UML Sequence diagram in simple words

Presentation · November 2024

CITATIONS
0

READS
267

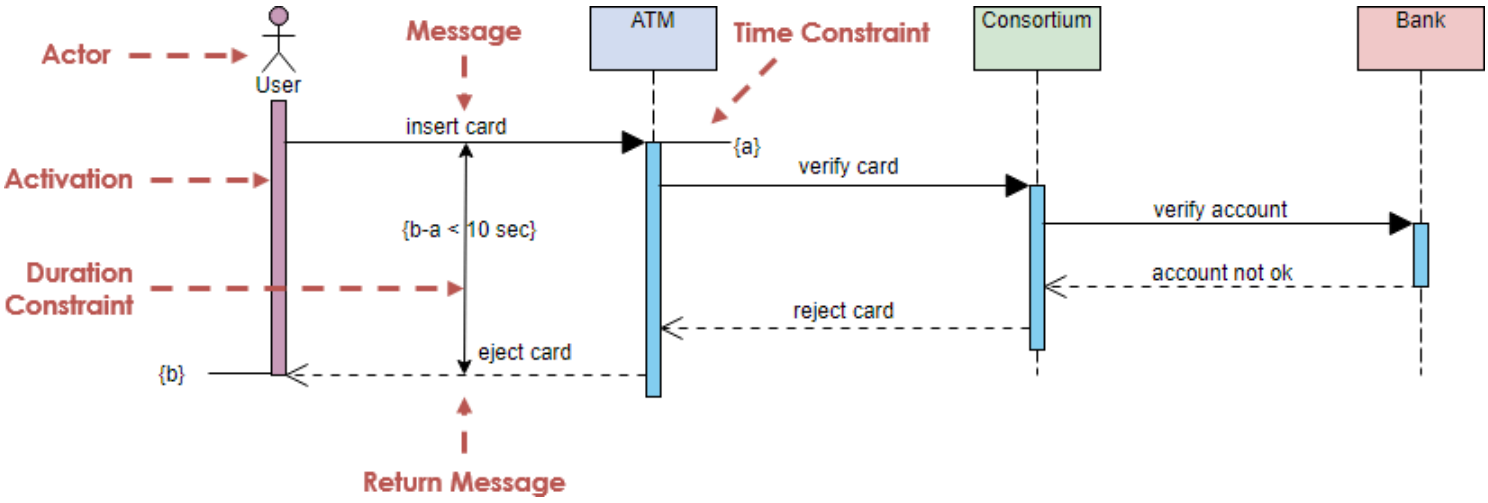
1 author:

Youcef Benabderrezak
University of Boumerdes
181 PUBLICATIONS **25** CITATIONS

Use Sequence Diagram

- A UML Sequence Diagram is a visual way to show how objects or components in a system interact with each other over time
- It's a great tool for beginners to understand how messages are exchanged to perform specific tasks or actions in software or any system.

Key Parts of a Sequence Diagram

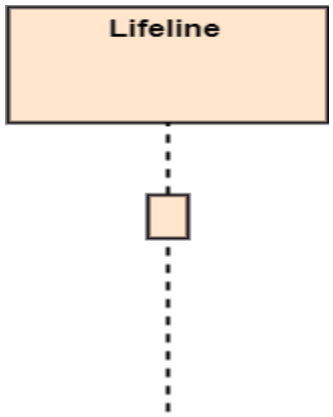


1. Actors and Objects

- Actors represent **people or external systems** that interact with your system

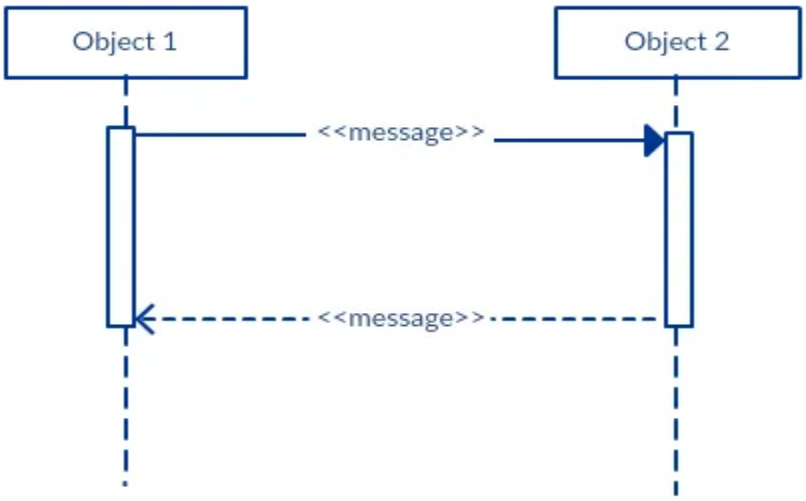
2. Lifelines

- Each actor or object has a lifeline
- lifeline is a vertical dashed line under it that shows how long it is active in the sequence
- Lifelines extend downwards to represent time

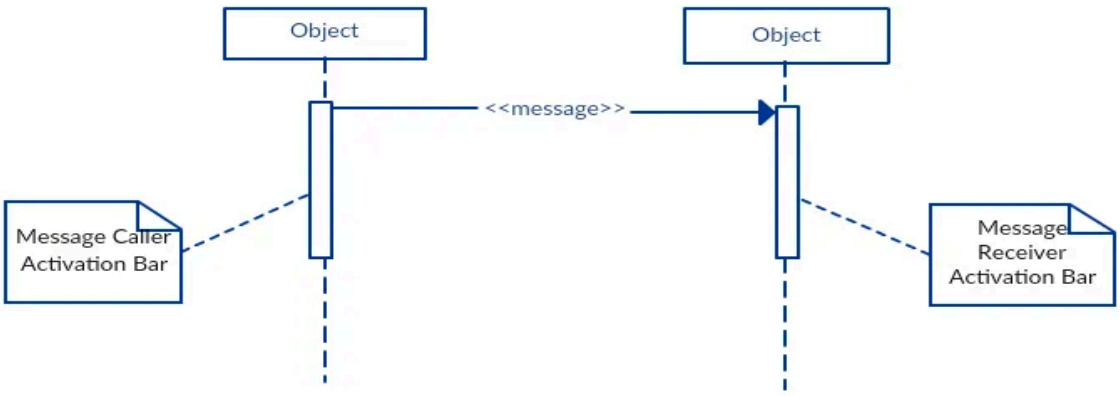


3. Messages

- Messages are arrows going from one lifeline to another.
- They show calls (e.g., function calls), requests, or responses.
- Each message moves from the sender to the receiver.

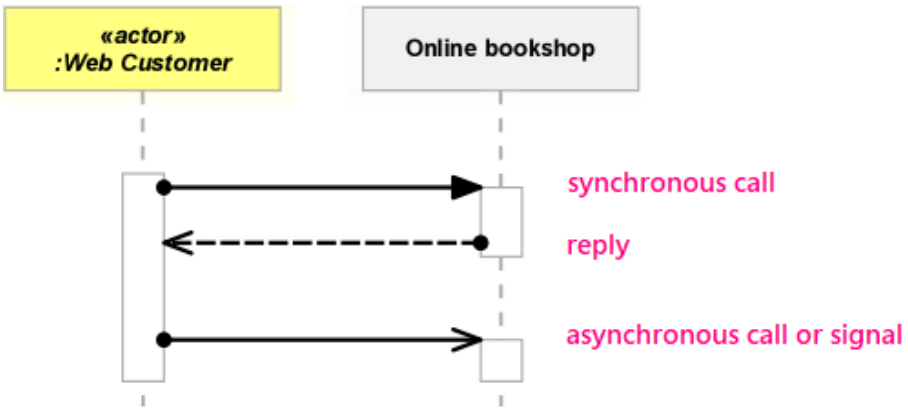


4. **Activation Bars**
   - When an object is doing something, it has a thin rectangle on its lifeline (an activation bar).
   - It shows that the object is active and processing a request



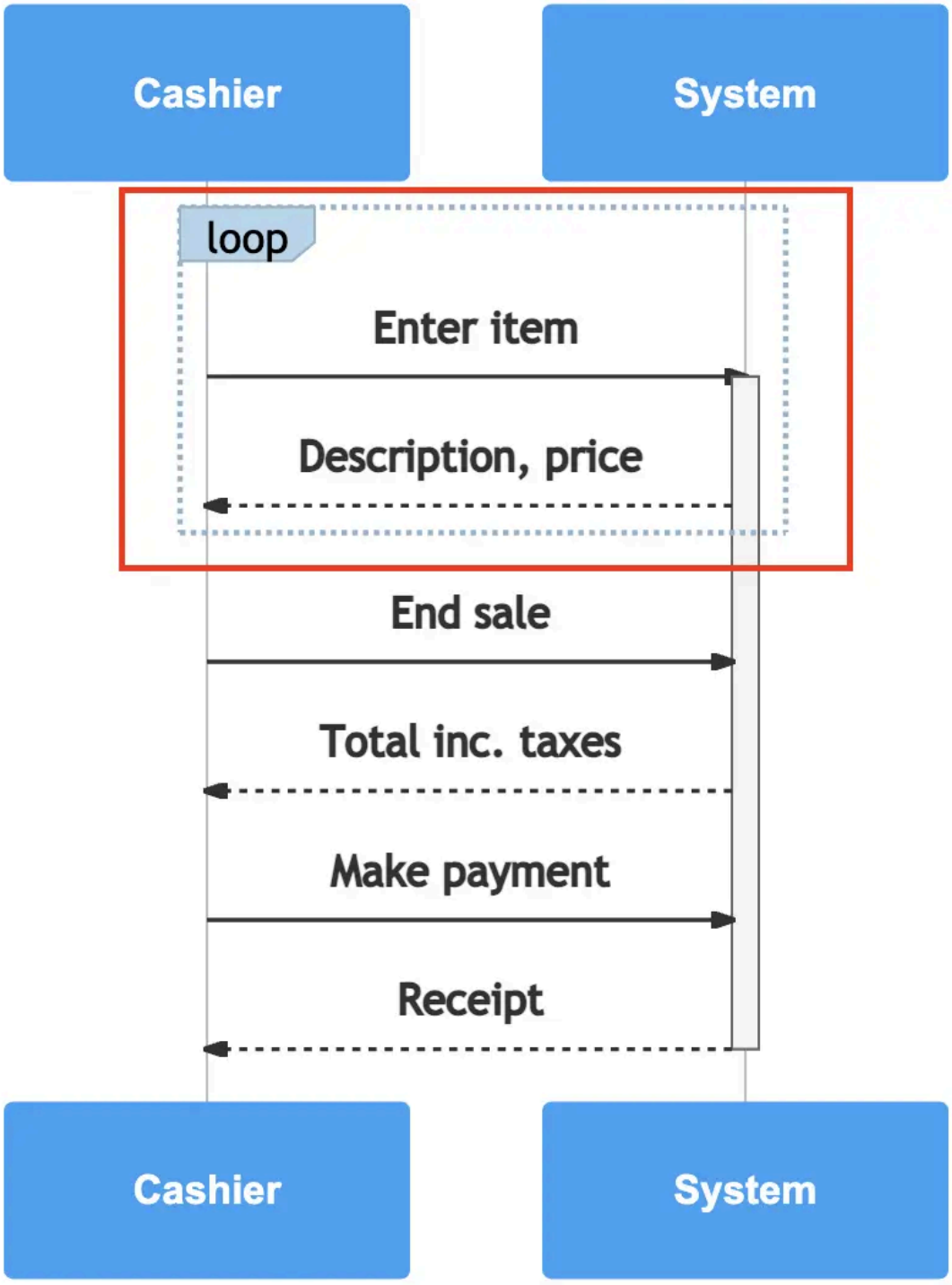
How to Read a Sequence Diagram

1. **Start at the top** : Sequence diagrams read from top to bottom, showing messages in the order they happen over time
2. **Follow the messages** :
   - Look at each arrow to see the flow of communication between objects.
   - This shows the steps that are taken to complete a task
3. **Understand synchronous and asynchronous messages**
   - **Synchronous messages** : the sender waits for a response.
   - **Asynchronous messages** : the sender does not wait for the response.



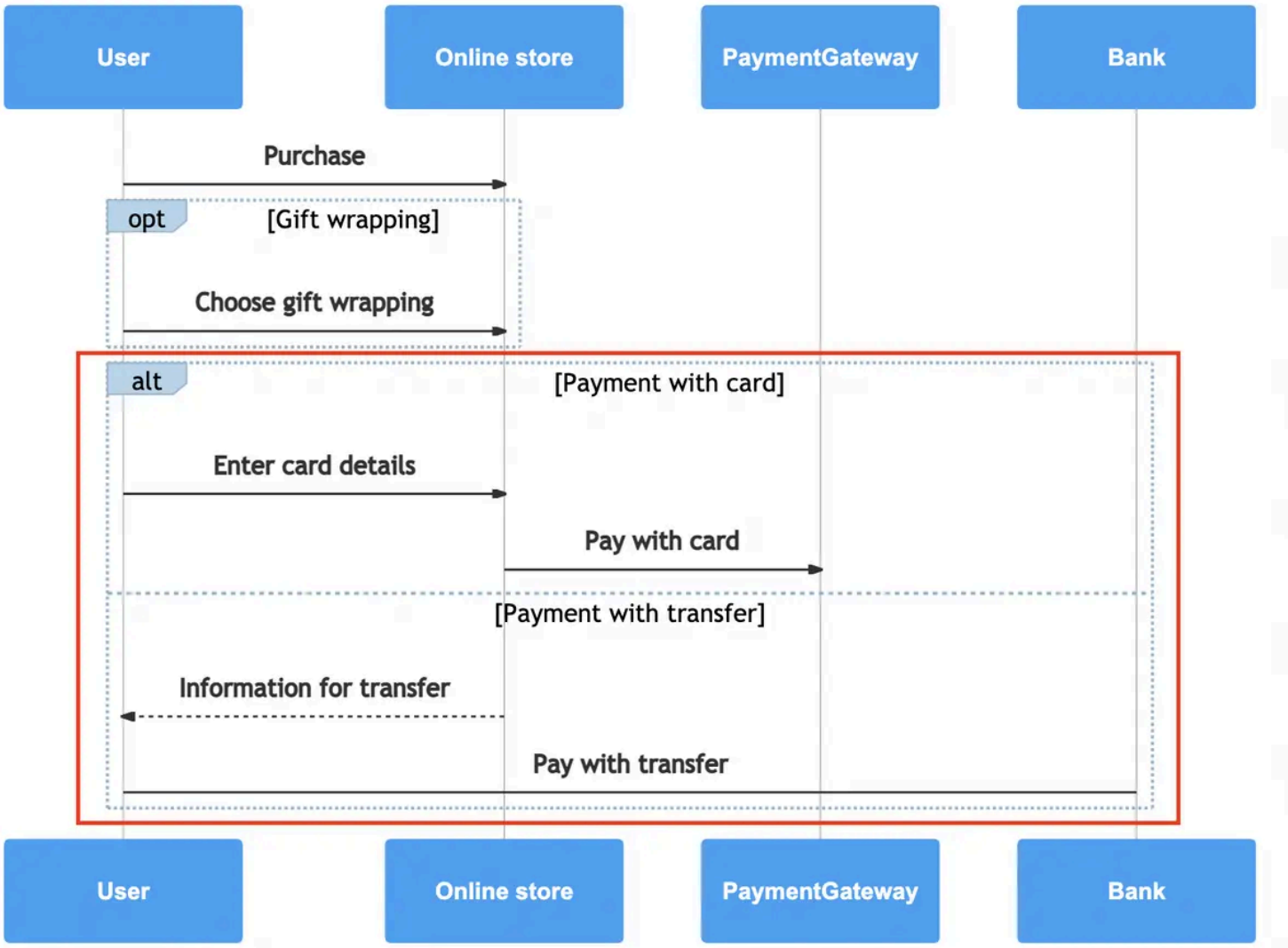
4. Loops

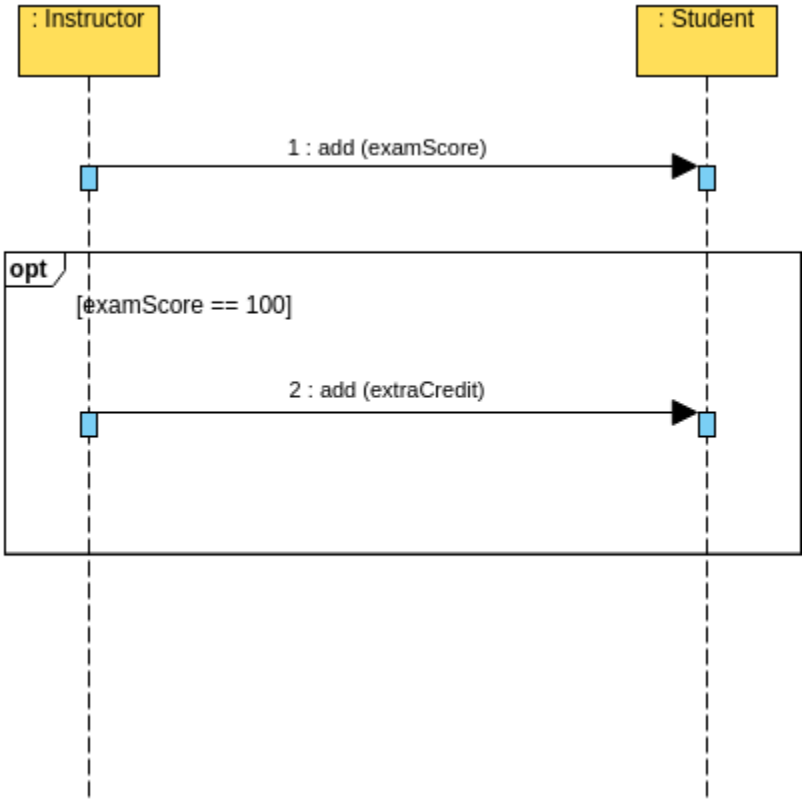
- Sometimes, sequence diagrams have boxes labeled with a loop (e.g., "if x happens" or "repeat n times")



5. Conditions

- Sometimes, sequence diagrams have boxes labeled with a condition
- These boxes show that some messages only happen under certain conditions
- we have two fragments **alt** (if else statement) and **opt** (if statement)

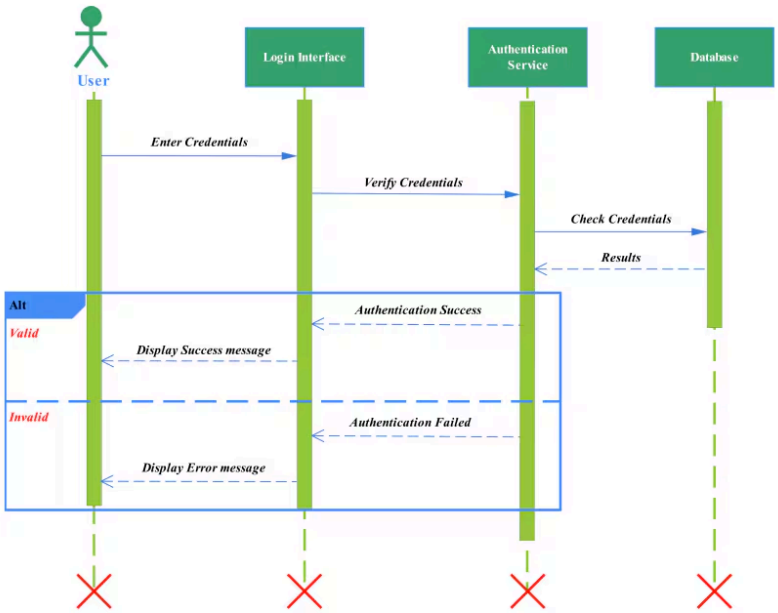




Example : Basic Login Sequence Diagram

To illustrate, let's look at a simple login scenario:

1. User (Actor) enters login credentials and clicks "Login."
2. The User Interface (UI) (Object) sends the credentials to the Authentication Service (Object).
3. The Authentication Service checks the credentials with the Database (Object).
4. The Database returns whether the credentials are valid or not.
5. If valid, the Authentication Service sends a successful login message back to the UI.
6. The UI notifies the User they are logged in.



This flow would show each step in order with arrows, lifelines, and activation bars on the objects involved, helping beginners understand the sequence of actions in a clear and structured way.