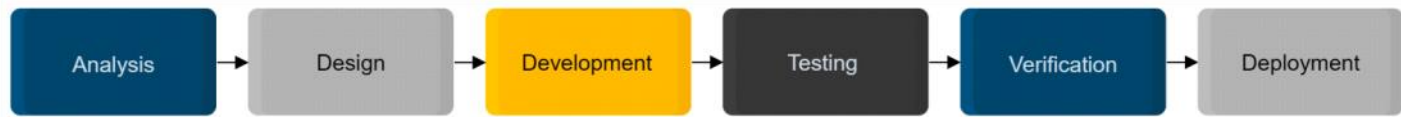


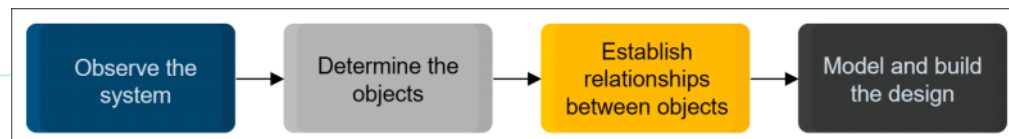
Object Oriented Design Introduction

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A complete software development life cycle is shown below:

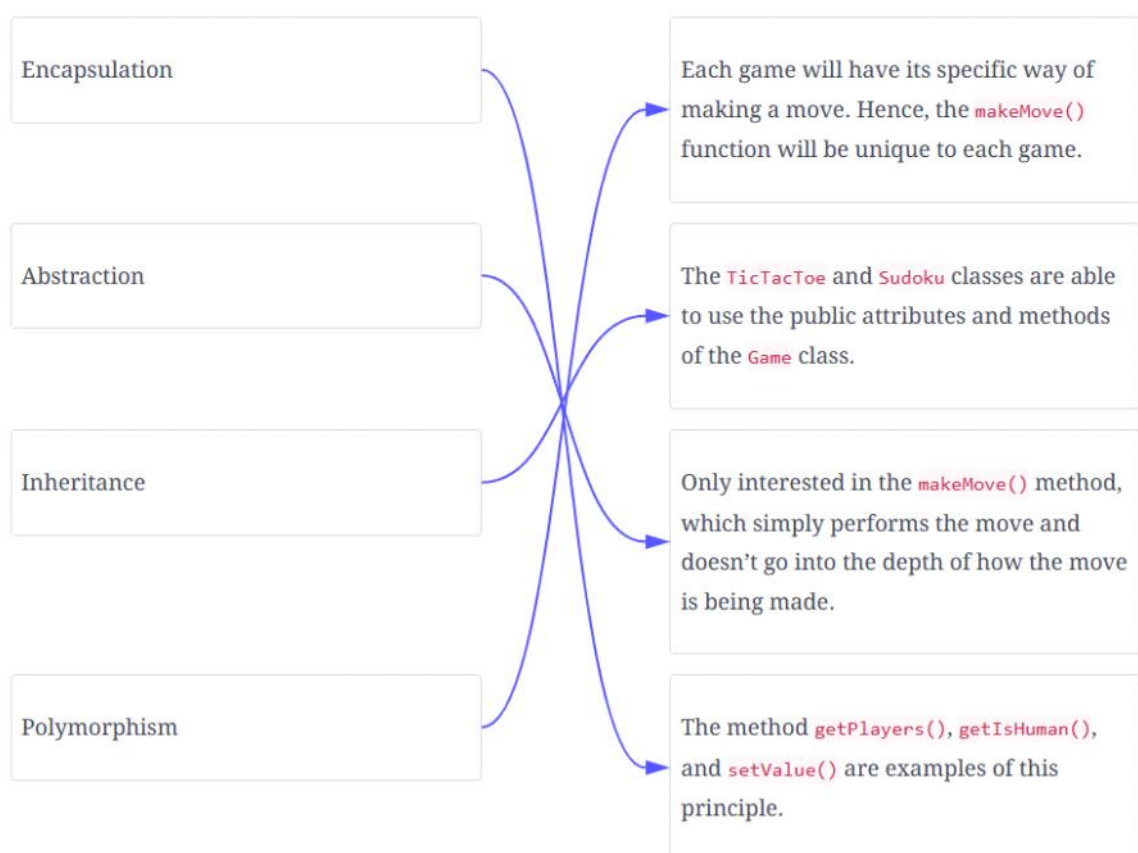


Object oriented analysis and design allows us to analyze and design a system using the OOD principle



Four components in OOD:

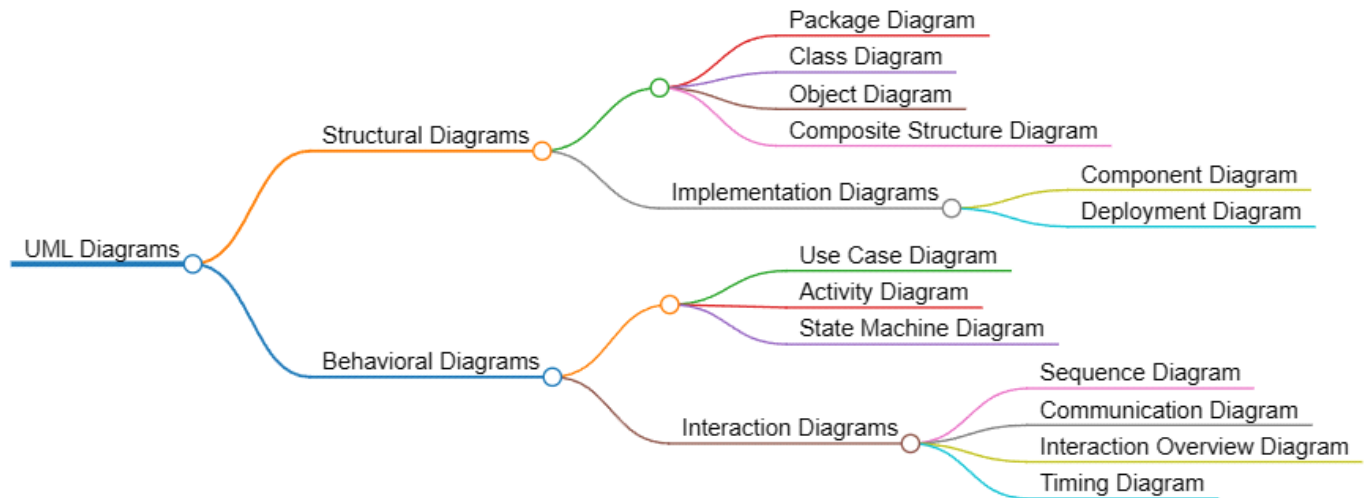
- Encapsulation: hide the data and only give access to read/set the data using certain methods
- Abstraction: users just operate the class using methods without knowing the backend implementation
- Inheritance: child class can inherit their parent class's data and methods
- Polymorphism: child class and parent class have the same method name; two functions have same name but different argument types; operator overloading: defining "+" for user-specified class



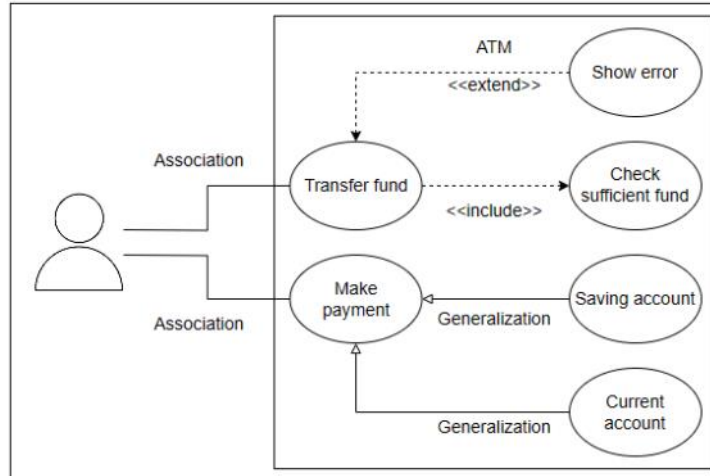
Unified Modeling Language

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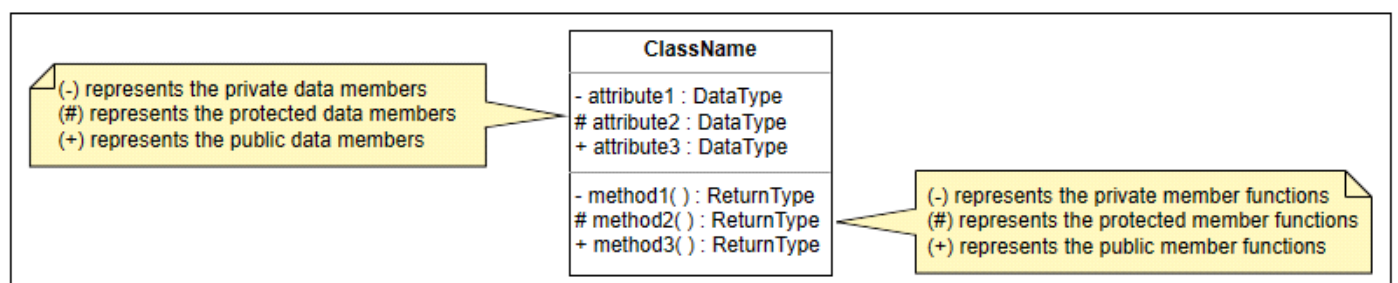
UML allows people to understand the design of the system without the need for learning much technical details.



Use case diagram:



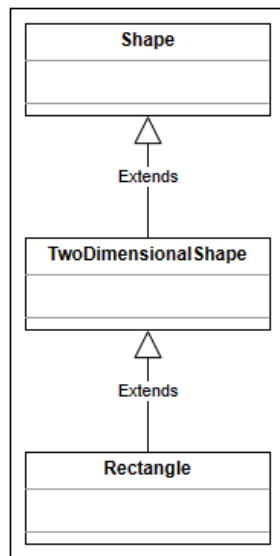
Class diagram:



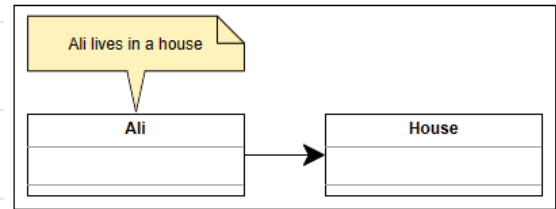
Unified Modeling Language

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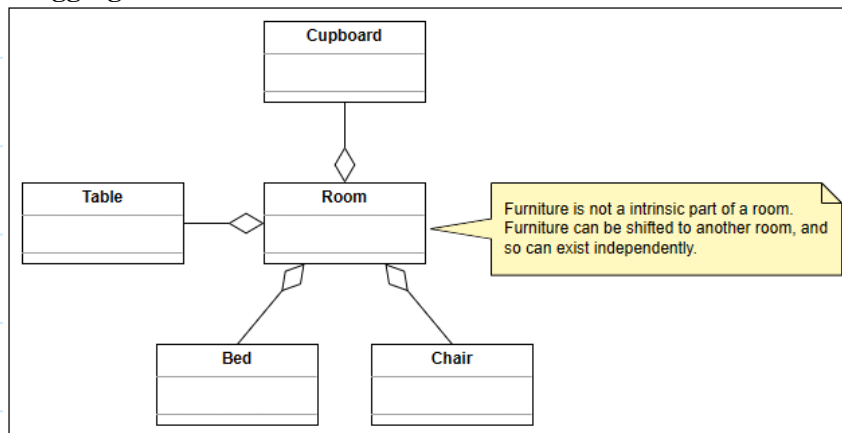
Class diagram showing multi-level inheritance:



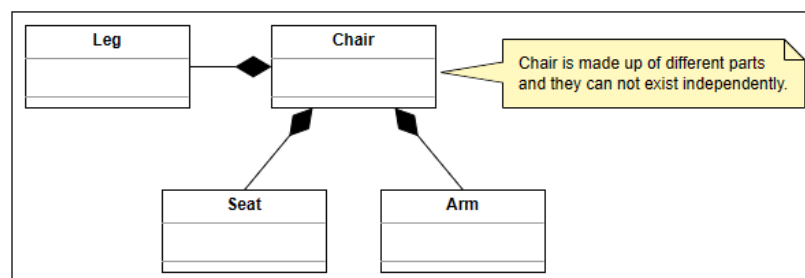
Simple association between class:



Class diagram with aggregation:



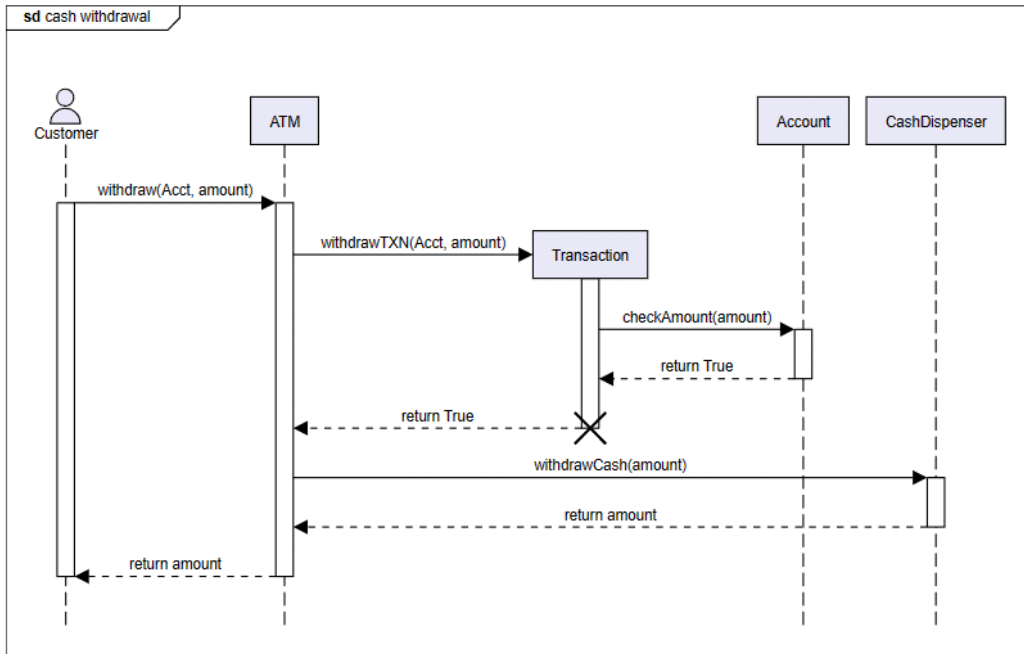
Class of composition:



Unified Modeling Language

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Sequence diagram for cash withdrawal:



Activity diagram:

