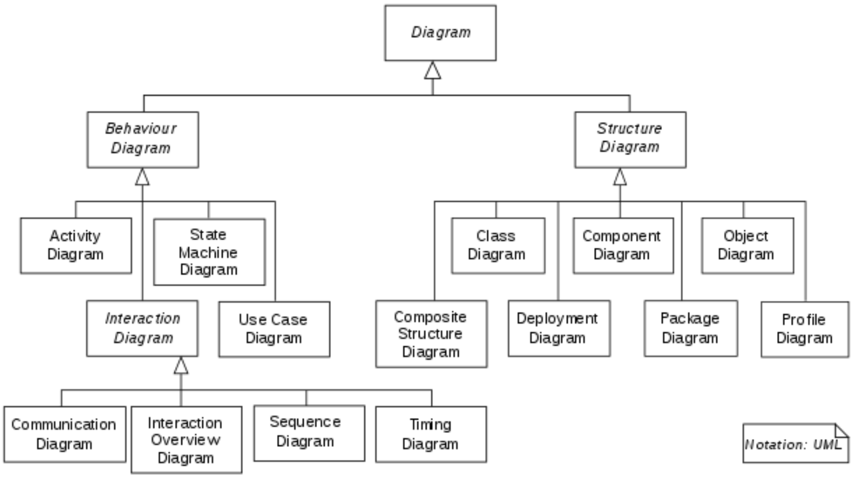
UML笔记

Unified Modeling Language

1. Overview

The Unified Modeling Language (UML) is a general-purpose, developmental, modeling language in the field of software engineering that is intended to provide a standard way to visualize the design of a system.
UML 2 has many types of diagrams, which are divided into **two** categories. Some types represent **structural** information, and the rest represent general types of **behavior**, including a few that represent different aspects of interactions.

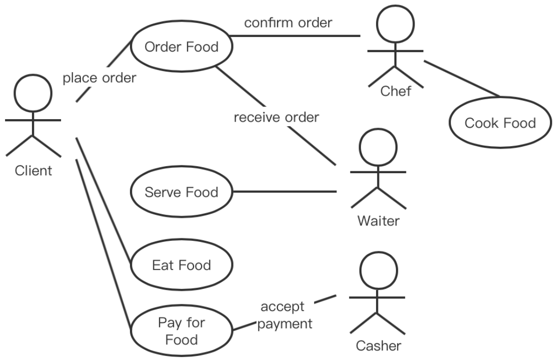
- Static (or structural)
    - 类图 Class diagram
    - 对象图 Object diagram
    - 构件图 Component diagram
    - 部署图 Deployment diagram
    - 包图 Package diagram
    - 组合结构图 Composite structure diagram
    - 外廓图 Profile diagram
- Dynamic (or behavioral)
    - 顺序图 Sequence diagram
    - 通信图 Communication diagram
    - 时间图 Timing diagram
    - 交互概览图 Interaction overview diagram
    - 活动图 Activity diagram
    - 状态图 State diagram
    - 用例图 Use case diagram



2. Use Case Diagram

A use case diagram is a graphical depiction of a user's possible interactions with a system.

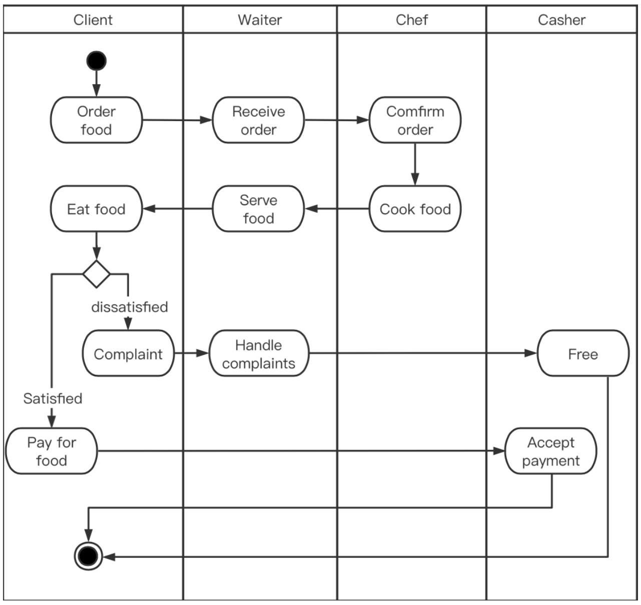
We may use use case diagrams during software requirements and software design phases.



3. Activity Diagram

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. Although activity diagrams primarily show the overall flow of control, they can also include elements showing the flow of data between activities through one or more data stores.

We may use activity diagrams during software requirements and software design phases.

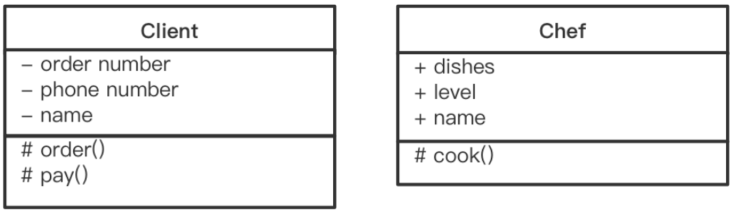


4. Class Diagram

A class diagram is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

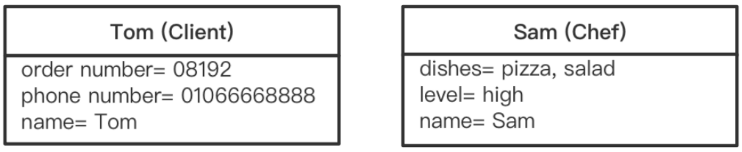
In the diagram, classes are represented with boxes that contain **three compartments**:

- The top compartment contains **the name of the class**. It is printed in bold and centered, and the first letter is capitalized.
- The middle compartment contains **the attributes of the class**. They are left-aligned and the first letter is lowercase.
- The bottom compartment contains **the operations the class** can execute. They are also left-aligned and the first letter is lowercase.



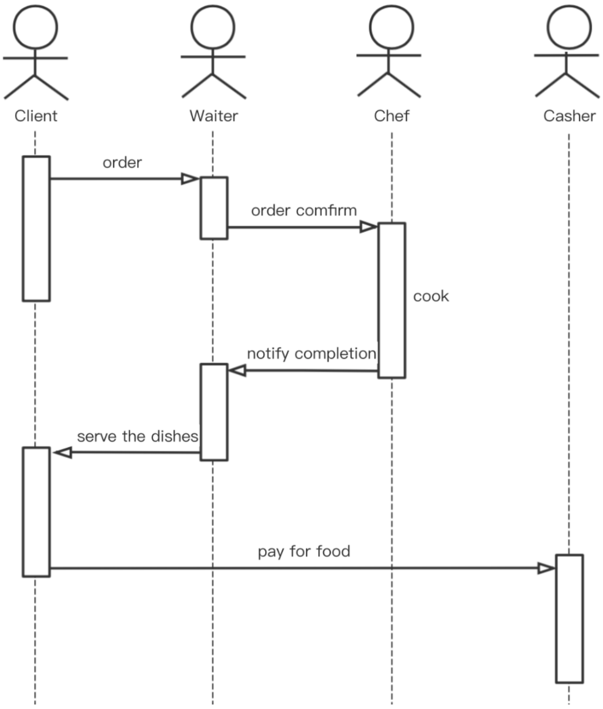
5. Object Diagram

An object diagram is an instantiation of a class diagram with specific class names and attribute values. We generally use object diagrams to show the relationship between objects at a certain moment/scenario of the system.



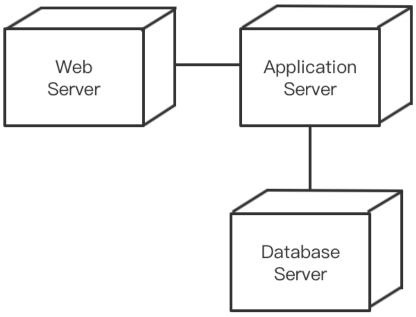
6. Sequence Diagram

A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple runtime scenarios in a graphical manner.



7. Deployment diagram

A deployment diagram in the Unified Modeling Language models the physical deployment of artifacts on nodes. To describe a web site, for example, a deployment diagram would show what hardware components (”nodes”) exist (e.g., a web server, an application server, and a database server)



Reference:

UML – Wikipedia

软件工程各阶段的UML应用

类图Class Diagram