

Topic

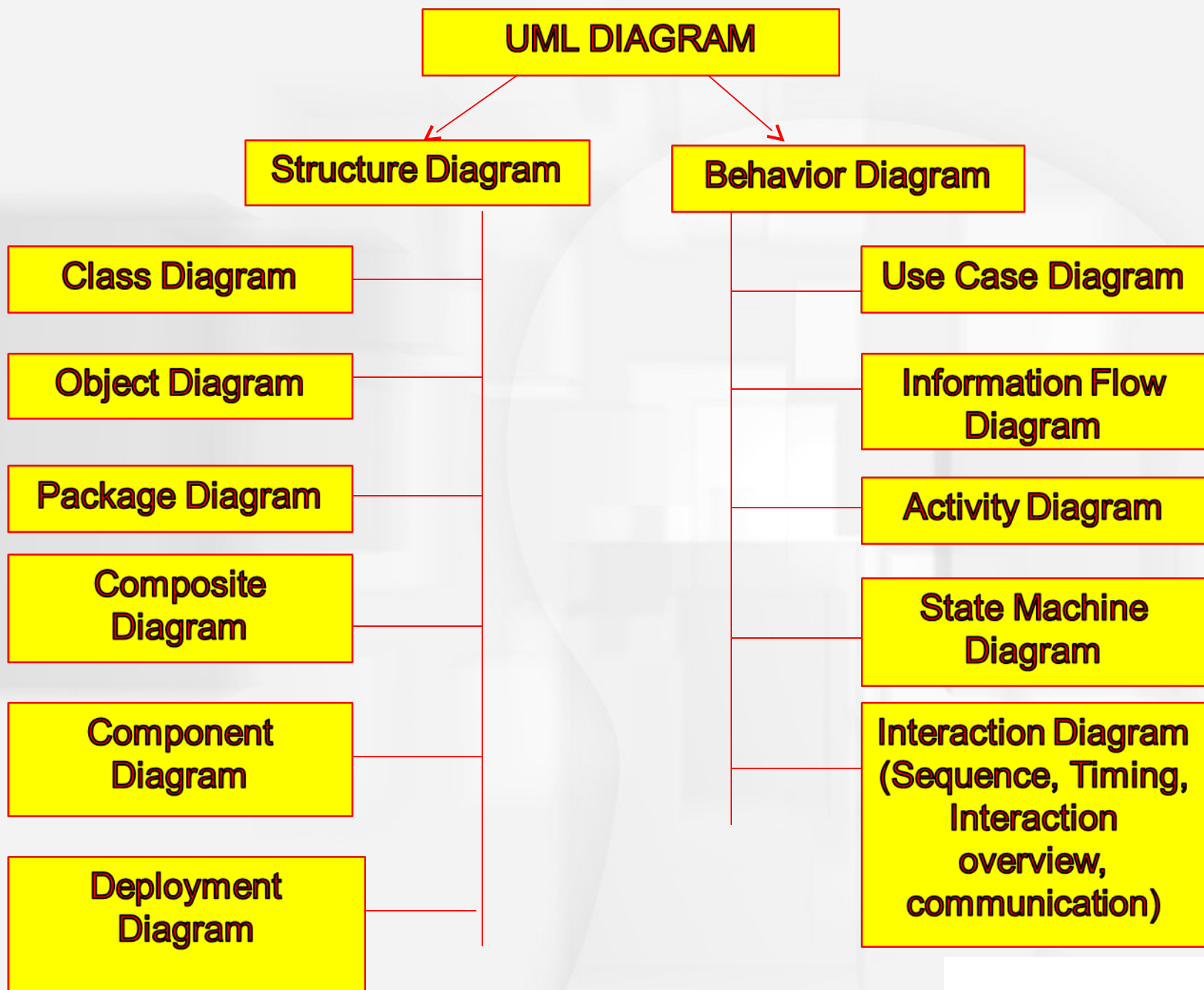
- Use Case diagrams
- Sequence diagram

Overview

- Introduction to UML(unified modeling language).
- Use case diagrams.
- Sequence diagrams.

Unified modeling language

- It is a partial graphical representation of a model of a system.
 - Systems under design, implementation, or already existing phase.
- Contains:
 - Nodes
 - Edges / paths
- Type of diagram is defined by Graphical symbol shown on the diagram
 - Class for class diagram
 - Actors and use cases in use case diagram.

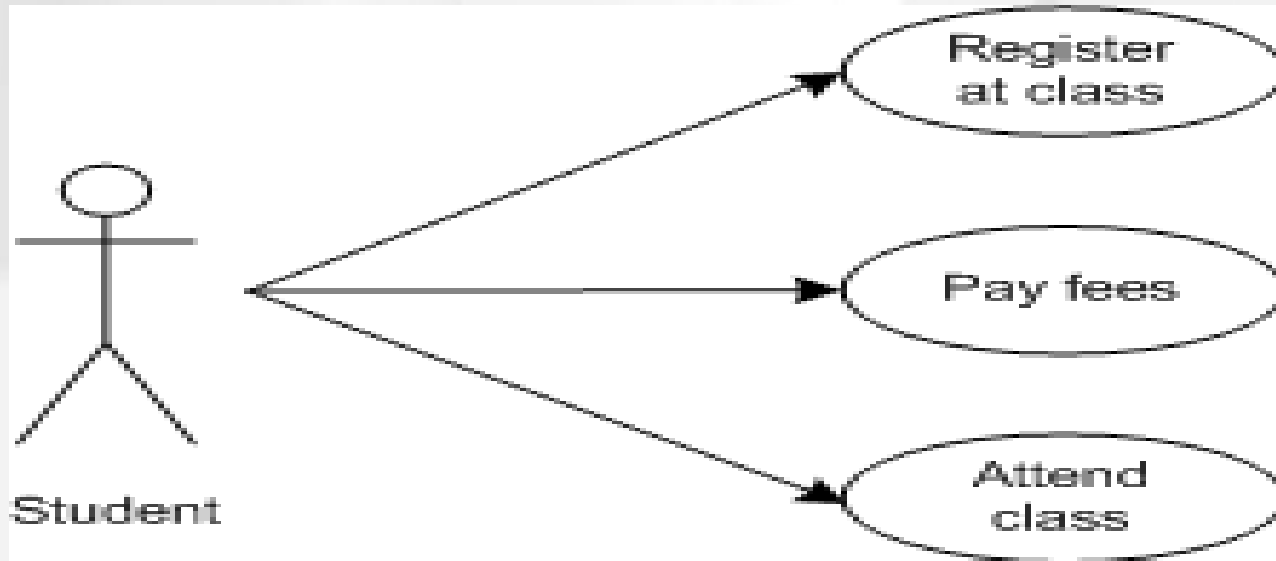


Use case

- Use case: List of actions or events, defining the interactions between role(**actors**) and system.
- The actor can be a human, external system or time.
- Defines mission and stakeholder goals.
- For example:
 - Student: Take admission, attend classes, pay fees.

Use case diagrams

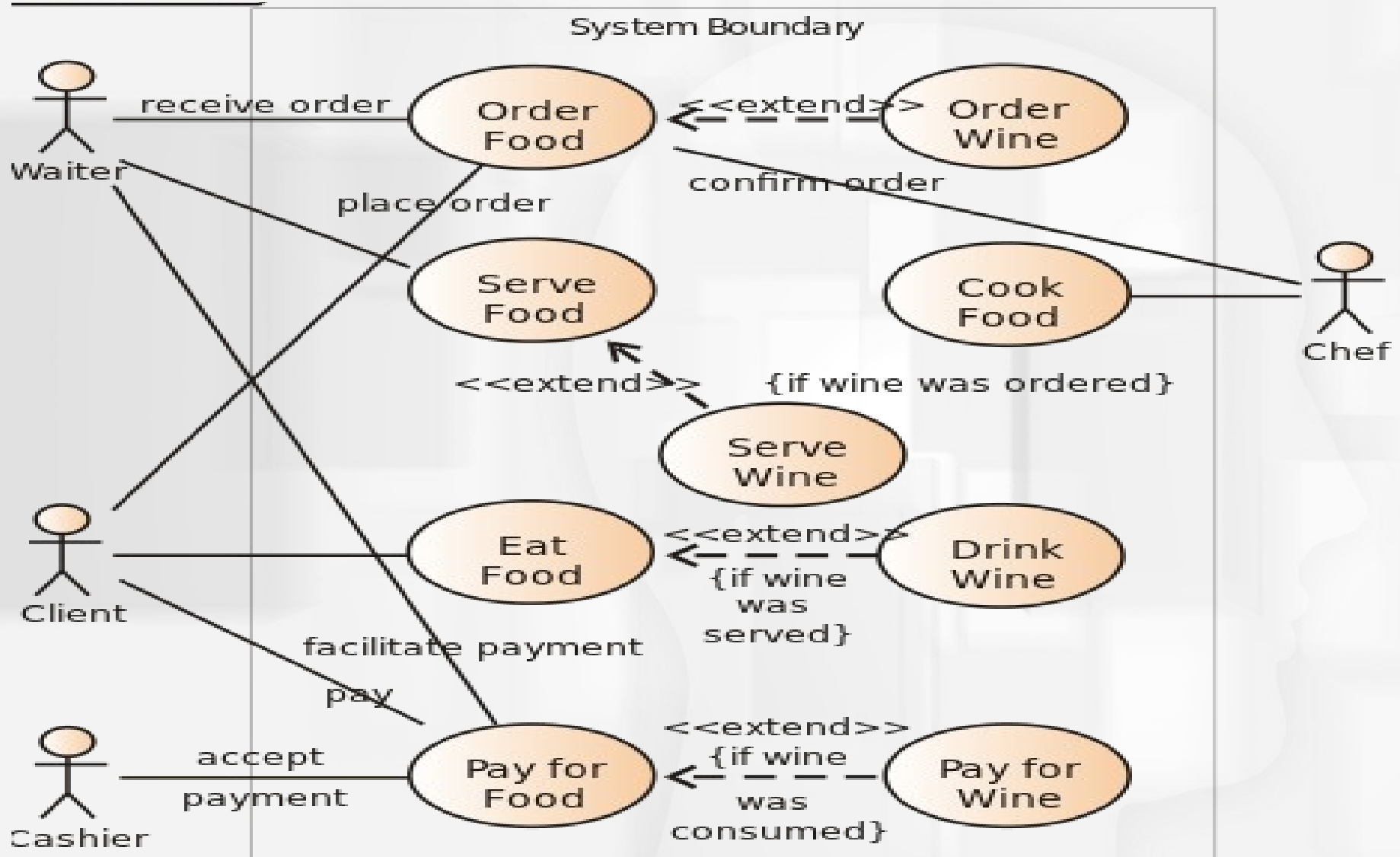
- It consist of user's interaction with the system that shows the relationship between the user and different use cases in which the user is involved.



Steps to be taken to build Use case diagram

- Analyze the system requirements and respectively define the use cases of.
- Actors – consisting of people/external system /organization.
- Relations between Actors and use cases respectively.

Use Case Diagram for Restaurant



Use case diagrams: Advantages

- List of goal names provide summary of what the system will offer.
- Also provide project planning skeleton.
- The extension conditions of each use case provide a framework.
- The full use case set shows that the investigators have thought through every user's needs, every goal they have with respect to the system, and every business variant involved.

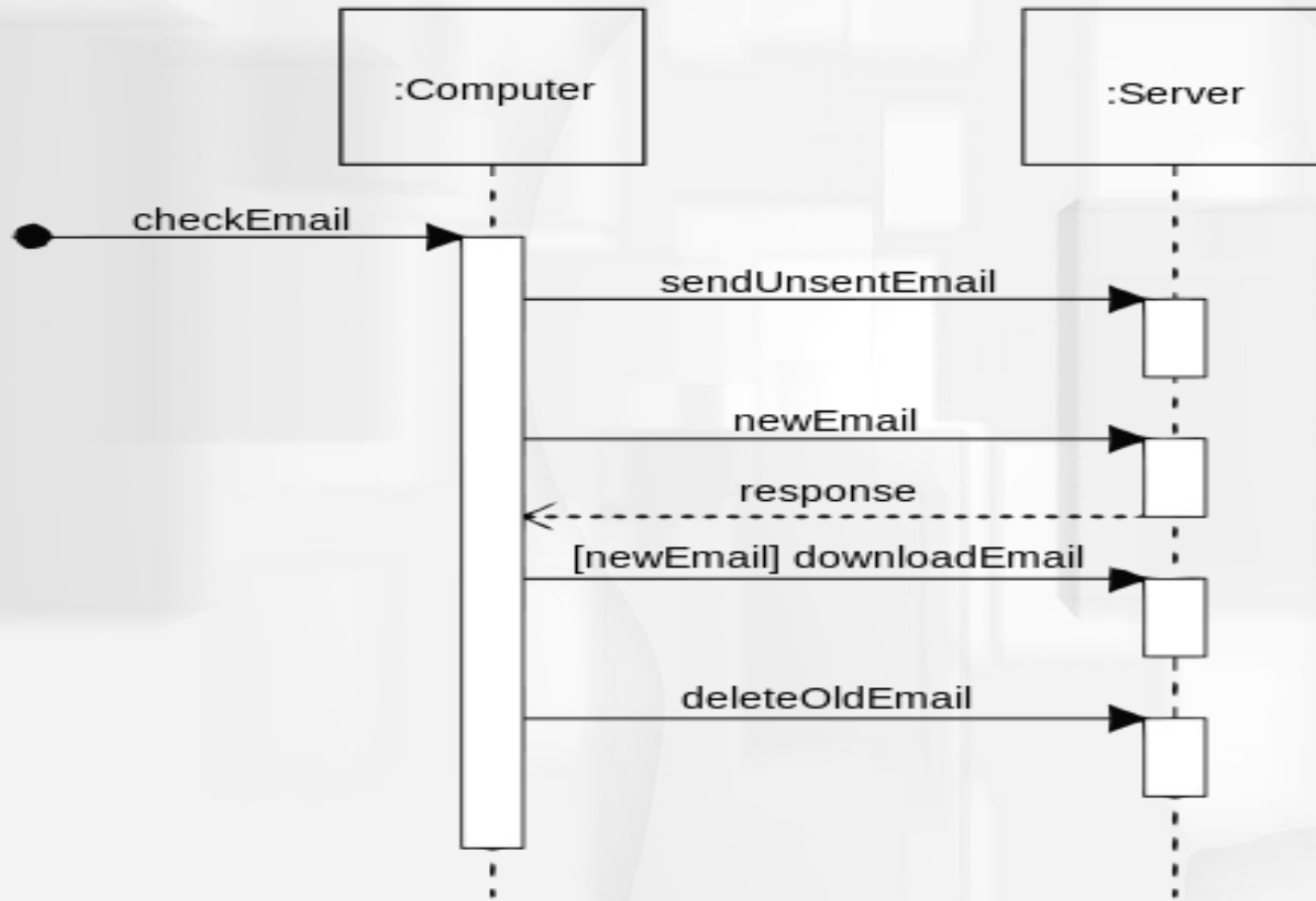
Use case diagrams: Limitations

- Use cases are not well suited to capturing non-interaction based requirements of a system.
- For some products and systems, use cases are complex to write and to understand, for both end users and developers.
- As there are no fully standard definitions of use cases, each project must form its own interpretation.

Sequence Diagrams

- A **Sequence diagram** is an interaction diagram that shows how processes operate with one another and in what order.
- A sequence diagram shows object interactions arranged in time sequence.
- Sequence diagrams are sometimes called **event diagrams** or **event scenarios**.

Sequence Diagram for email service



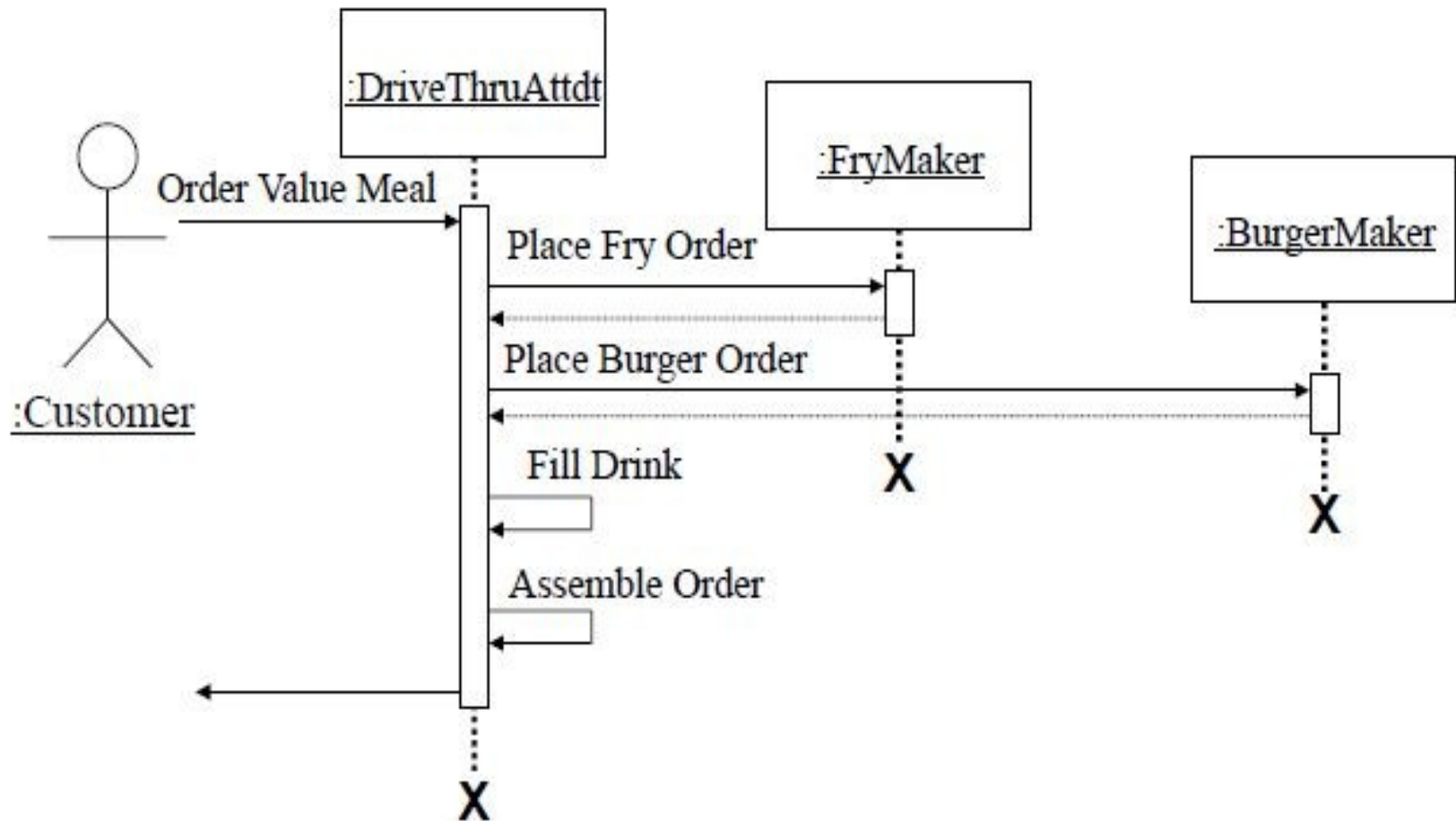
Sequence Diagrams

- Class and object diagrams provide a static view of the system we are modeling
- In many cases, this is not sufficient for us to truly understand how classes interact or how the system must respond to varied run-time states
- Therefore, UML introduces 4 types of dynamic diagrams: *Sequence* diagrams, *Collaboration* diagrams, *State* diagrams and *Activity* diagrams, collectively known as *Behavioral diagrams*

How to make Sequence Diagrams

1. Pick a scenario that you want to model
2. Try to identify the objects that will be involved in the scenario
3. Line them across the top in the approximate order that they're (listed in the order that they are used for the scenario)
4. Draw dotted lines down indicating lifelines
5. Identify the first event (triggering event)
6. Draw a horizontal arrow from the object that sends a message to the object that receives it
7. identify the next event and the objects involved
8. Redo steps 6 and 7 until the diagram is complete

Sequence Diagram for fast food service



Benefits of sequence diagrams

- UML sequence diagrams help you to envision what will happen during the execution of a use case
- They are great to help developers and business analysts get to a common understanding

References

- Wikipedia: -
 - https://en.wikipedia.org/wiki/Use_Case_Diagram
 - https://en.wikipedia.org/wiki/Sequence_diagram



Thank you