

UML1.5

Dynamic Modeling (communication diagram and sequence diagram)

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Schedule(2/3)

- Feb. 27th
 - 13:00 Introduction to Java Programming
 - 14:30 Outline of UML: Static Modeling
(usecase modeling, details of class definition)
- Feb. 28th
 - 13:00 Outline of UML: Dynamic Modeling
(state machine)
 - 14:30 **Outline of UML: Dynamic Modeling
(communication diagram, sequence diagram)**

Dynamic Model

- **State Diagram**
 - Describe which states an object can have during its life cycle
- **Sequence Diagram**
 - Describe how objects interact and communicate with each other
 - The primary focus in sequence diagrams is time
- **Collaboration Diagram**
 - Describe how objects interact
 - But the focus in a collaboration diagram is space

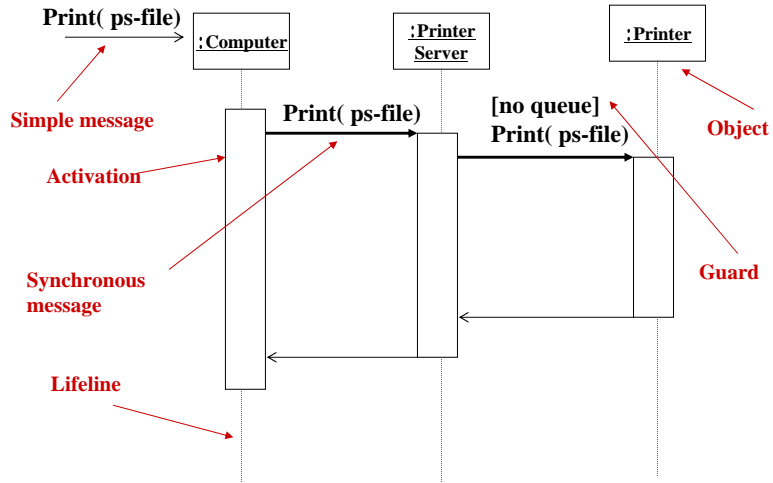
H.E. Eriksson and M. Penker, "UML Toolkit" John Wiley & Sons, Inc.

Sequence Diagram

- Sequence diagrams illustrate how objects interact with each other.
- They focus on message sequences, that is, how messages are sent and received between a number of objects.
- Sequence diagrams have two axes: the vertical axis shows time and the horizontal axis shows a set of objects.
- The Instance form describes a specific scenario in detail
- The Generic form describes all possible alternatives in a scenario, therefore branches, conditions, and loops may be included.:

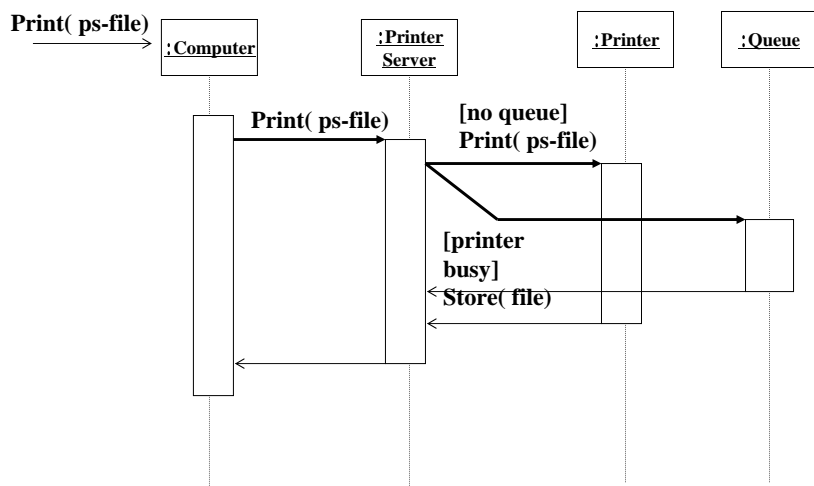
H.E. Eriksson and M. Penker, "UML Toolkit" John Wiley & Sons, Inc.

The Concepts used In a sequence diagram



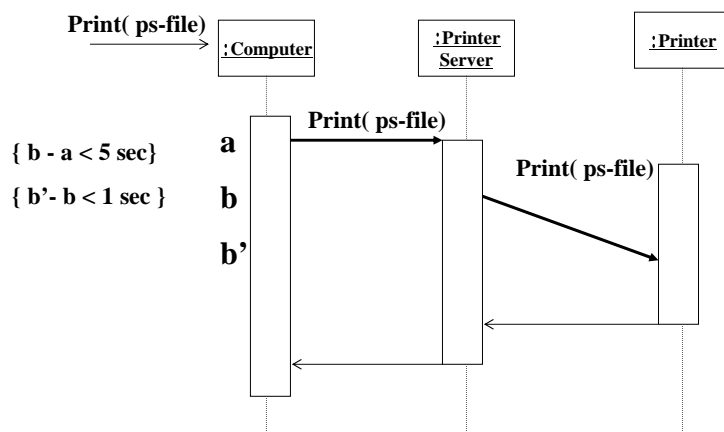
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Sequence diagram with Branch



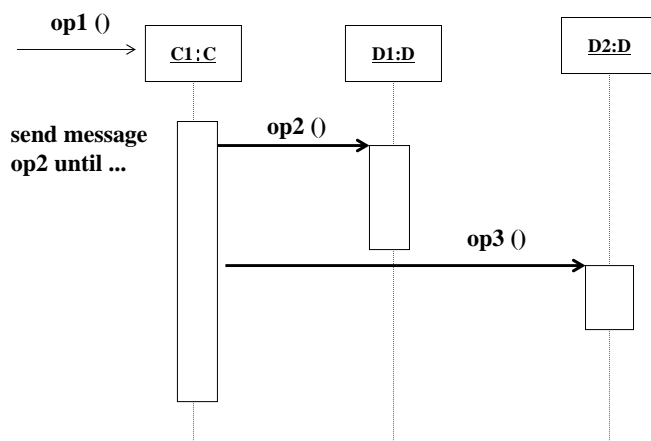
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Timing Constraint



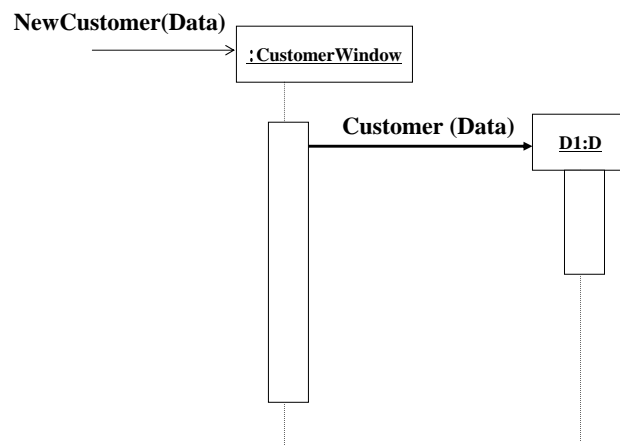
H.E. Eriksson and M. Penker, "UML Toolkit" John Wiley & Sons, Inc.

Iteration



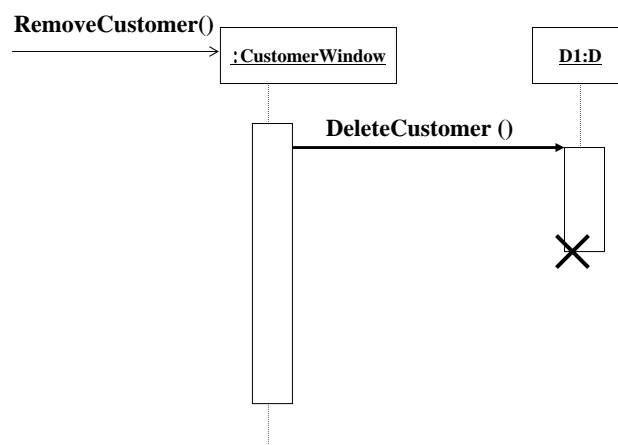
H.E. Eriksson and M. Penker, "UML Toolkit" John Wiley & Sons, Inc.

Creating Object



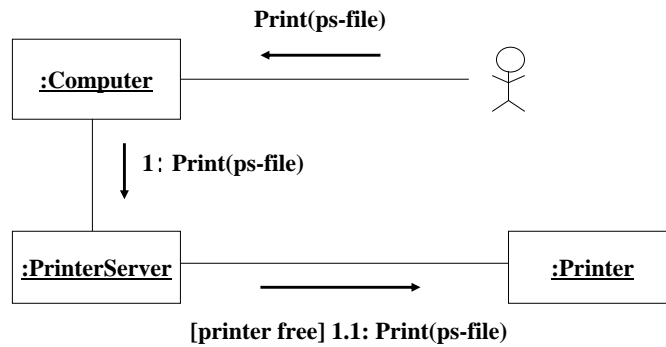
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Destroying Object



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An example of a collaboration diagram



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Message Label

predecessor guard-condition sequence-expression return-value := signature

sequence-number , ... /

The predecessor is an expression for synchronization of threads or paths, meaning that the messages connected to specified sequence-number must be performed and handled before the current message is sent.

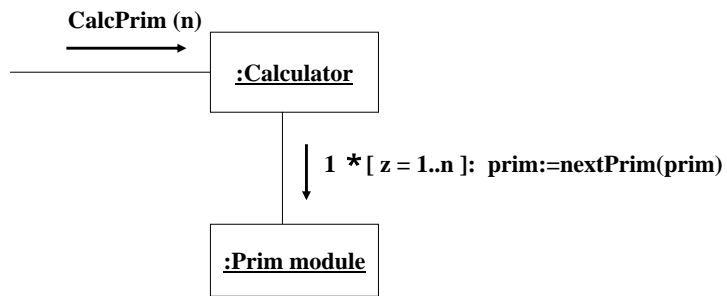
[integer | name] [recurrence]

- integer a sequence-number specifying the message order 1.2.1
- name concurrent thread of control 1.2a 1.2b
- recurrence * [iteration-clause] [condition-clause]
a conditional or iterative execution

		1:	display()
	[mode = display]	1.2.3.7:	redraw()
		2 * [n:=1..z]:	prime:=nextPrim(prim)
3.1	[x < 0]	:	foo()
3.2	[x => 0]	:	bar()
1.1a, 1.1b/		1.2:	continue()

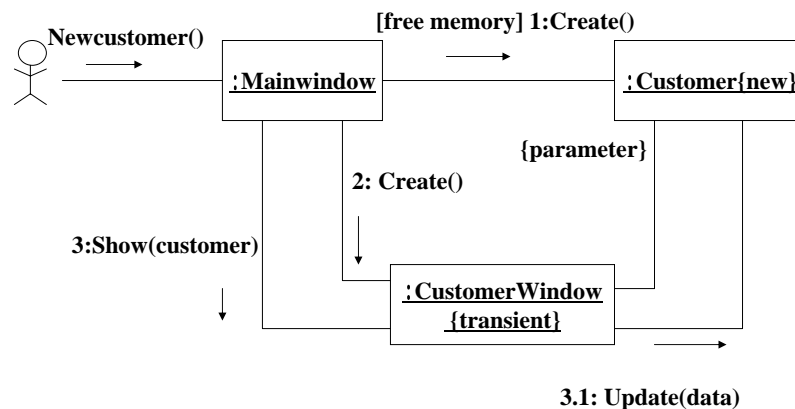
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Iteration in a collaboration diagram



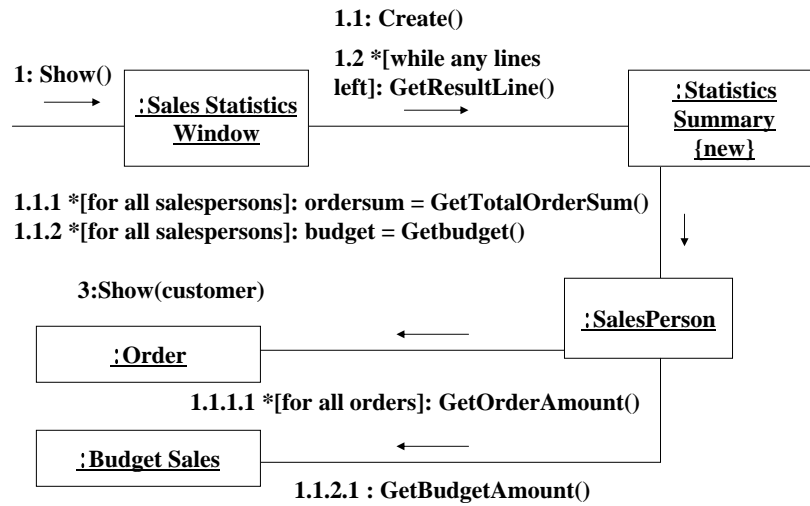
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Customer Window creation



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Summarizing sales results



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Exercise

