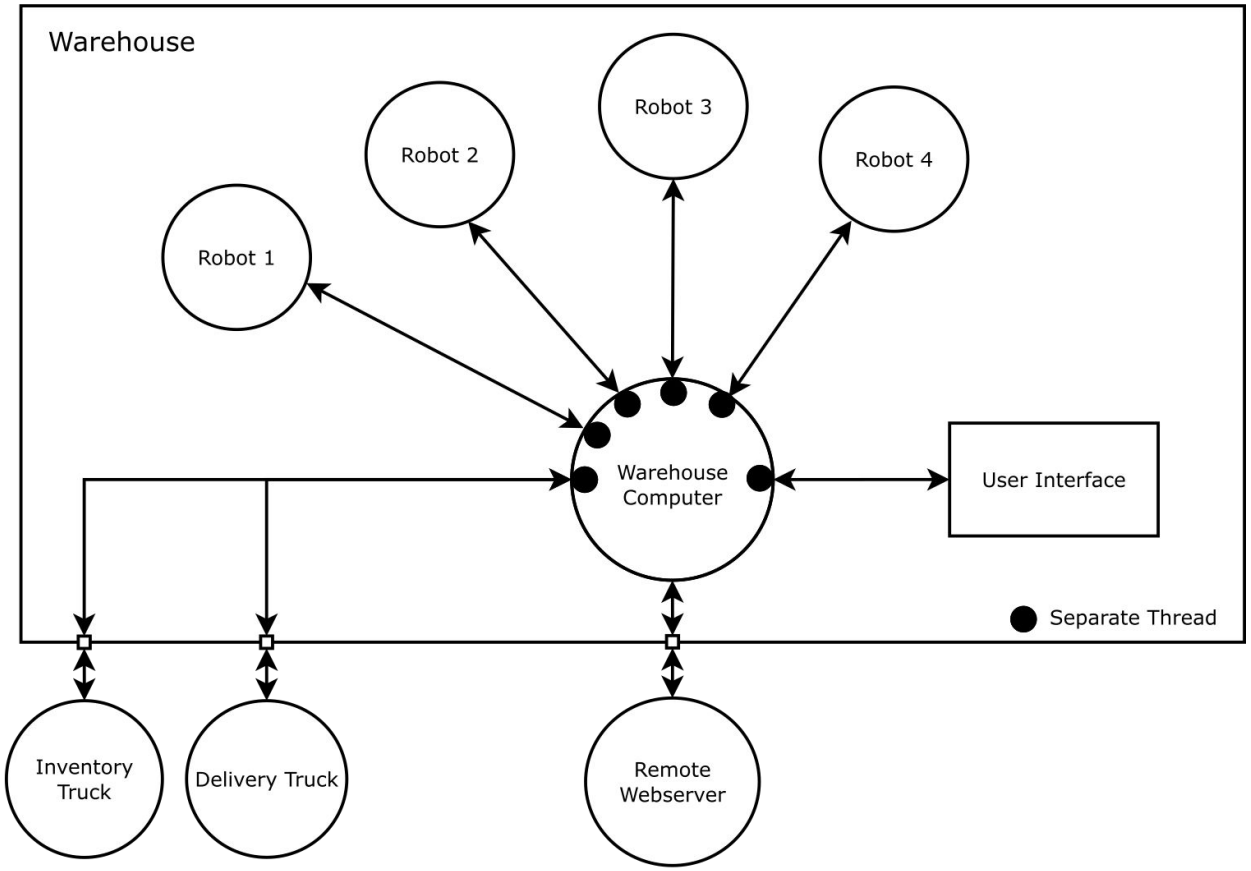
Gas Station

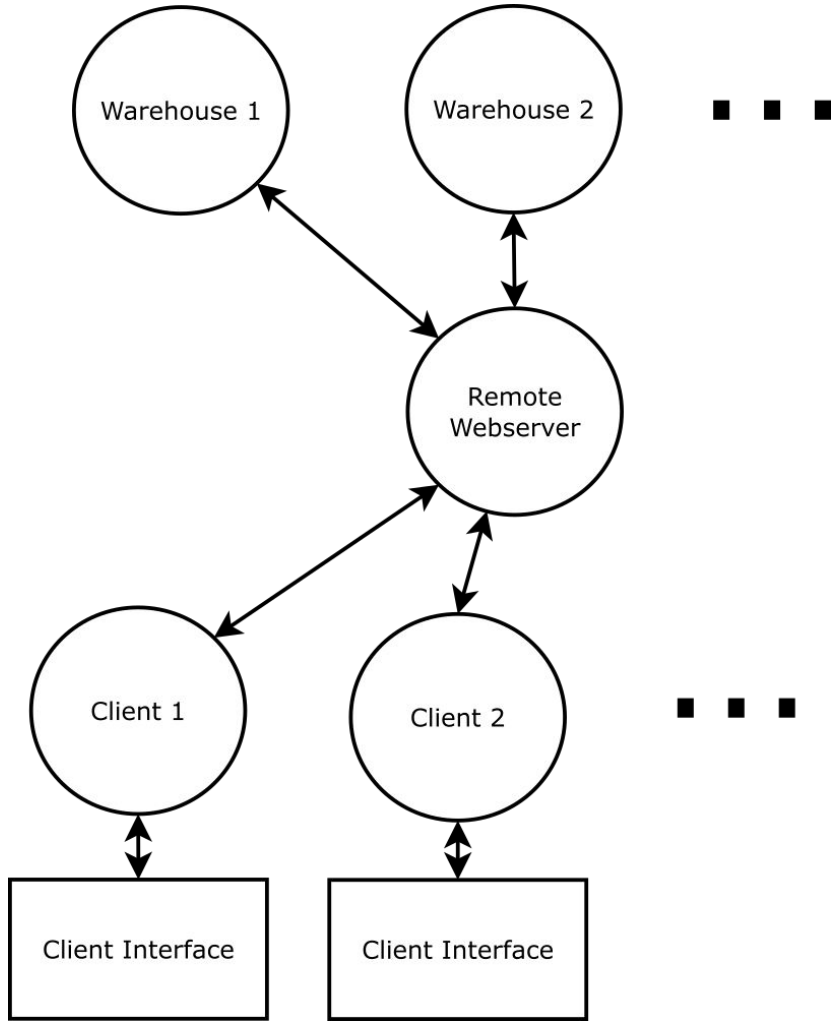


Elevator Control System



Amazoom Automated Warehouse





Object Interaction Diagram

Provide an overview of the interaction, give a *strong-enough* indication of what needs to communicate with what.

Can be used to document each use-case, or use-case scenario.

Can also be used to provide a **high-level overview** of the system components. If the diagram shows the overall system design, we sometimes call it a **System Overview Diagram**.

UML Summary

Use-Case Diagram: shows all use-cases, initiated by actors

Class Diagram: structure of class hierarchies, associations between classes

Sequence Diagram: documents sequence/timings of events for each use-case scenario

Communication Diagram: pictoral version of sequence diagram, can be used to replace a sequence diagram in a given use-case scenario

Object Diagram: depicts snapshots of an object in a system at a point in time

Non UML

Object Interaction Diagram: communication diagram without messages, plus extras to improve clarity of interactions

System Overview Diagram: high-level interaction of major system components