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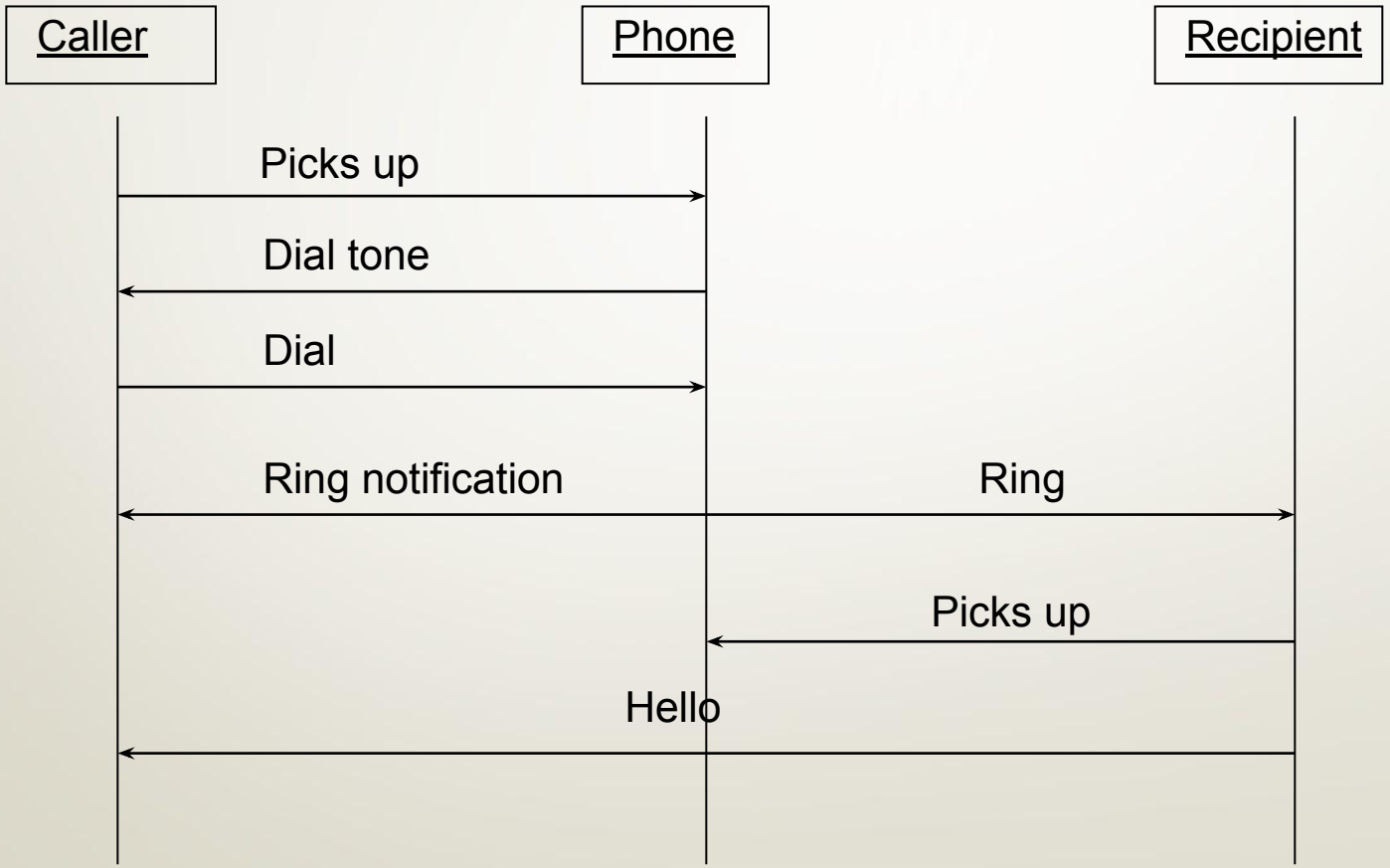
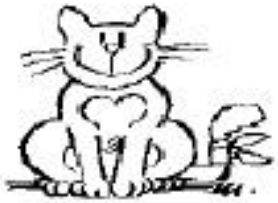
UML Sequence diagram

Sequence Diagram(make a phone call)



1. Person kicks the cat
2. Cat reports to inspector
3. Inspector reports to Policeman
4. Policeman arrests person

Objects



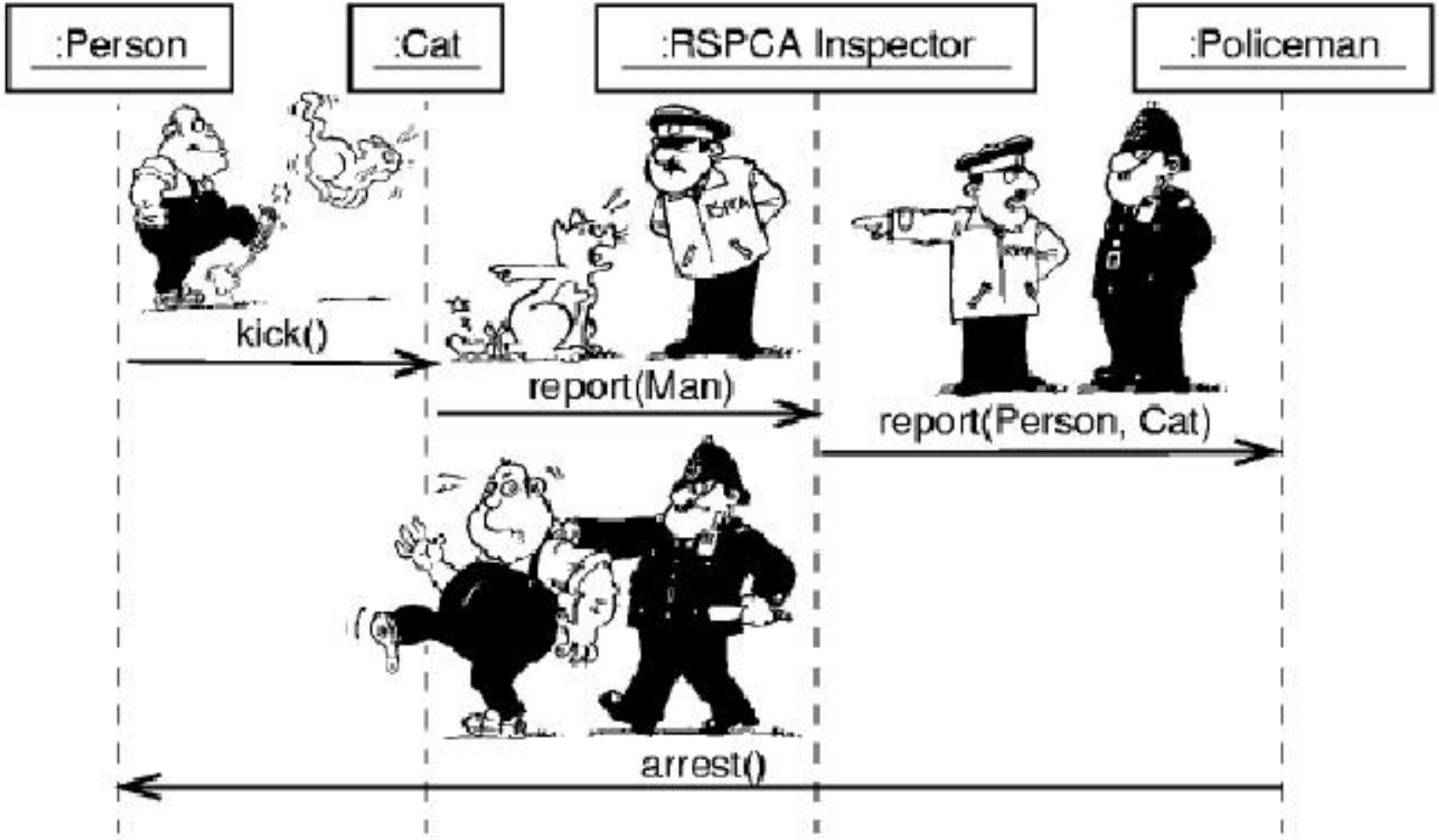
:Cat

:Policeman

:Person

:RSPCA Inspector

Sequence diagram



Sequence Diagrams

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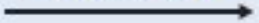
- Dynamic model
- Illustrate the objects that participate in a **use-case**
- Show the sequence of **messages** that pass between objects for a particular use-case over time
  - Example: order food, change tv channel
- It models a single scenario executing in the system

Term and Definition	Symbol
An actor: ■ Is a person or system that derives benefit from and is external to the system. ■ Participates in a sequence by sending and/or receiving messages. ■ Is placed across the top of the diagram.	 anActor
An object: ■ Participates in a sequence by sending and/or receiving messages. ■ Is placed across the top of the diagram.	 anObject:aClass
A lifeline: ■ Denotes the life of an object during a sequence. ■ Contains an X at the point at which the class no longer interacts.	
A focus of control: ■ Is a long narrow rectangle placed atop a lifeline. ■ Denotes when an object is sending or receiving messages.	
A message: ■ Conveys information from one object to another one.	aMessage() 
Object destruction: ■ An *X* is placed at the end of an object's lifeline to show that it is going out of existence.	X

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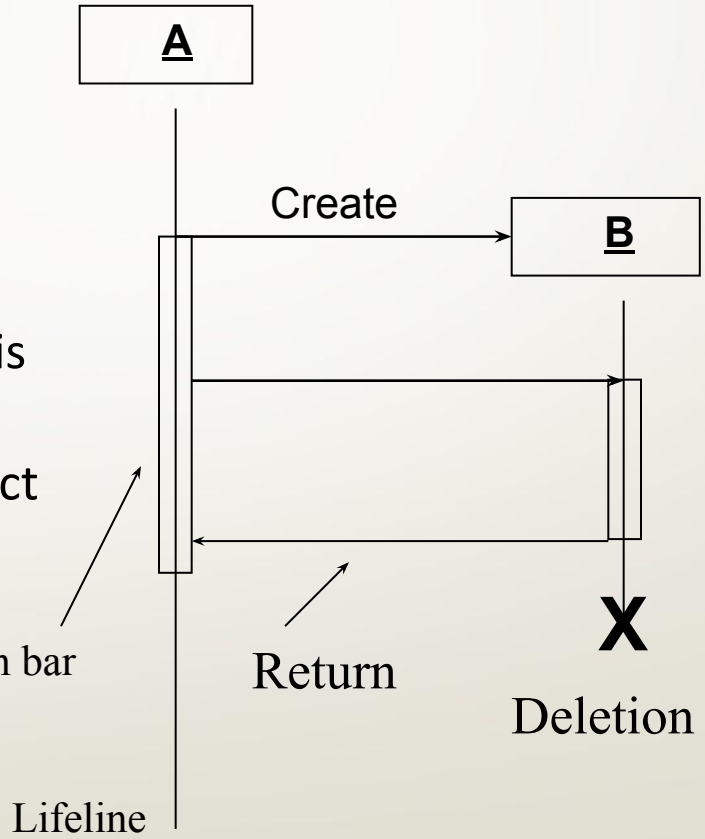
Sequence Diagrams – Object Life Spans

- Creation
  - Create message
  - Object life starts at that point
- Activation
  - Symbolized by rectangular stripes
  - Place on the lifeline where object is activated.
  - Rectangle also denotes when object is deactivated.
- Deletion
  - Placing an ‘X’ on lifeline
  - Object’s life ends at that point



Sequence Diagram

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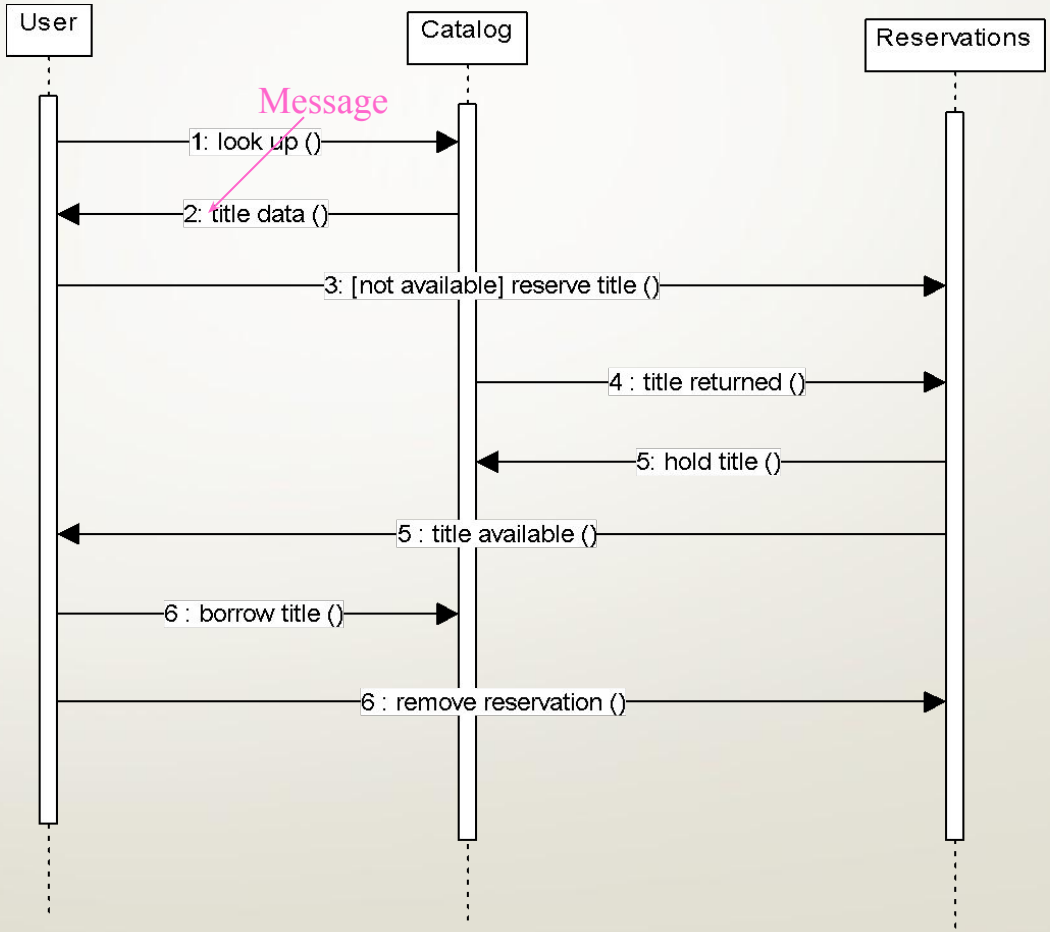
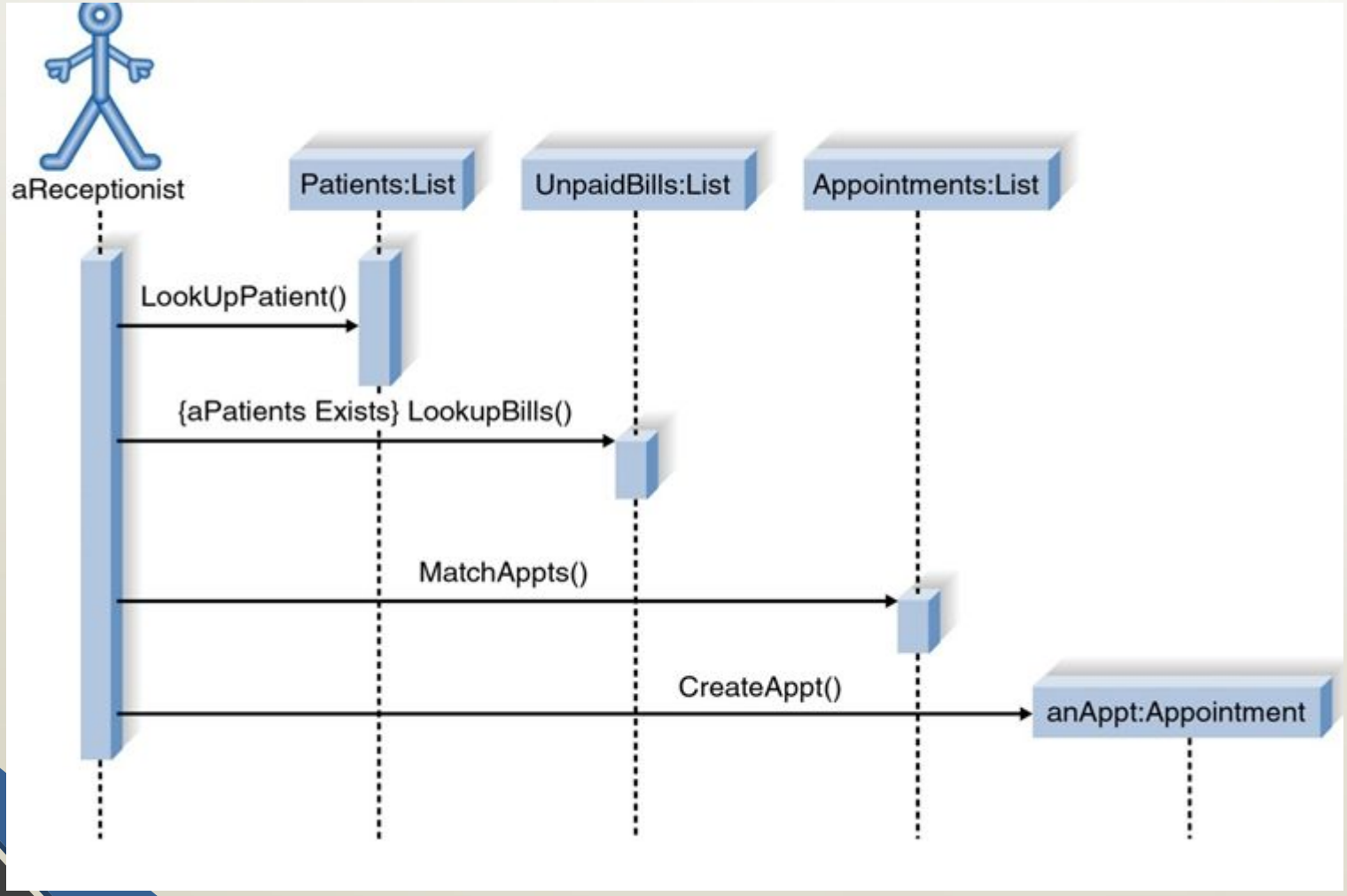
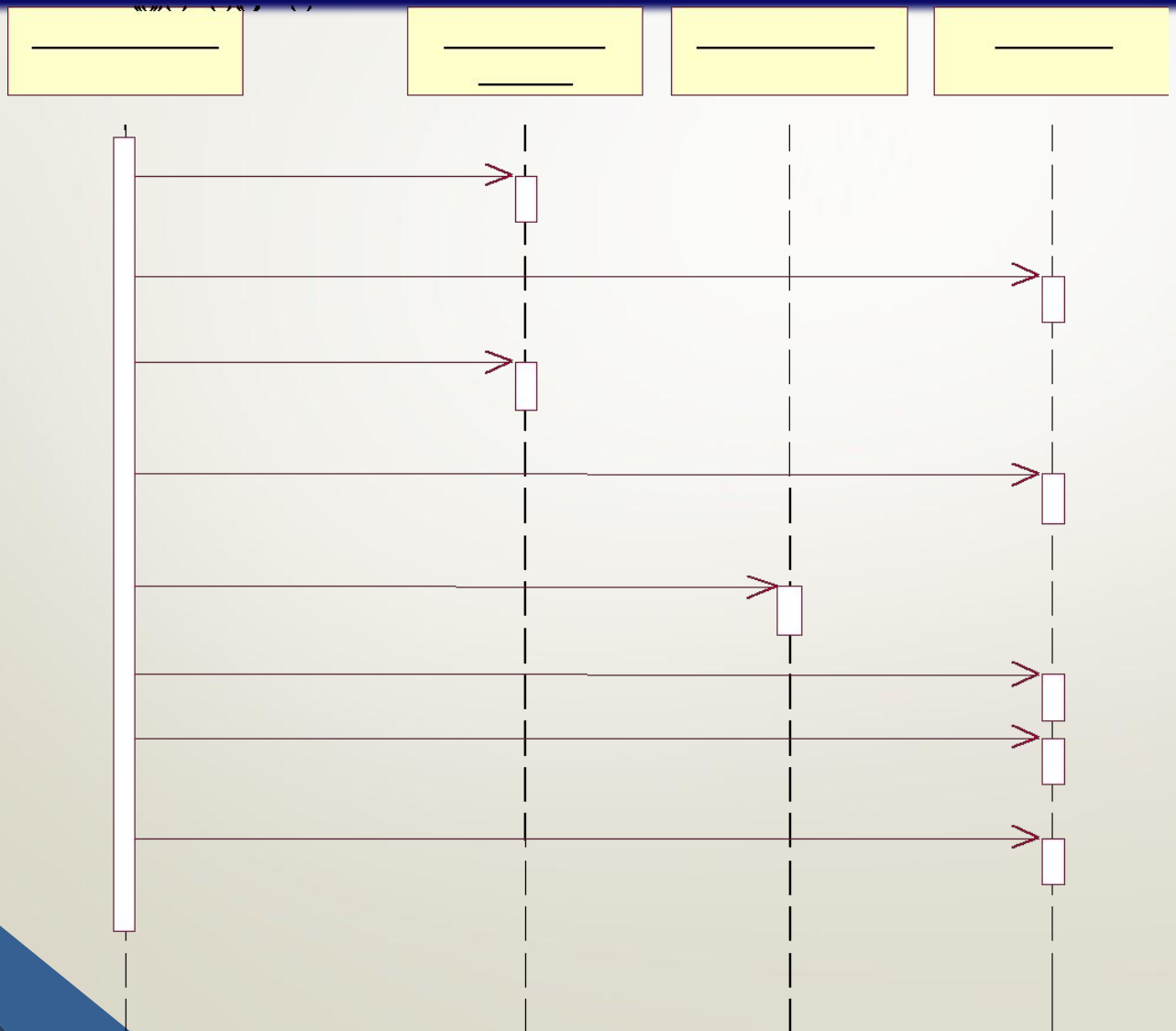
- Sequence diagrams demonstrate the behavior of objects in a use case by describing the objects and the messages they pass.
- The horizontal dimension shows the objects participating in the interaction.
- The vertical arrangement of messages indicates their order.
- The labels may contain the seq. # to indicate concurrency.



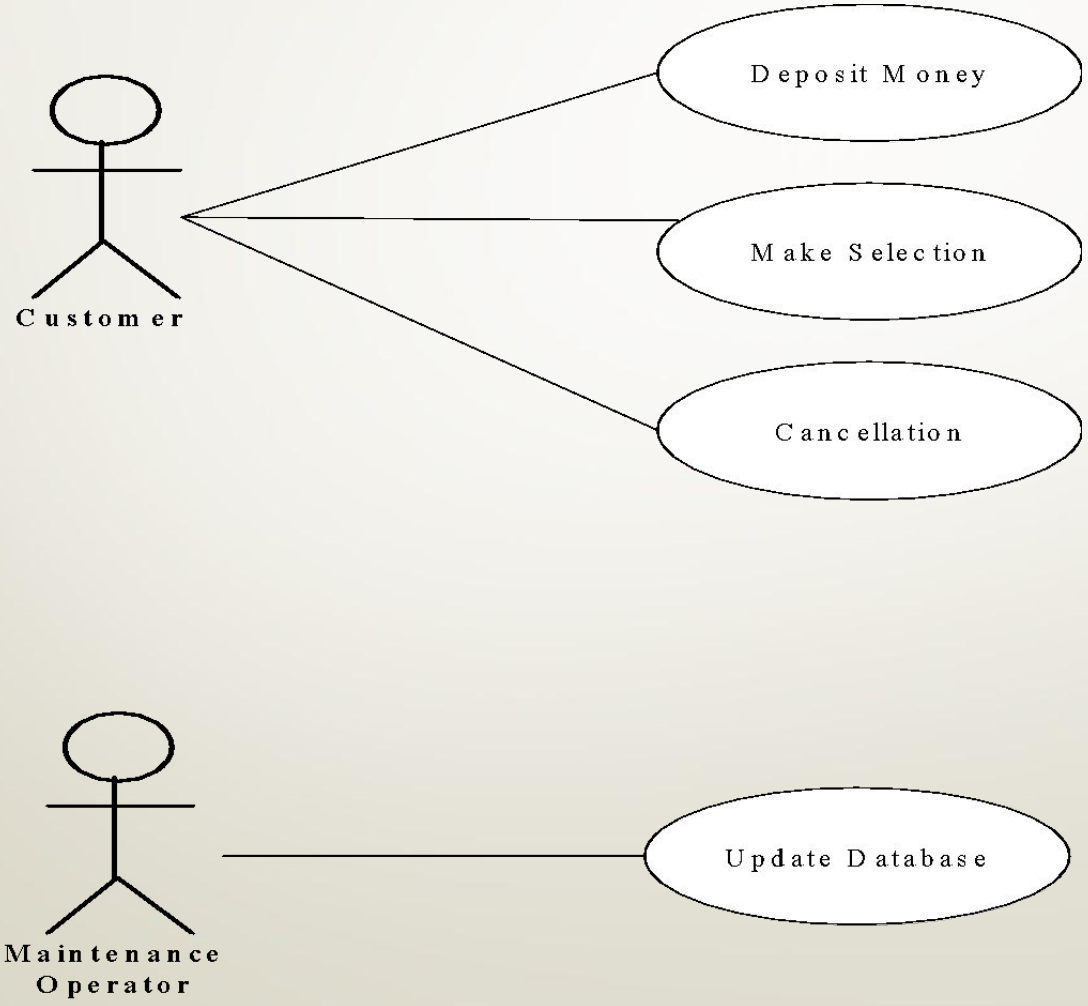
Sequence Diagram for Patient appointment Use Case



Sequence Diagram for Print Invoice use case



Example: Use Case Diagram of the Vending Machine



Sequence Diagram for Deposit Money Use Case

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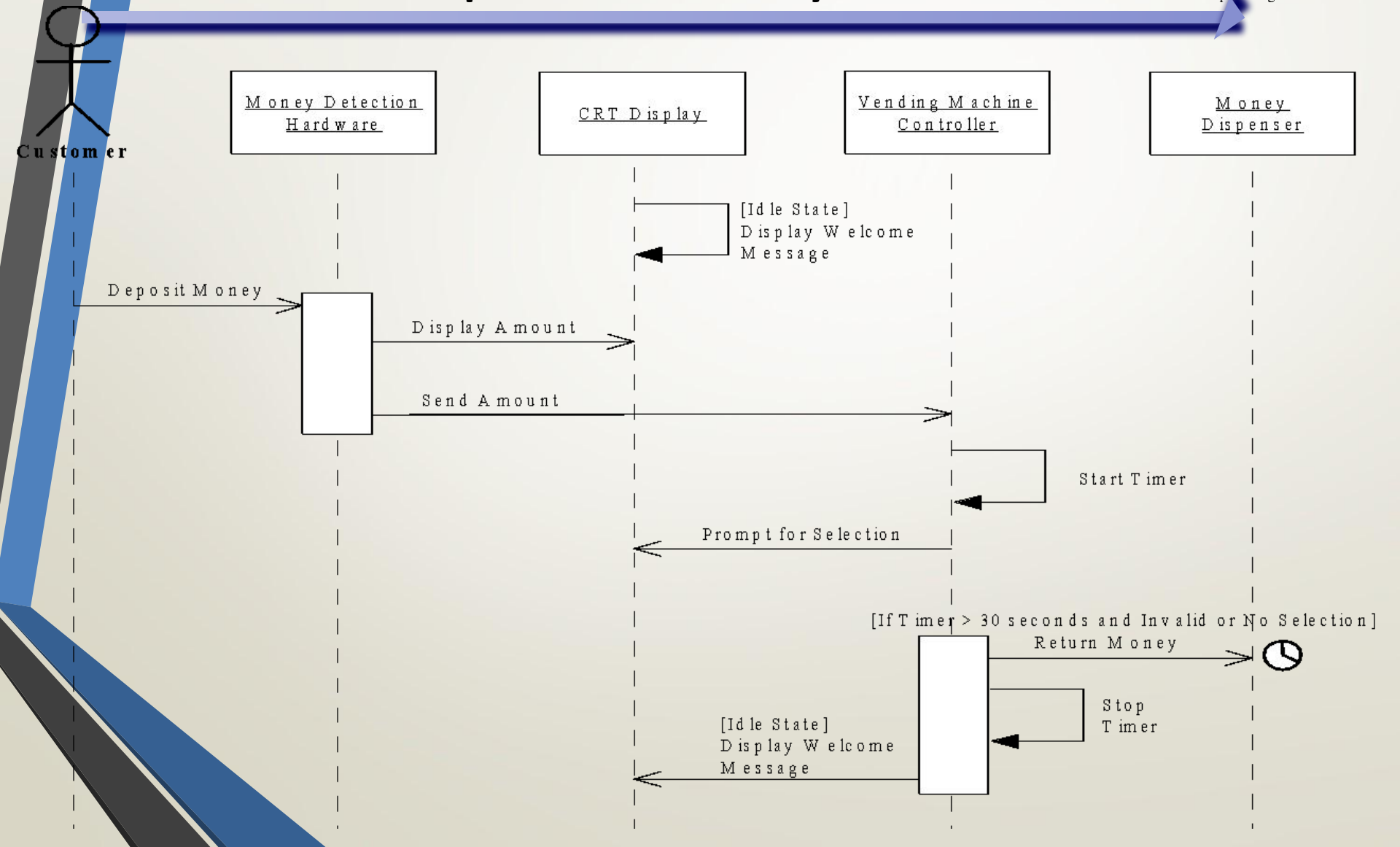

System Sequence Diagram for Make Selection Use Case

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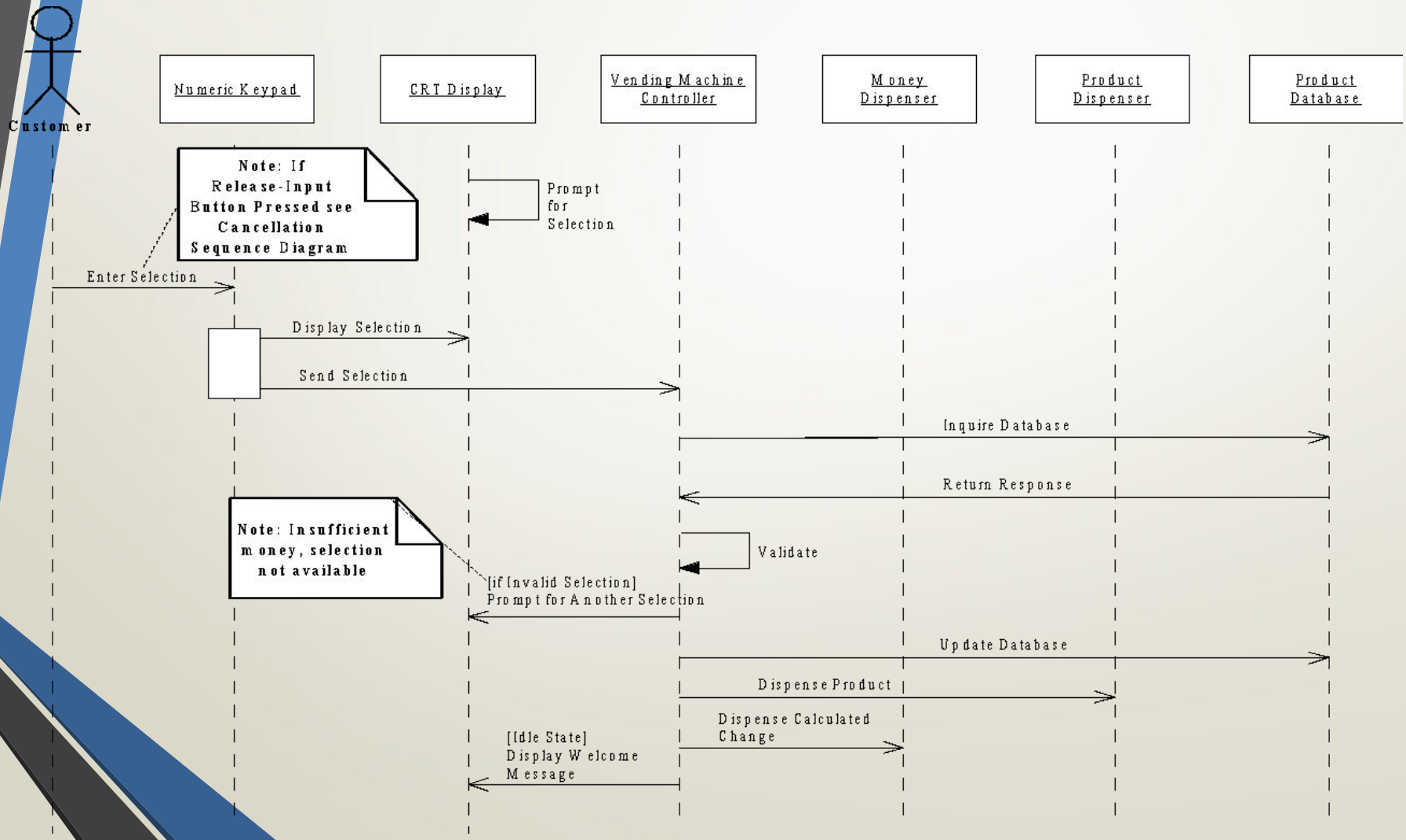
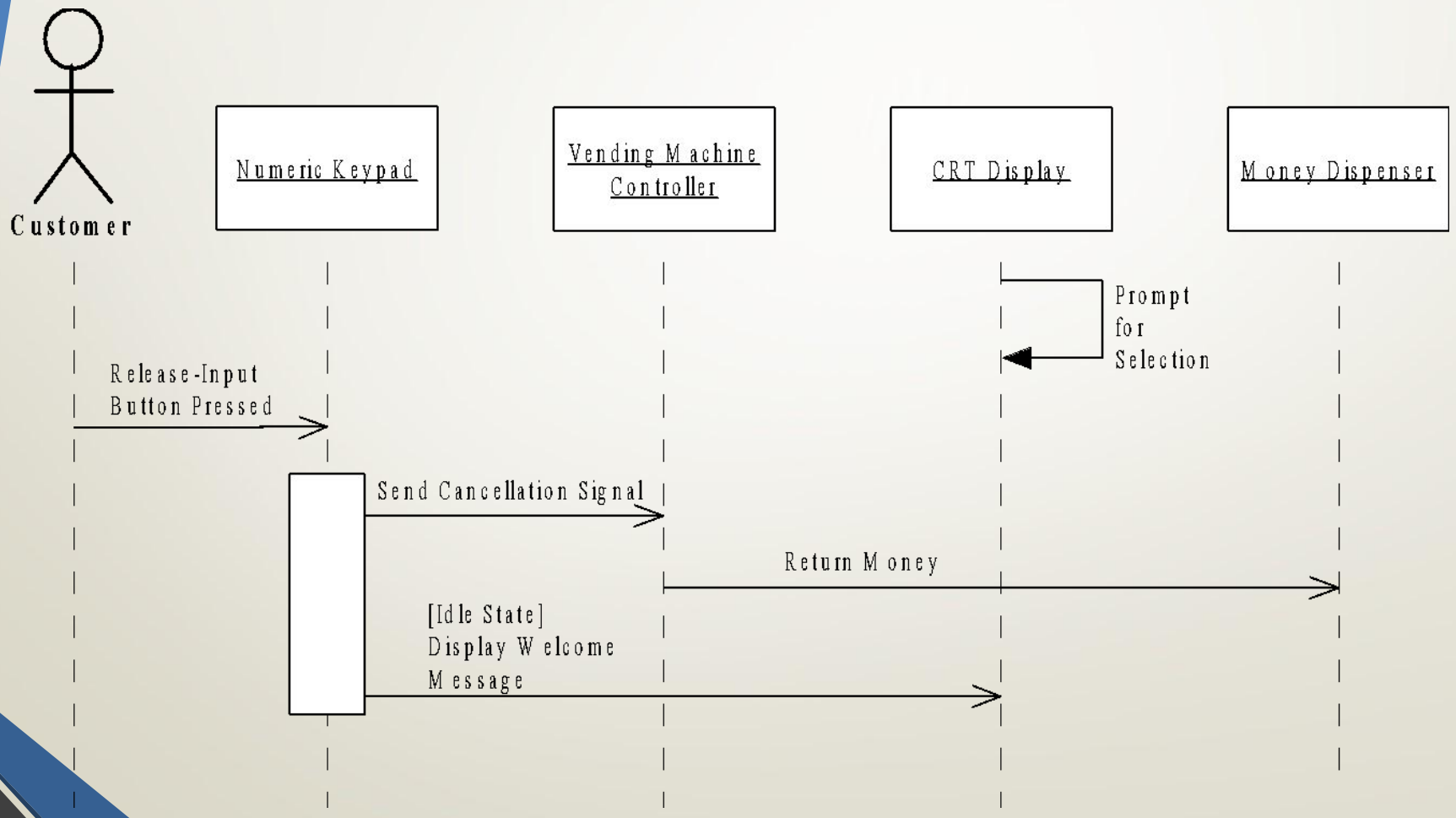


System Sequence Diagram for Cancellation Use Case



System Sequence Diagram for Update Database Use Case

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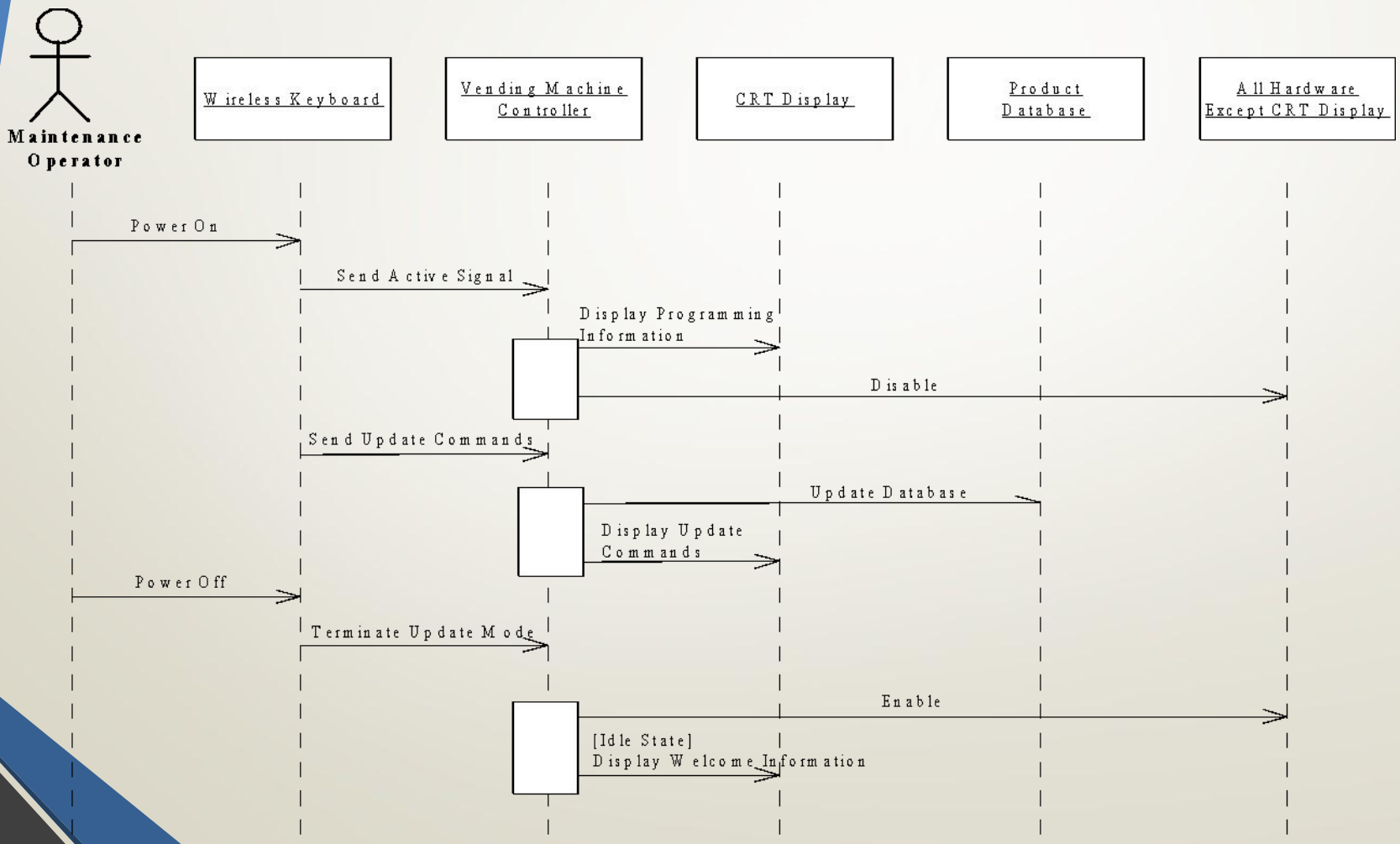

Building a Sequence Diagram

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1. Determine the context of the sequence diagram
2. Identify the participating objects
3. Set the lifeline for each object
4. Add messages
5. Add execution occurrence on each object's lifeline
6. Validate the sequence diagram

Alternate / if-else scenario in sequence diagram

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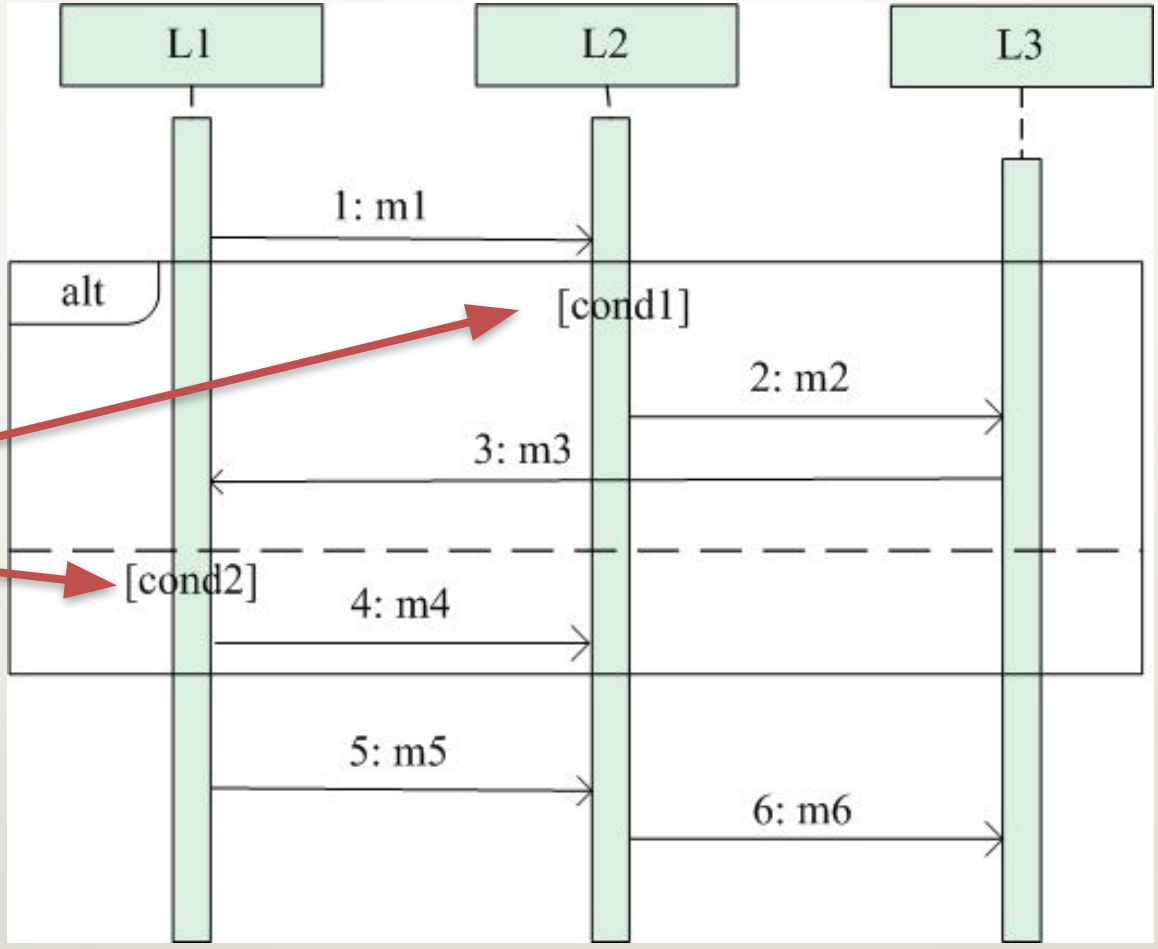
Upper or lower part will work at a time. Based on the condition.



Sequence Diagram for search book Use Case

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Search Book : Use Case

- Main scenario -

The Customer specifies an author on the Search Page and then presses the Search button.

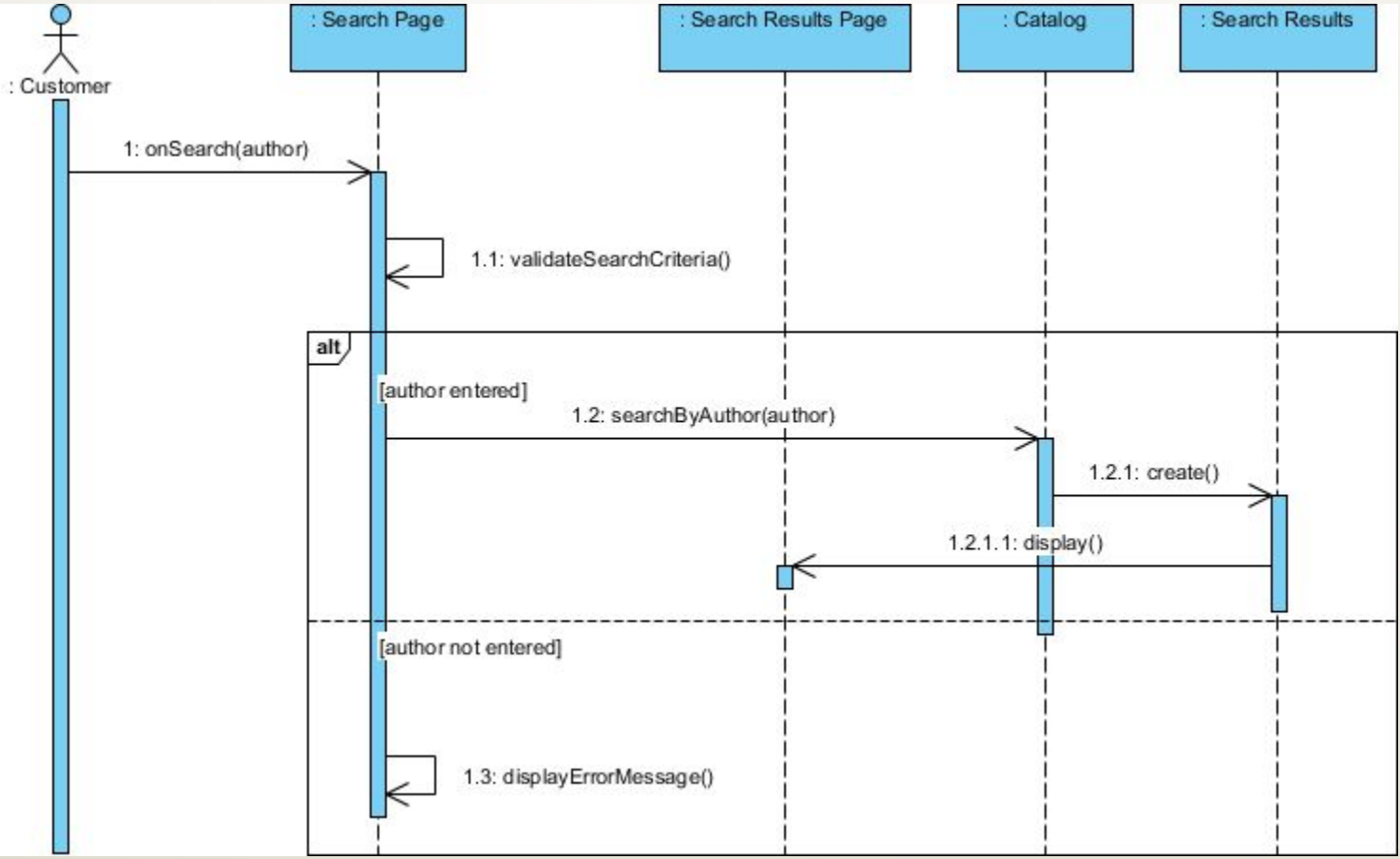
The system validates the Customer's search criteria.

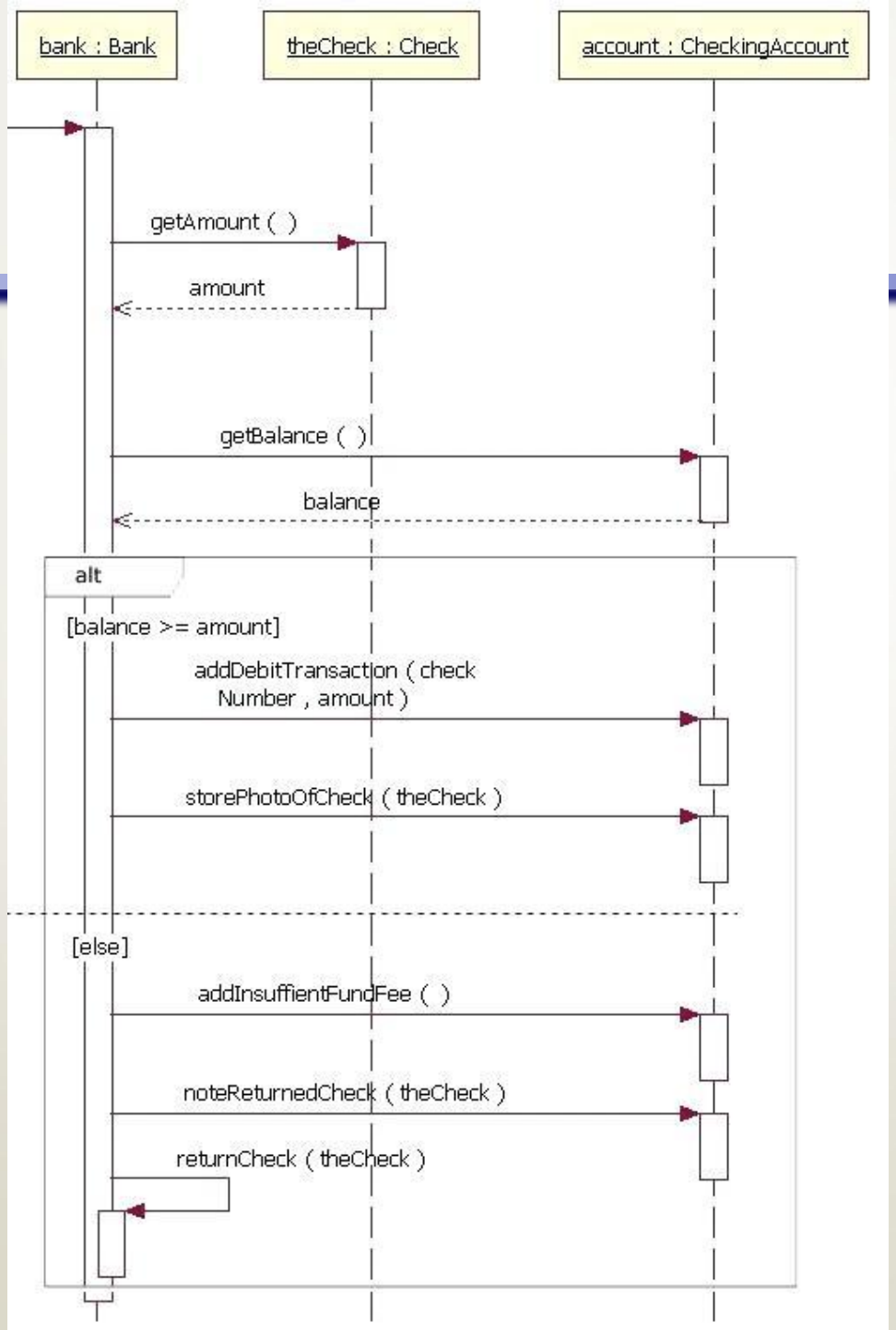
If author is entered, the System searches the Catalog for books associated with the specified author.

When the search is complete, the system displays the search results on the Search Results page.

- Alternate path -

If the Customer did not enter the name of an author before pressing the Search button, the System displays an error message





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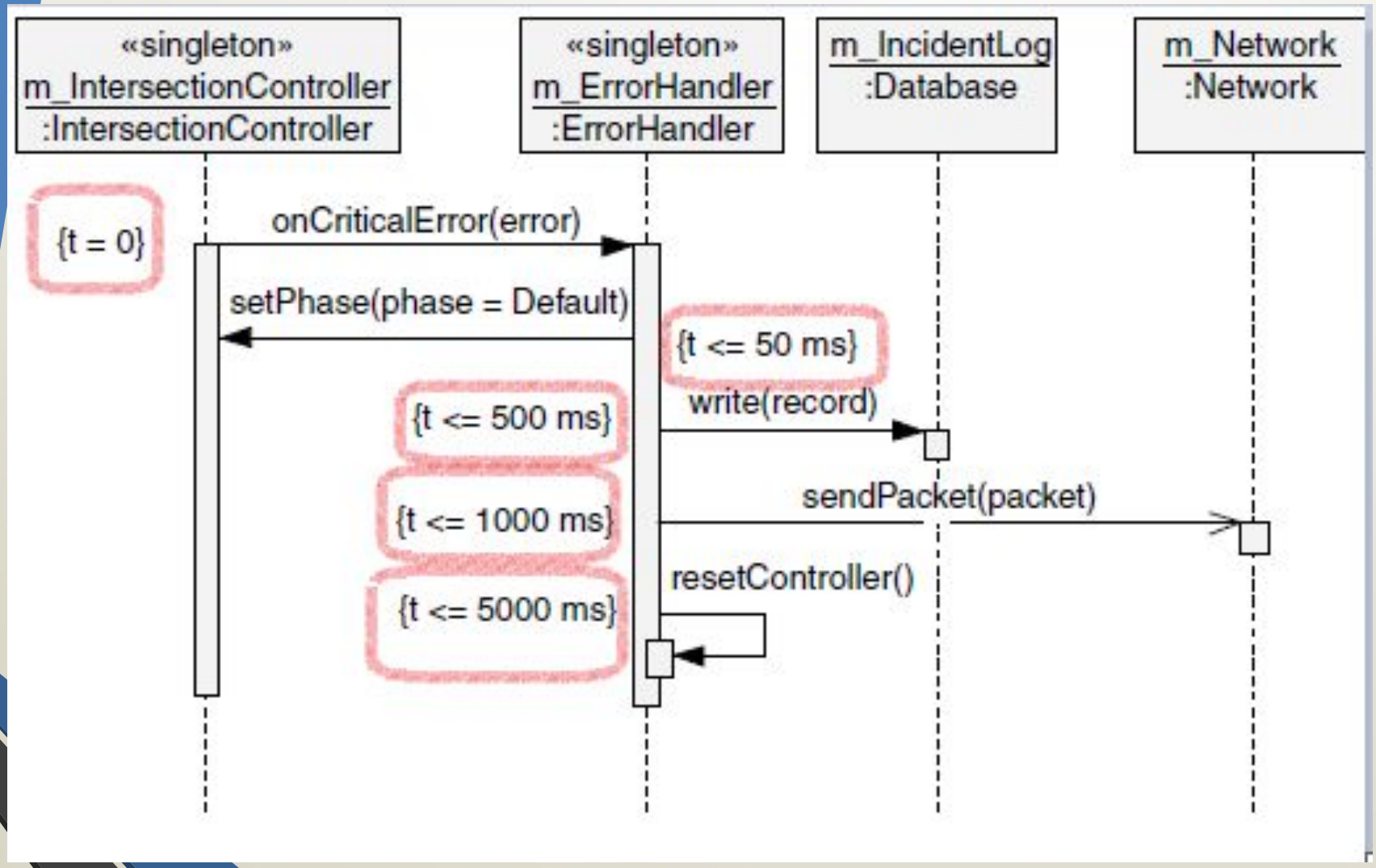
Multiple If-else condition



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Thanks