Sequence Diagram Basics

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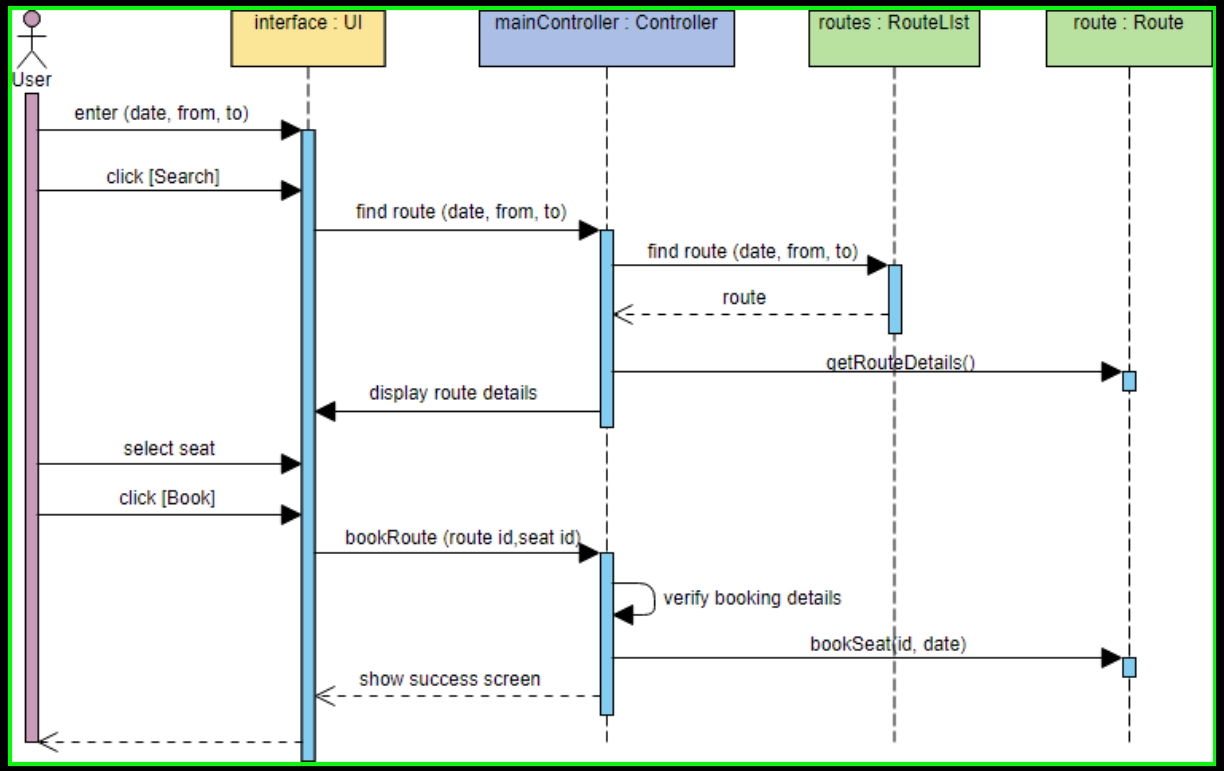
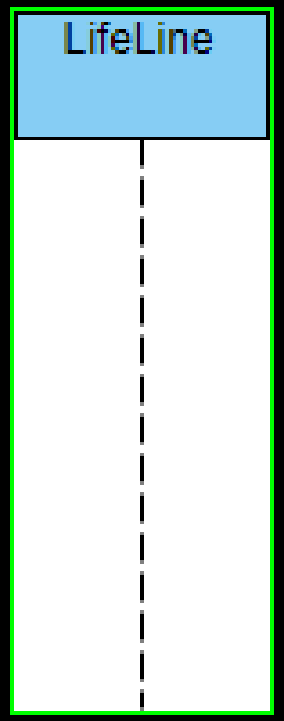
Introduction to UML Sequence Diagrams

- **Definition:** UML Sequence Diagrams depict how objects in a system interact over time.
- **Usage:** Useful for visualizing dynamic behavior and message flow.



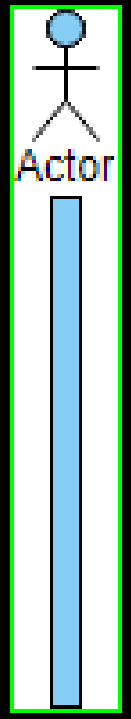
Lifeline

- **Definition**: Represents an individual participant in the interaction.
- **Usage**: Shows object existence over time.



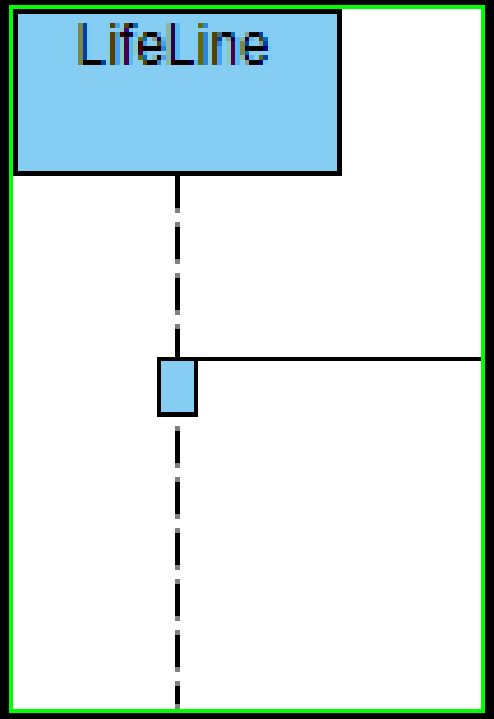
Actor

- **Definition**: Represents a user or system role outside the modeled system.
- **Usage**: Interacts with the system via messages.



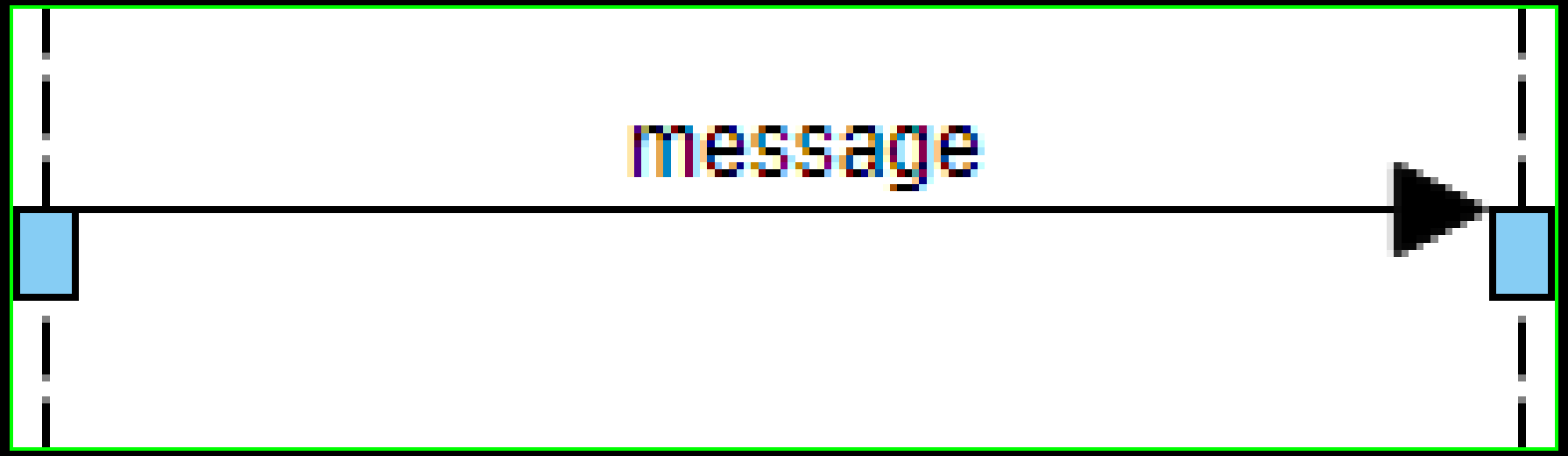
Activation

- **Definition**: Represents the time an object is performing an operation.
- **Usage**: Shown as a solid vertical bar.



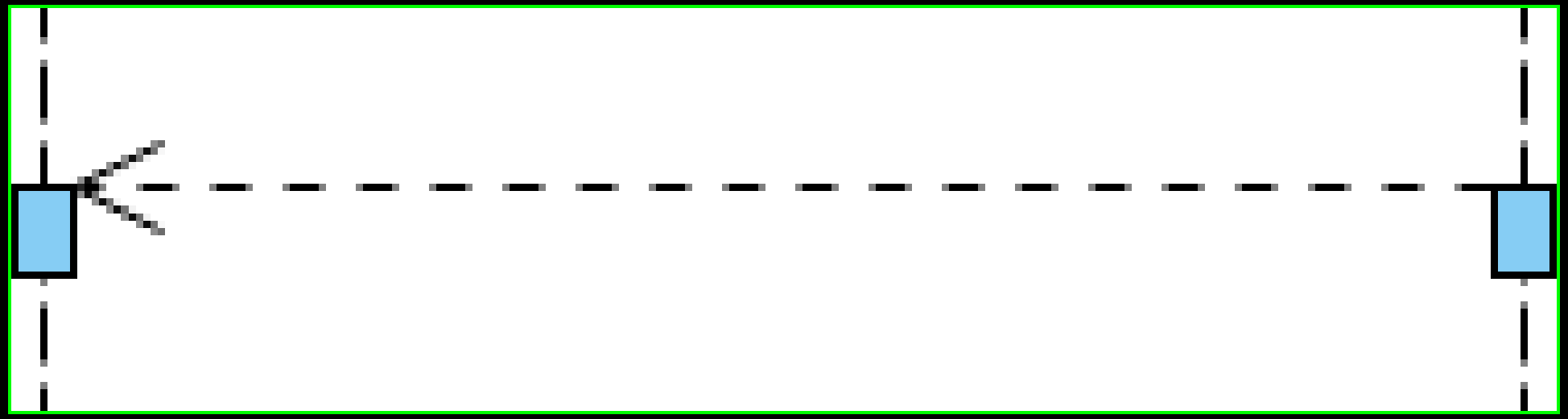
Call Message

- **Definition**: Represents a method invocation from one object to another.
- **Usage**: Indicated by an arrow with a solid line.



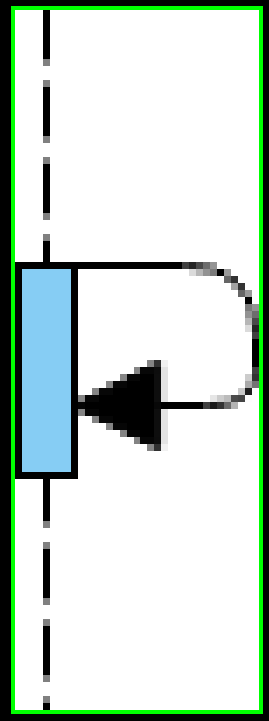
Return Message

- **Definition**: Indicates return of control from a called object to the caller.
- **Usage**: Shown as an arrow with a dashed line.



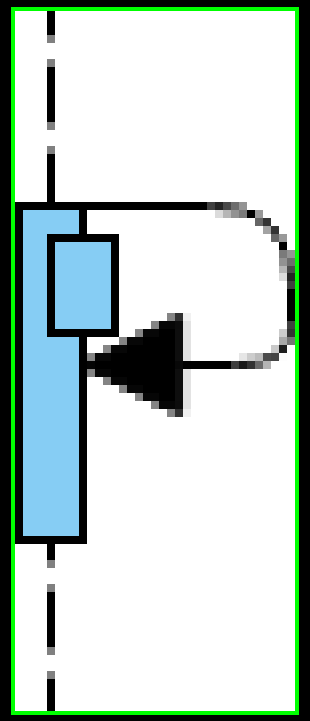
Self Message

- **Definition**: Message sent by an object to itself.
- **Usage**: Arrow looped back to the same lifeline.



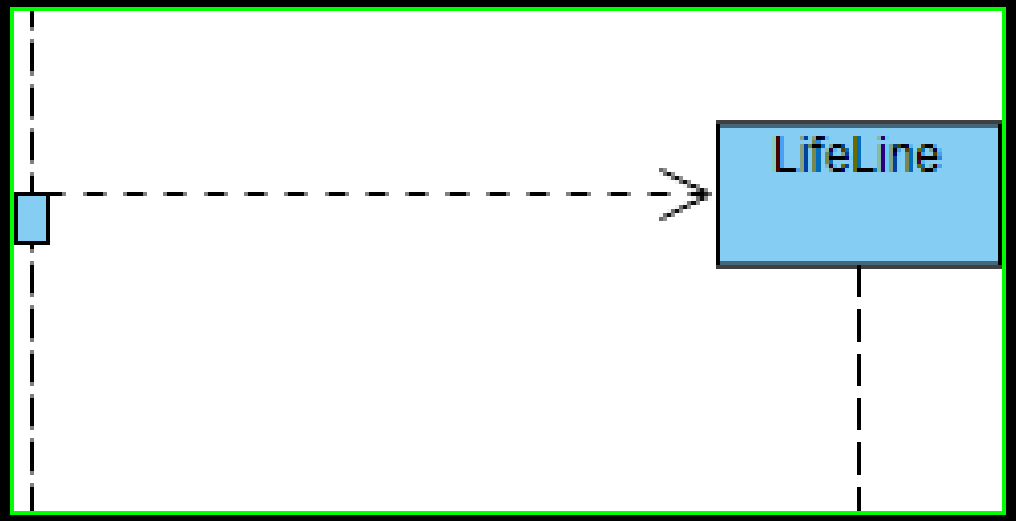
Recursive Message

- **Definition**: Message sent by an object to itself in a recursive context.
- **Usage**: Similar to self message but denotes recursion.



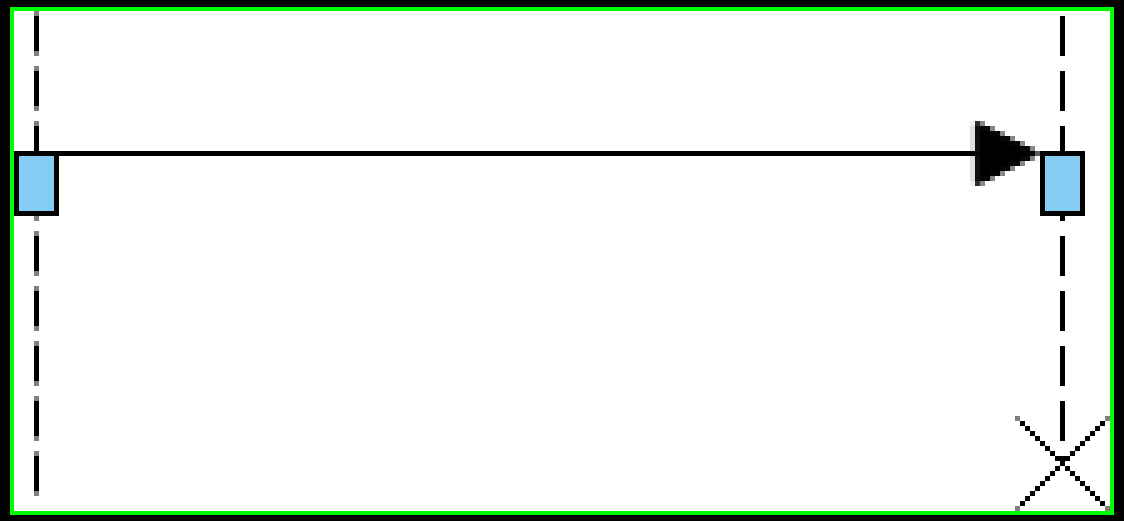
Create Message

- **Definition**: Indicates creation of a new object.
- **Usage**: Arrow with a lifeline at the receiving end.



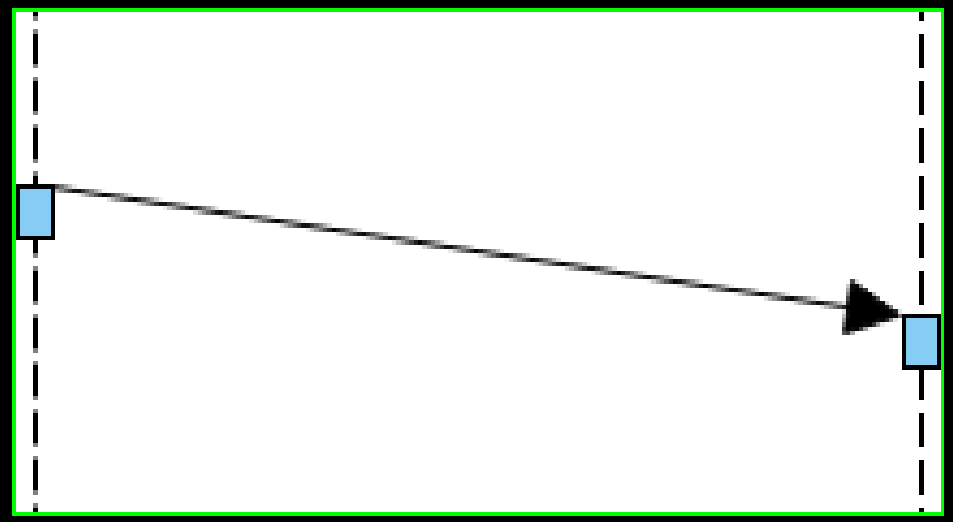
Destroy Message

- **Definition**: Represents destruction of an object.
- **Usage**: Arrow with an X at the receiving end.



Duration Message

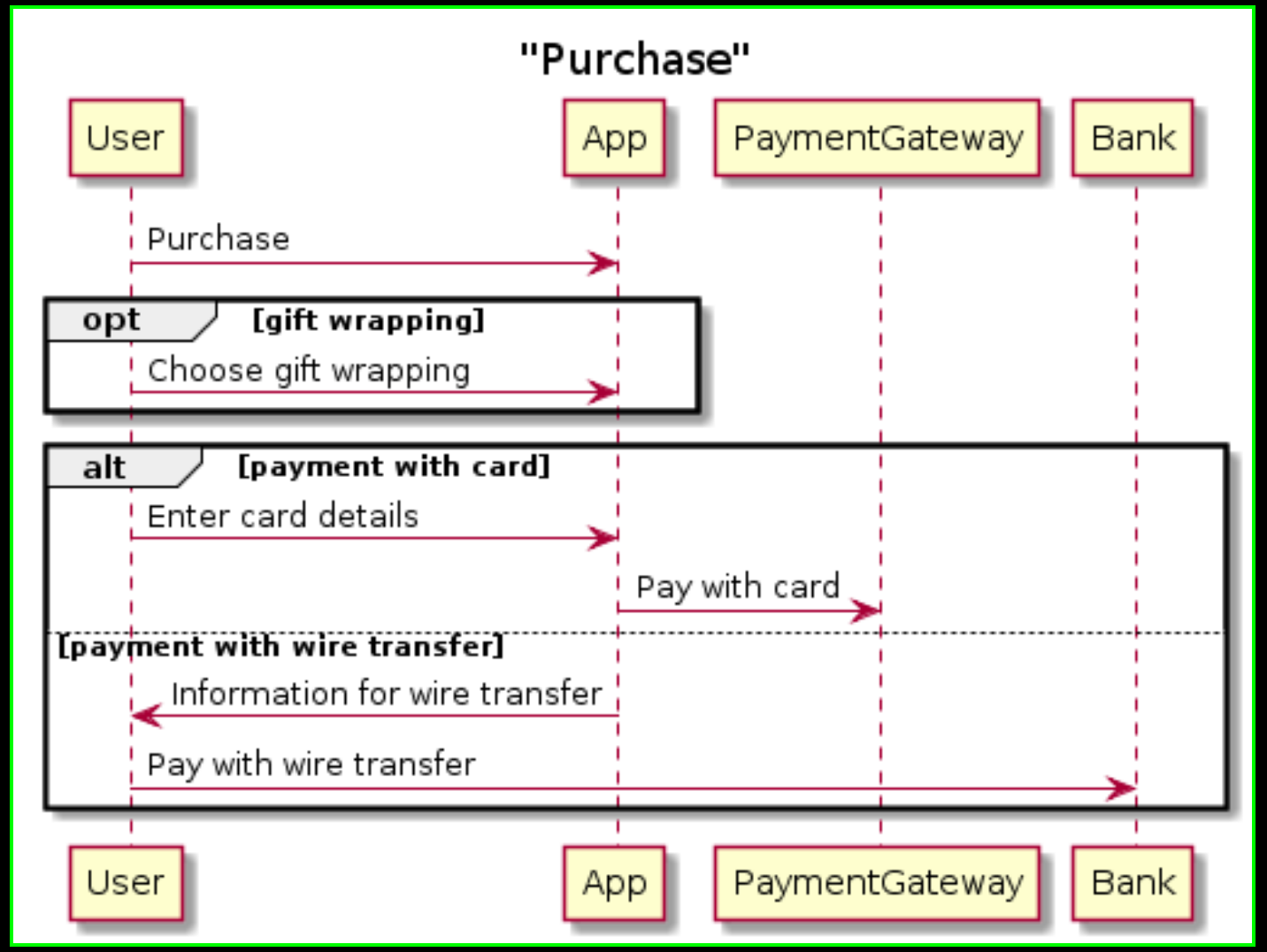
- **Definition**: Shows the distance between two time instants for a message invocation.
- **Usage**: Shown as a solid line at an angle



Alt Box vs. Opt Box

- **Alt Box:**
  - Represents alternative branches in a sequence.
  - Only one branch is chosen based on a condition.
- **Opt Box:**
  - Represents optional interactions or conditions.
  - Like a single "if" clause with no "else"

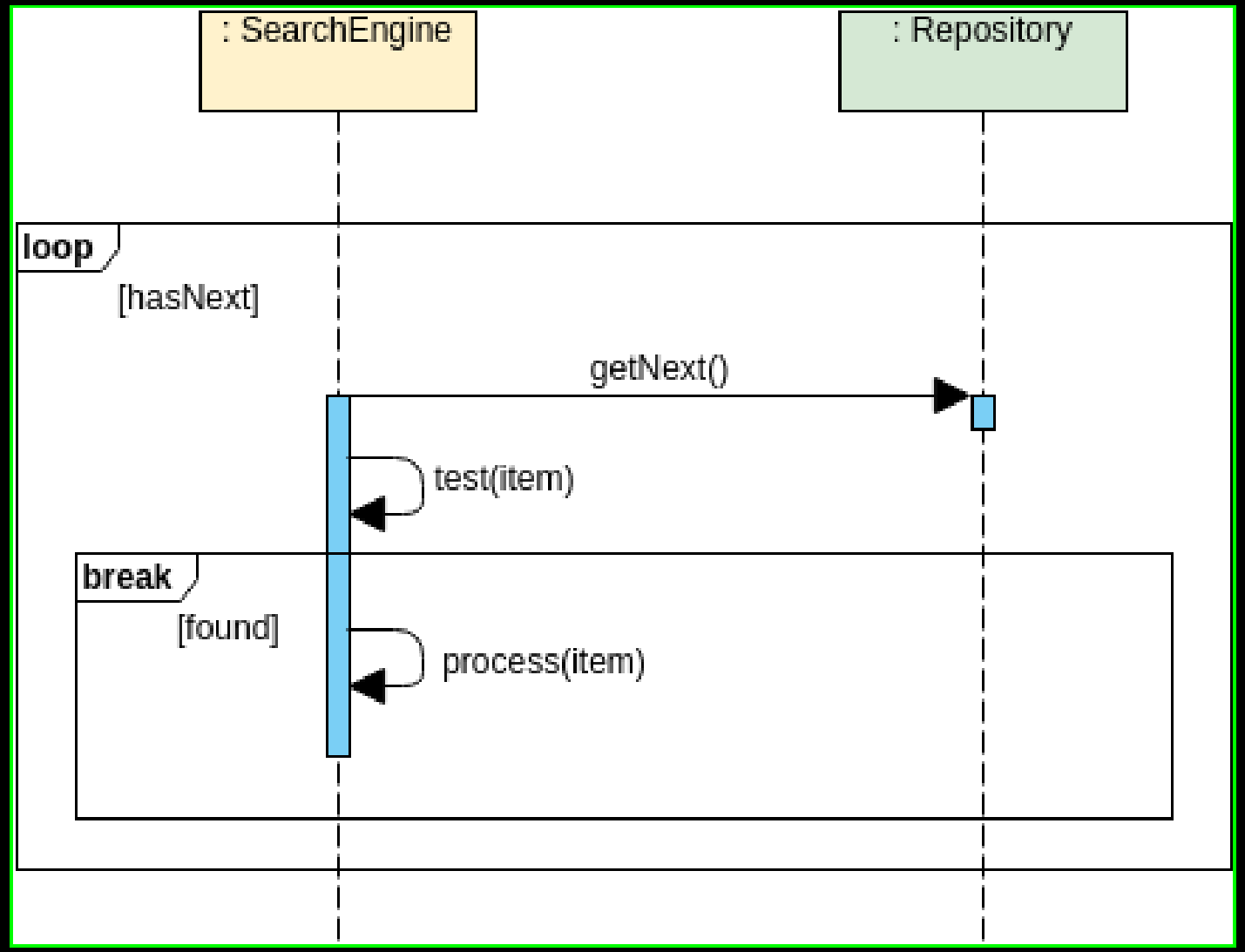
Alt Box vs. Opt Box



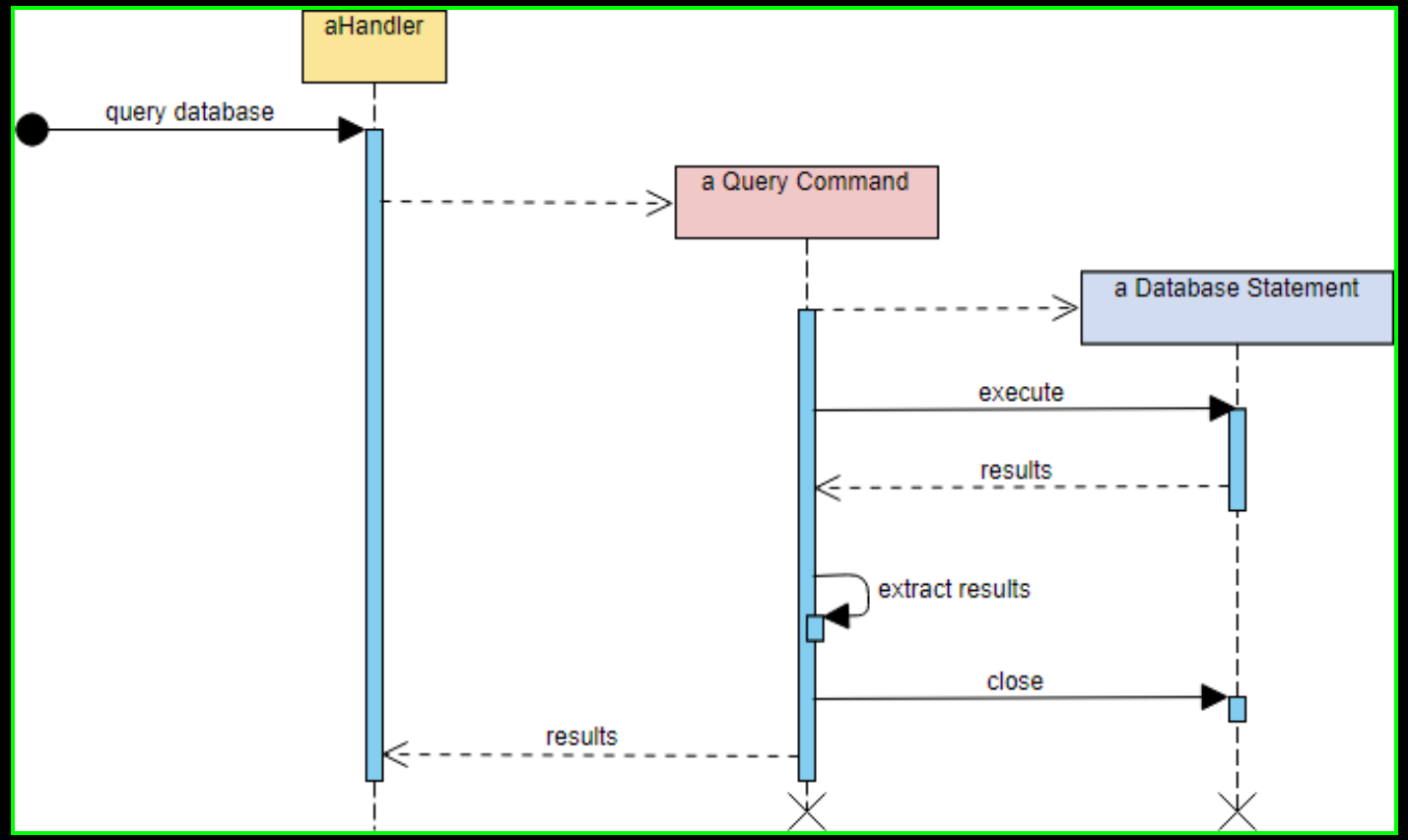
Loops and Breaks

- **Loops:**
  - Represent repetitive interactions within a sequence.
  - Allow modeling of iterative processes or repeated actions.
- **Breaks:**
  - Interrupt a loop or iteration under certain conditions.
  - Allow modeling of conditions that terminate a loop prematurely.

Loops and Breaks



One More Example Sequence Diagram For Fun



Bottom Line

Sequence diagrams offer a visual representation of interactions between objects in a system, aiding in understanding system behavior.

Questions?