-. Why Java object oriented?

① Polymorphism in Java: A man can be father husband employee

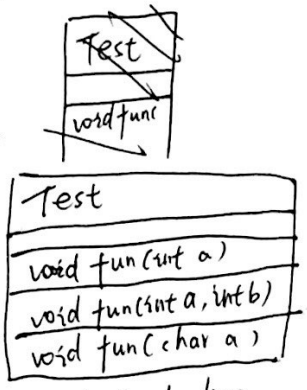
allow us to define one interface ~~to perform~~ and have multiple implementations.

two ways: 1) compile time polymorphism
2) runtime Polymorphism

1) Static polymorphism:

(1) Operator Overloading:

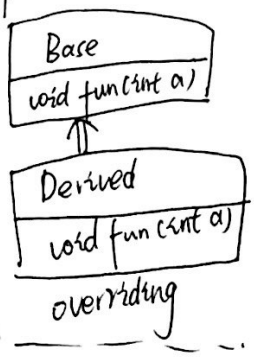
"+" operator can be overloaded:
① to add integers
② to concatenate strings



(1) Method Overloading

2) known as Dynamic Method Dispatch

用在父类和子类里面



② Inheritance

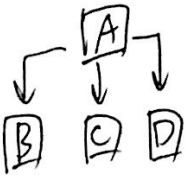
Super class (base or parent class)
sub class [derived, extended, child]
reusability

Type of Inheritance in Java:

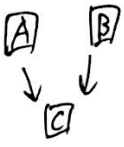
1. Single inheritance

2. Multilevel Inheritance:

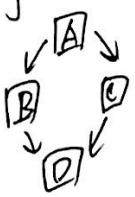
3. Hierarchical Inheritance:



4. Multiple Inheritance



5. hybrid Inheritance



③ Encapsulation

Achieved by: Declaring all the variables in the class as private and writing public methods in the class to set and get the values of variables.

Advantages:

① Data Hiding ② Increased Flexibility
③ Reusability ④ Testing code is easy.

二. JDK, JRE and JVM

JDK: Java development kit
JRE: Java Runtime Environment
JVM: Java Virtual Machine

JDK = JRE + dev tools
JRE = JVM + libs

三. ArrayList vs LinkedList in Java

ArrayList — Implemented by dynamic arrays.
LinkedList — Implemented by double linked list

ArrayList: ① Act as a list only
② better to store and access data

LinkedList: ① Act as a list and queue, implementing List and Deque interface.
② Insertion and removal is better.
③ has more memory to store prev and next node
④ Both take O(n) time to find an element. If ArrayList sorted can do Binary Search. O(lgn)