

Exercise 4.4 Q1

- Write your solution on a white sheet

Exercise 4.4 Q1

- Evaluate a solution
Starting with 12 points
Remove 1 for each incorrect/missing element
- Use PlantUML to describe a solution
- Submit the PlantUML solution on Moodle

PlantUML

@startuml

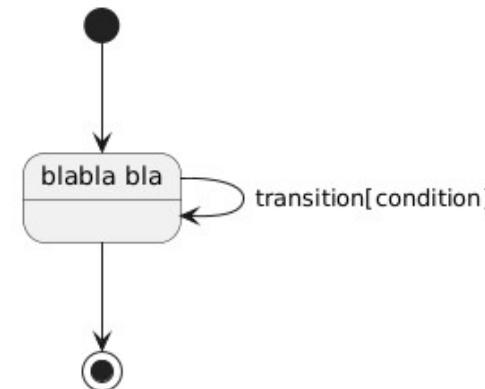
State "blabla bla" as State1

[*] --> State1

State1 --> State1 : transition[condition]

State1 --> [*]

@enduml



@startuml

State "blabla bla" as State1

State "truc" as st {

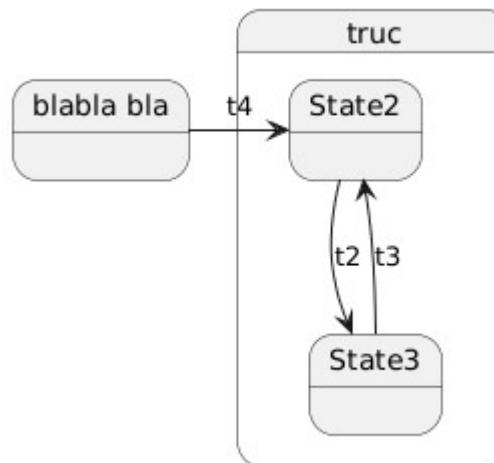
State2 --> State3 : t2

State3 --> State2 : t3

}

State1 -right-> State2 : t4

@enduml





UML language - 2

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14 diagrams in UML 2.2

Structure diagrams

- **Class diagram**
- **Object diagram**
- Component diagram
- Composite structure diagram
- **Deployment diagram**
- Package diagram
- Profile diagram

Behaviour diagrams

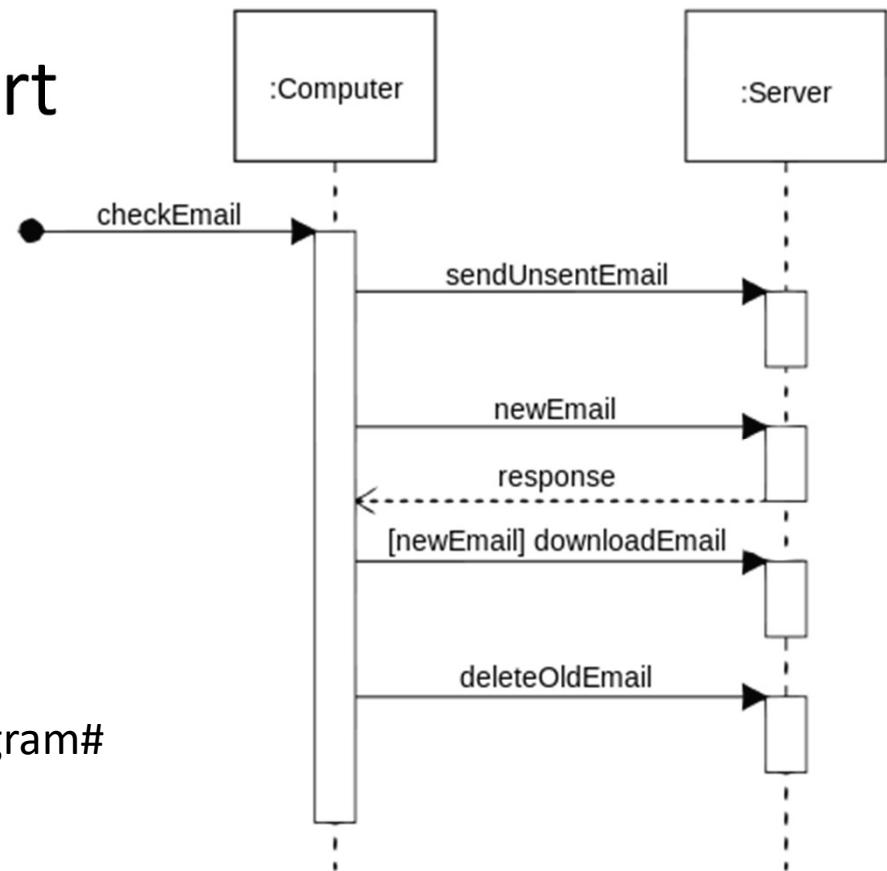
- Use case diagram
- State Machine diagram
- Activity diagram

Interaction diagrams

- **Sequence diagram**
- Communication diagram
- Interaction overview diagram
- Timing diagram

UML sequence diagram

- Shows how **objects/actors** operate one with another and in what order
- Message Sequence Chart



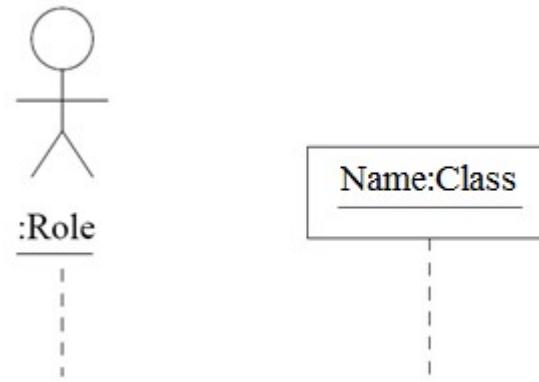
https://en.wikipedia.org/wiki/Sequence_diagram#/media/File:CheckEmail.svg

Specific vocabulary

- **Lifeline**

vertical line

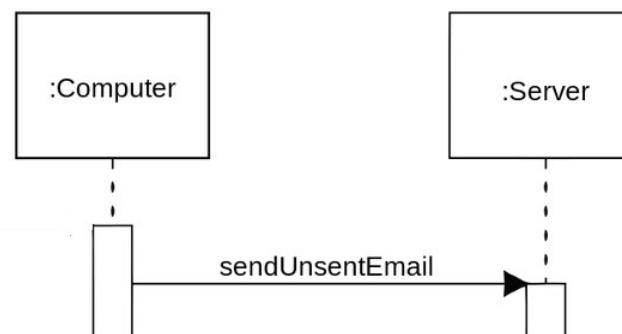
represents the time



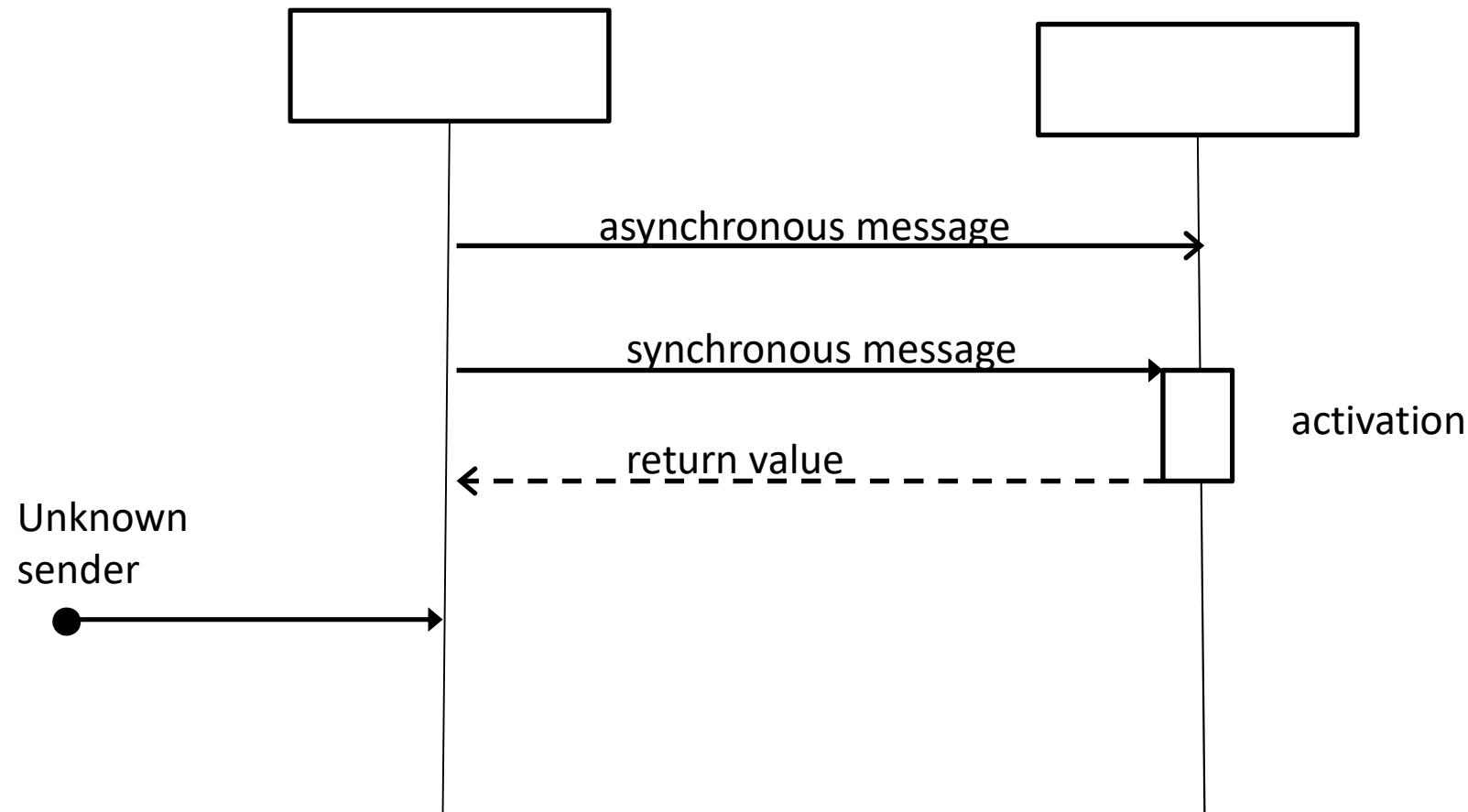
- **Message**

horizontal arrow

with a message name



Type of messages



Types of message

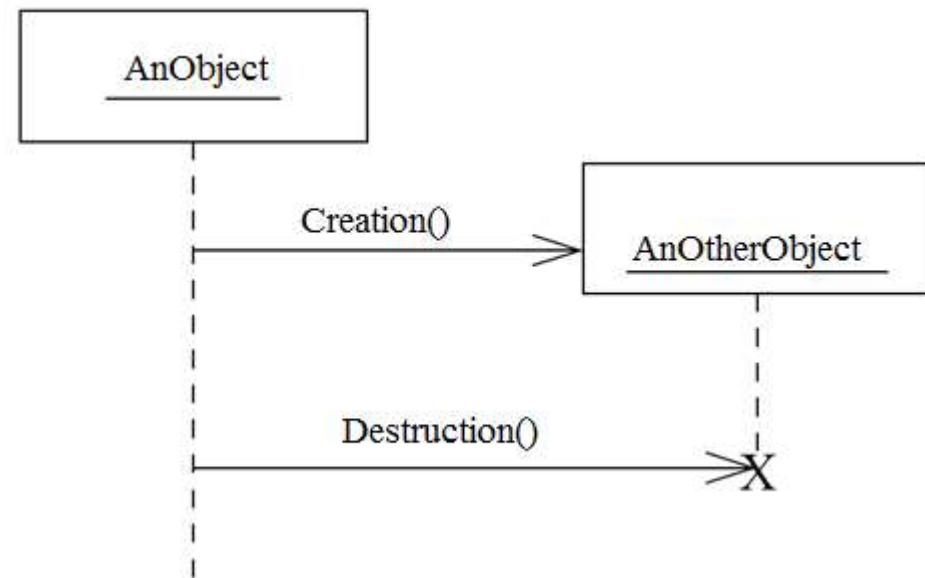
- **Synchronous message** →
 - Used when a sender must wait for a response to a message before it continues.
 - The diagram should show both the call and the reply.
- **Asynchronous message** →
 - Don't require a response before the sender continues.
 - Only the call should be included in the diagram.
- **Asynchronous return message** ←-----



Specifying the type of messages
might be **NOT RELEVANT** before design

Messages for object creation and destruction

- **Creation()**
 - causes the creation of an object
- **Destruction()**
 - causes the destruction of an object,
a large X is used at the end of the lifetime



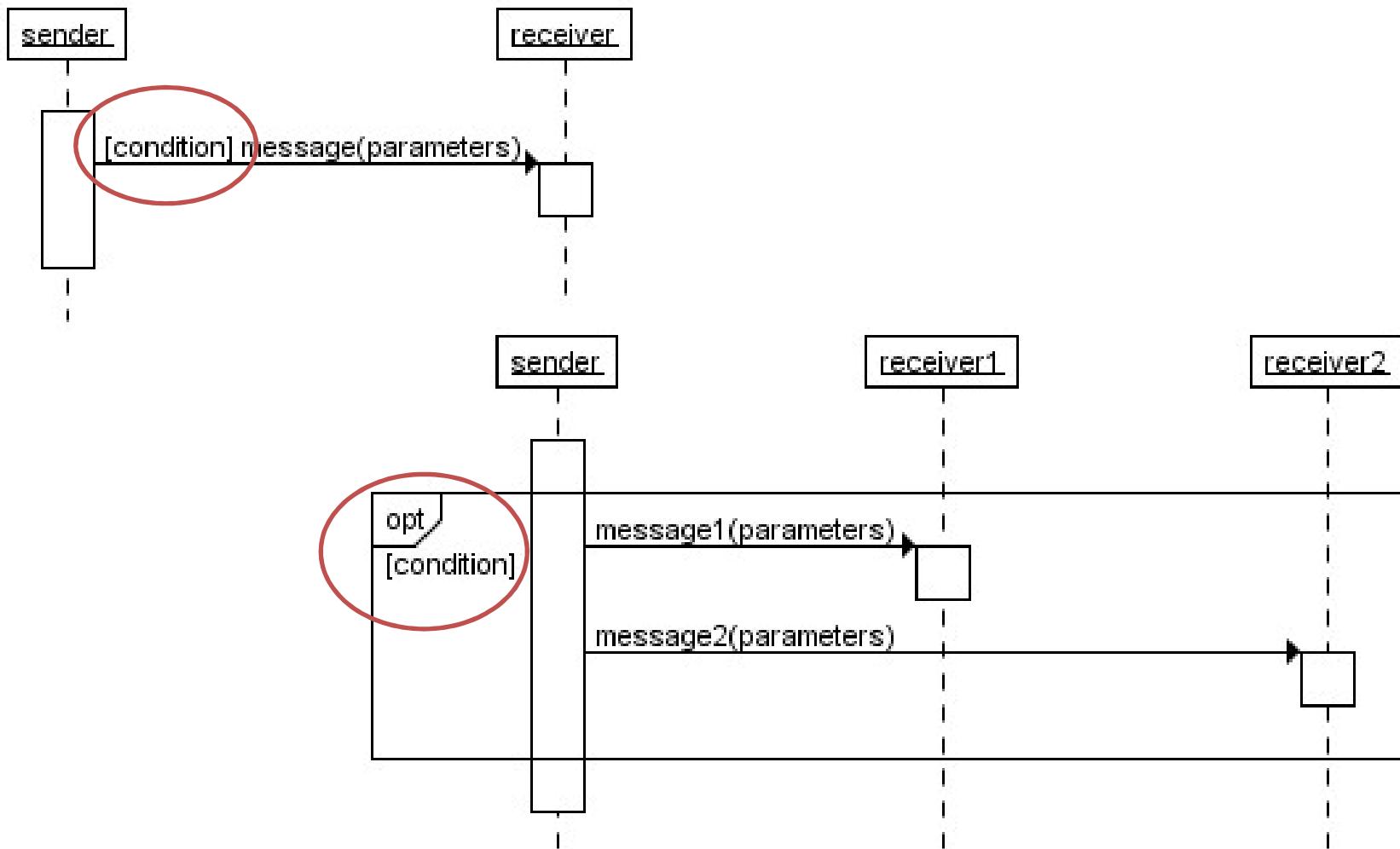
Exercise:

The morning routine of Joe

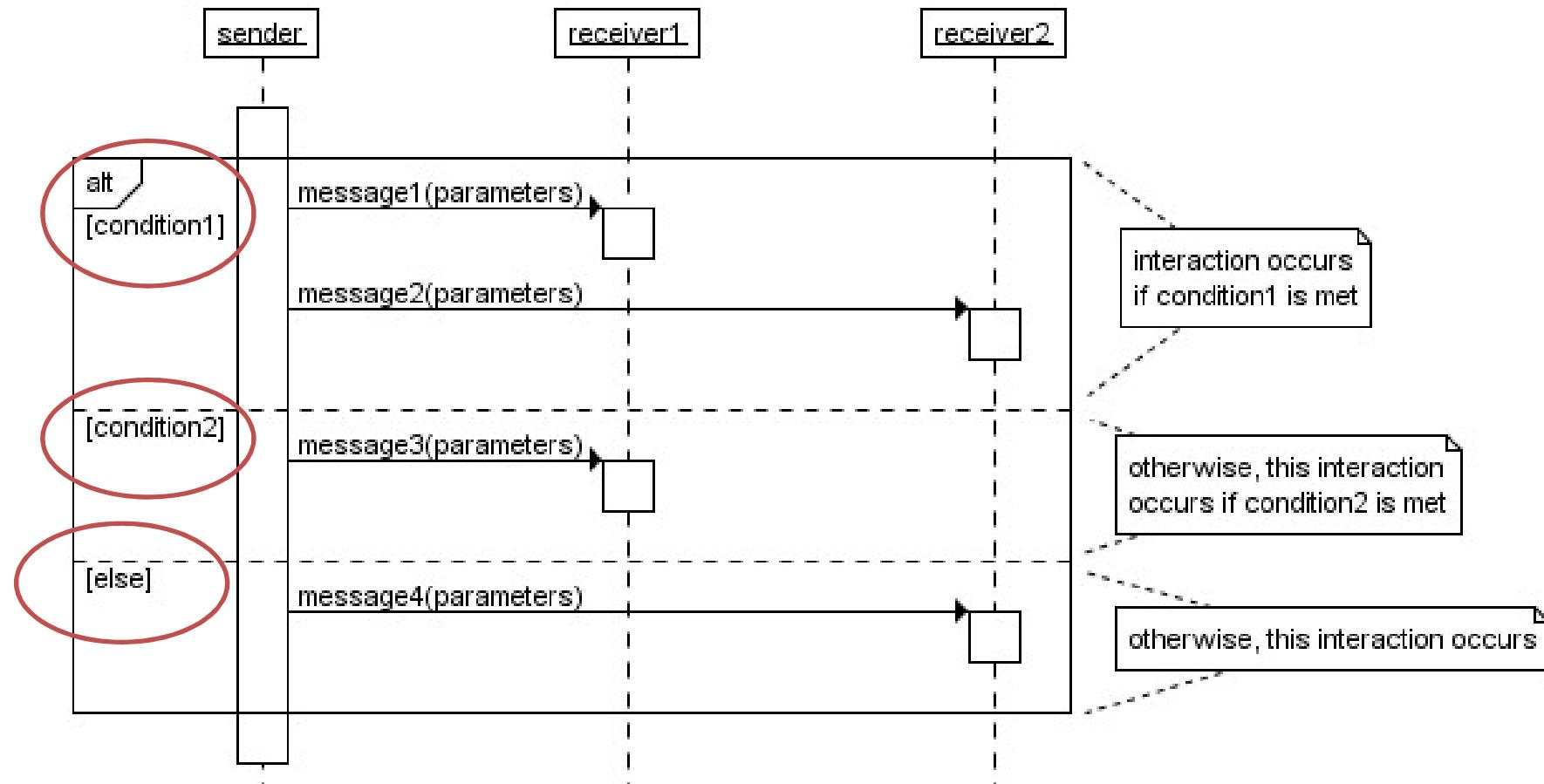
The morning routine of Joe starts when his alarm clock wakes up Joe. Joe rubs his eyes. He then starts the coffee machine. While the coffee machine is heating, Joe switches on the TV to watch the news. He gets his cup of coffee next.

Q. Represent this routine as a sequence diagram

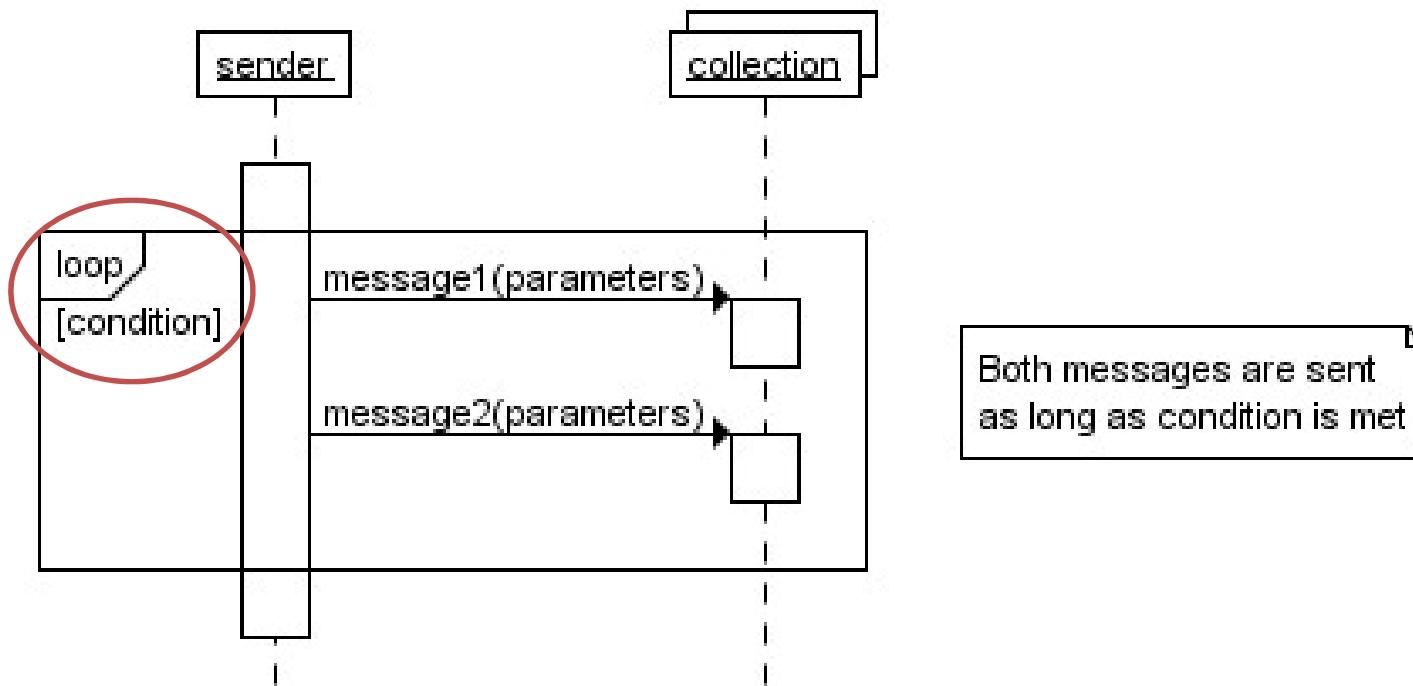
Conditional behaviors



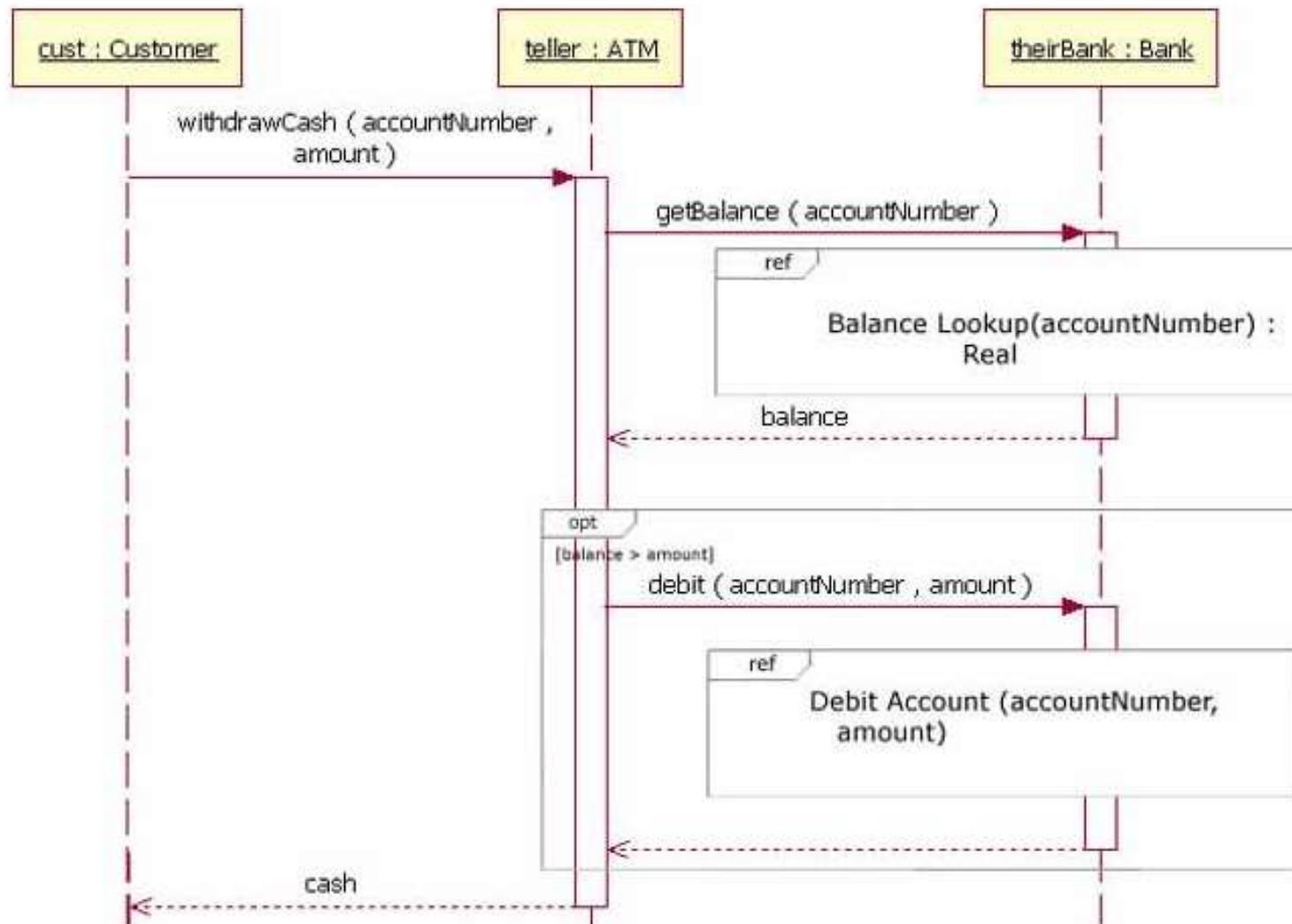
Conditional behaviors



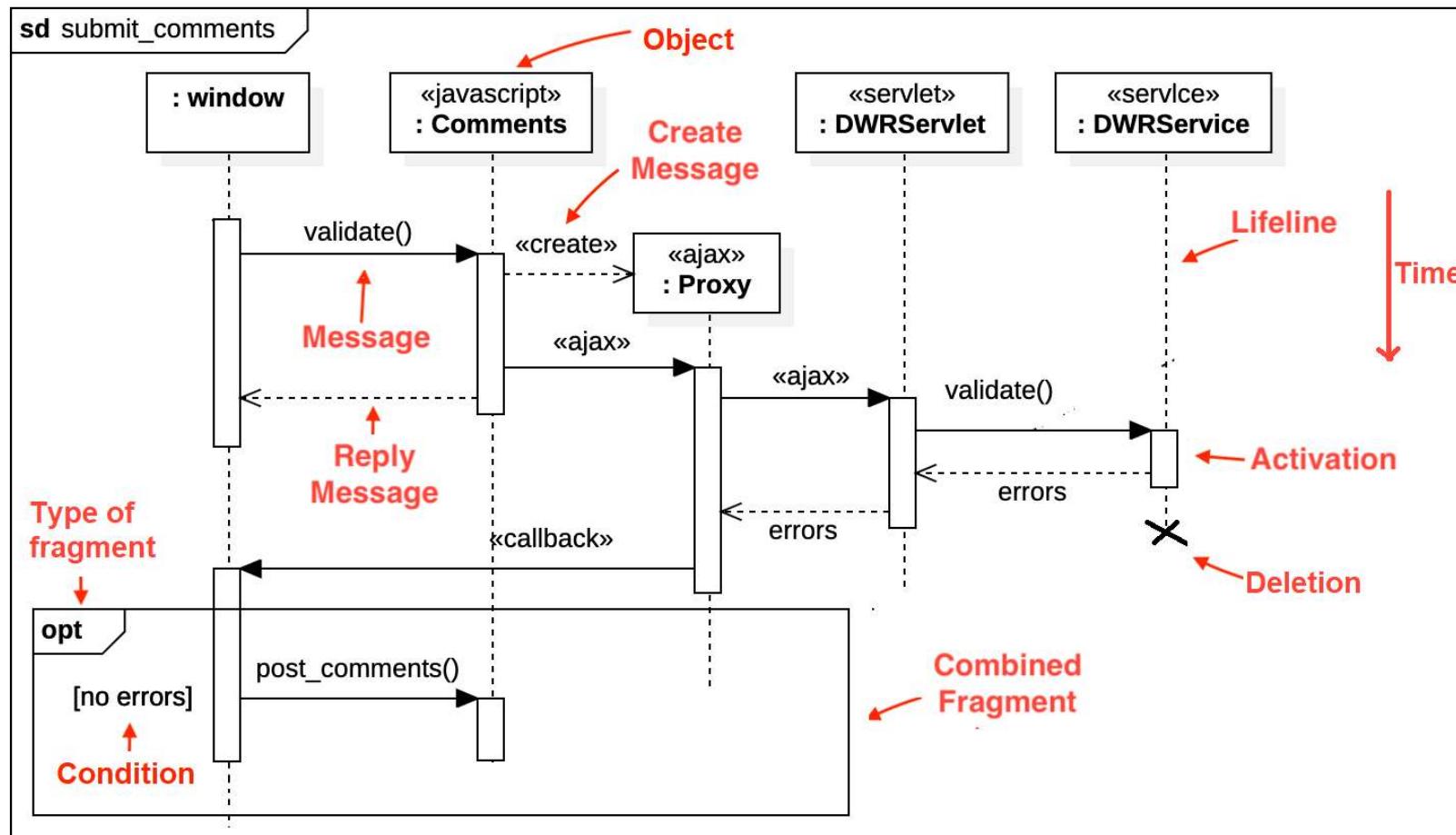
Repetition



Reference to other sequence diagrams



Sequence diagram



Exercises

Recommendations

- Adapt the description to your needs
 - Analysis / design...
 - Level of abstraction
- Keep simple
 - Separation of concerns
 - Choose precise scenarios
- Do as much as necessary, but no more
 - Time is precious