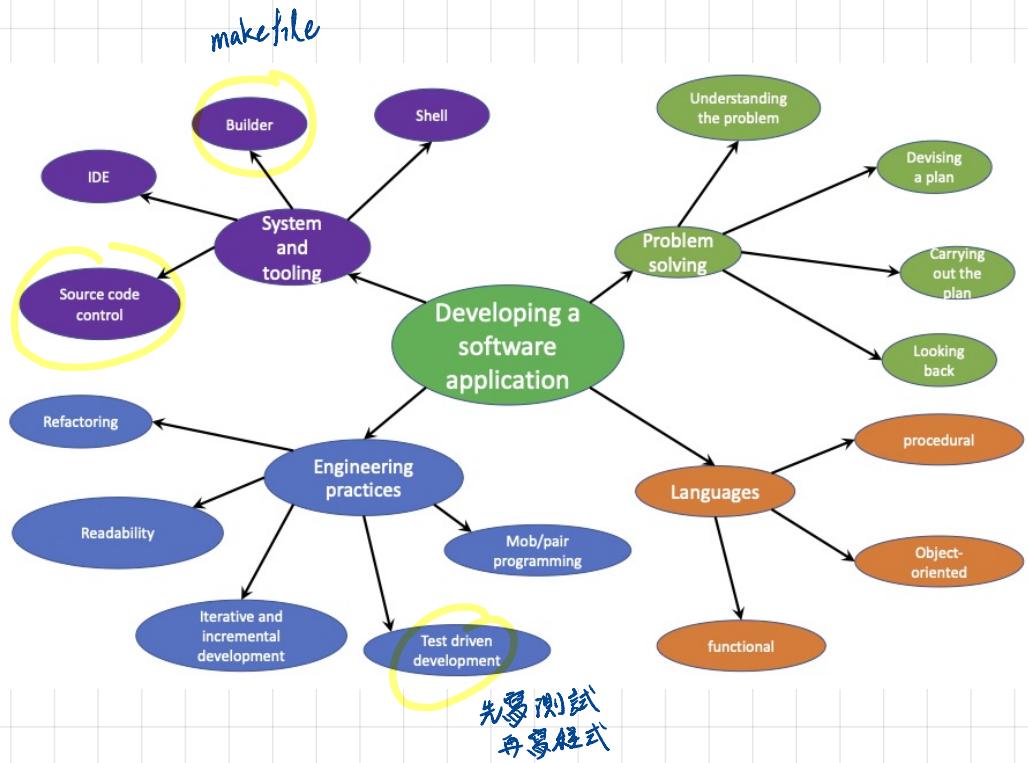


Office hour = 1, 2, 3, 4 (3, 4 須先 send email)

辦公室：1624 room

周末 open book

W1.



Abstraction

Requirement

functional req (behavioral specification)
quality spec : performance, scalability

Tests at all levels

design patterns : reusable OOD

object-oriented design { objects
(OOD) interaction

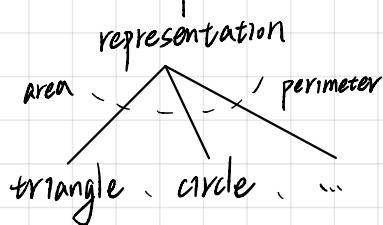
language function
C++ Java procedure
 object

more concrete

tree diagram
arg processing
 file I/O
 geo

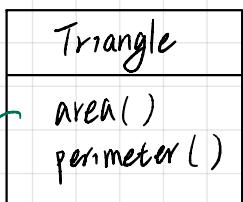
argc, argv.

Application domain
(Core value)



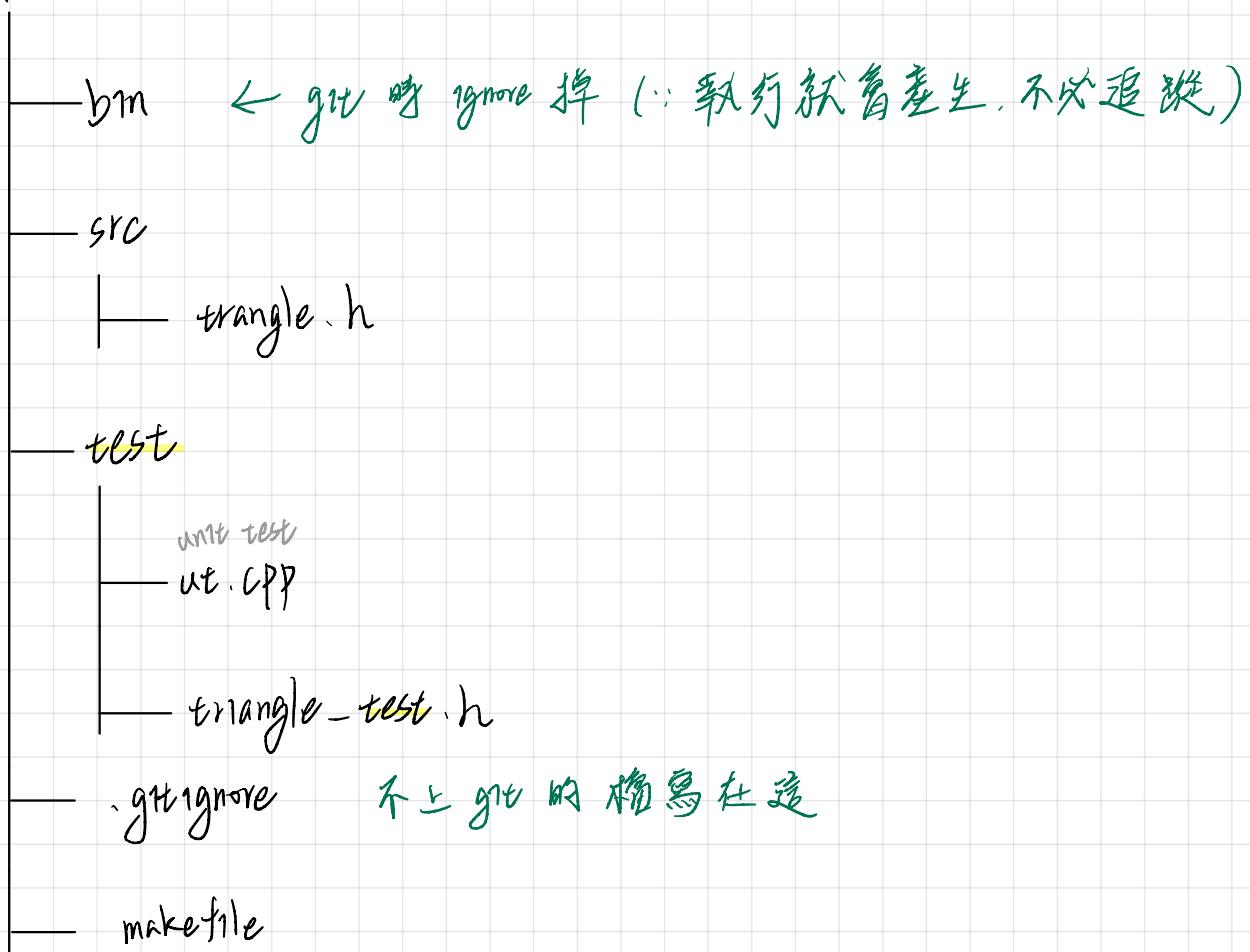
① dependency (相依性)

② value (價值)

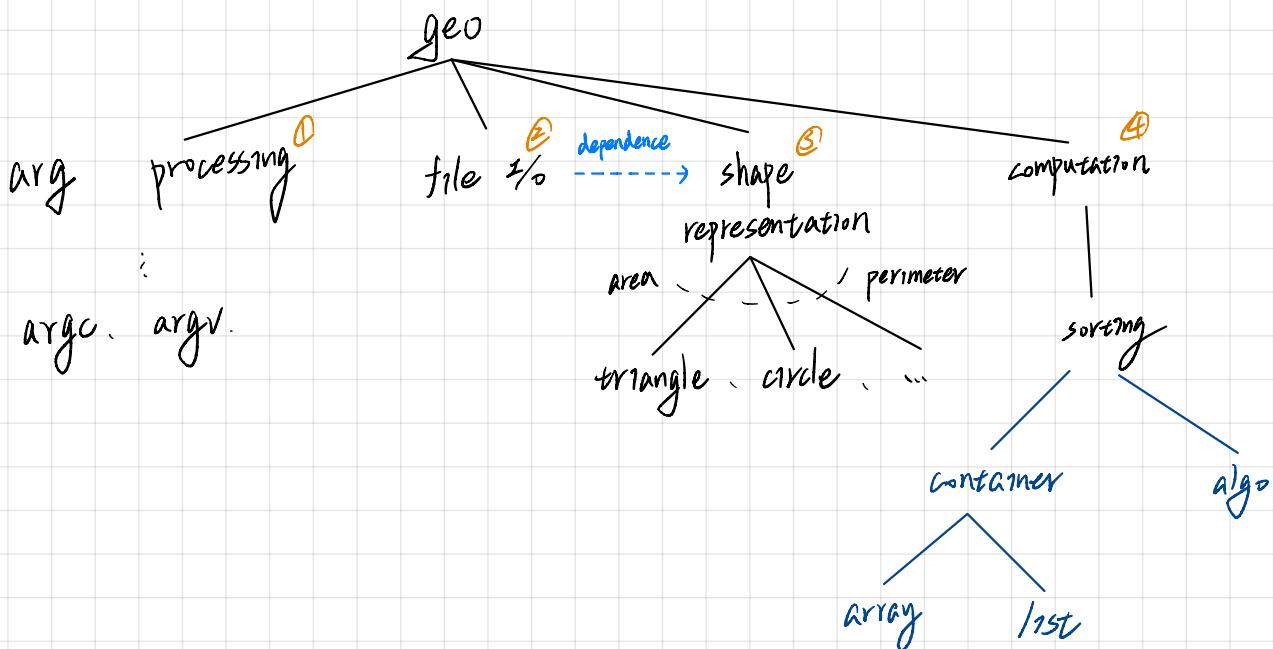


getArea()
operation

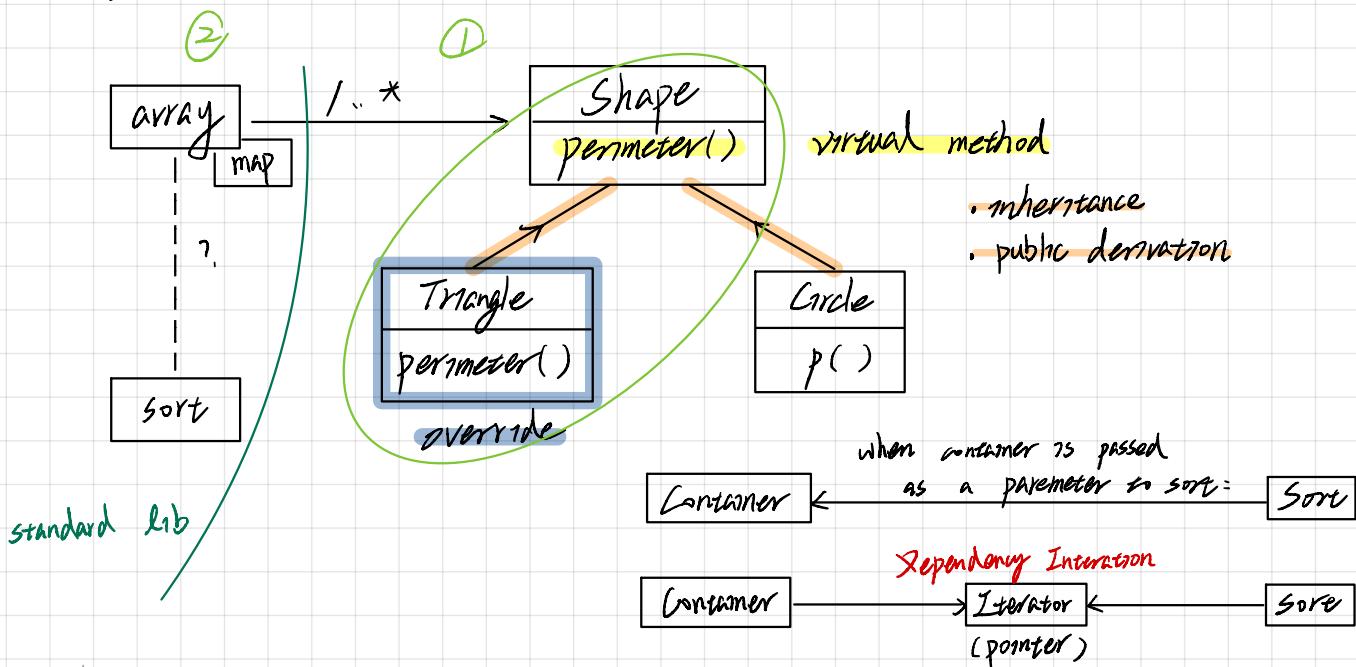
POSIX 2023 F



W 2.



array 缺失：只能應付一種資料型態



* triangle-test.h

Triangle t(3.0, 4.0, 5.0); // stack allocated

Shape *tr1 = new Triangle(3.0, 4.0, 5.0); // heap allocated

ASSORT_DOUBLE_EQ(12.0, t->perimeter);
→ 指向 obj 的 func // return a pointer

regression test : ↗ regression bug

回歸

以前的東西出錯

每次 test 都要全對就對了

Shape *
pointer to shape

shape.h

* # pragma once // include ...

* virtual double perimeter() const = 0 // pure virtual method
// declare but not defined (no body)

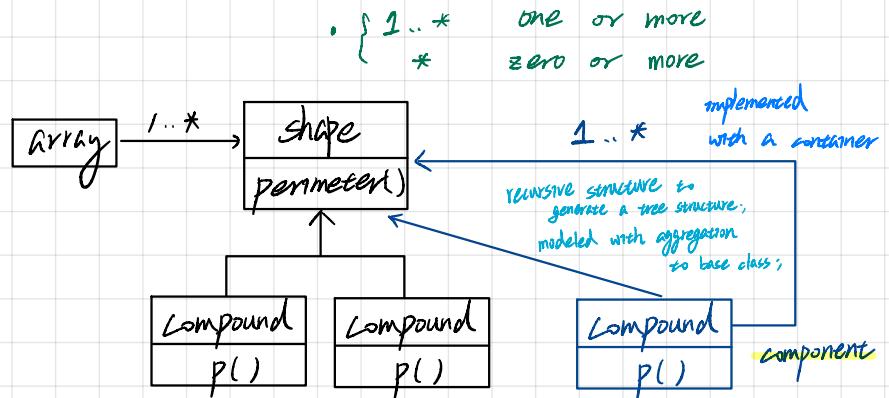
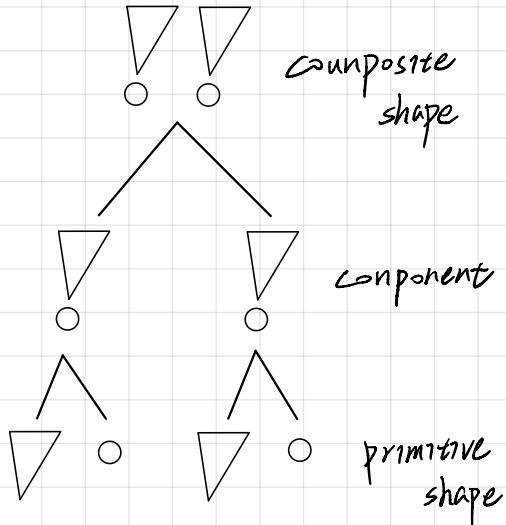
triangle.h

class Triangle : public Shape {

↓

用 protect / private

這樣 Shape func 降級 → X



<< client >>

find

find all instances
of triangles with
perimeter P,

10 ≤ P ≤ 20

Iterator :

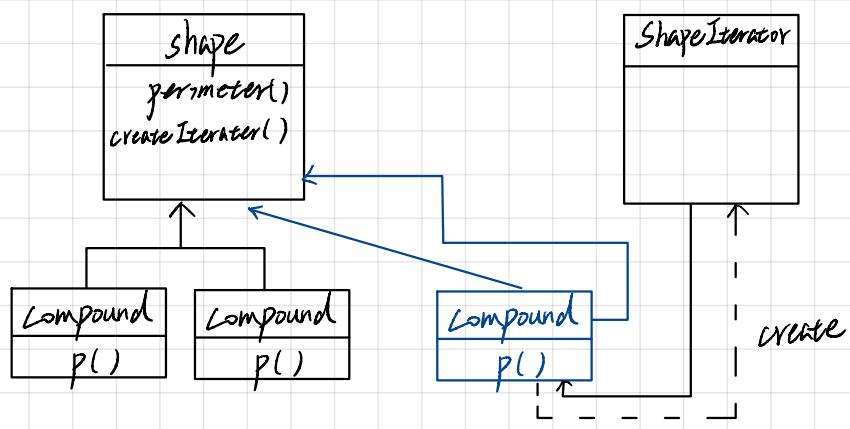
first() : 確定初值

next() : 移到下一個

done() : 是否結束?

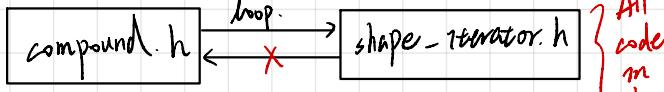
要 delete 時

```
Compound * C;
Iterator * it = C->createIterator();
for (it->first(); !it->done(); it->next())
    ... it->CurrentItem();
```

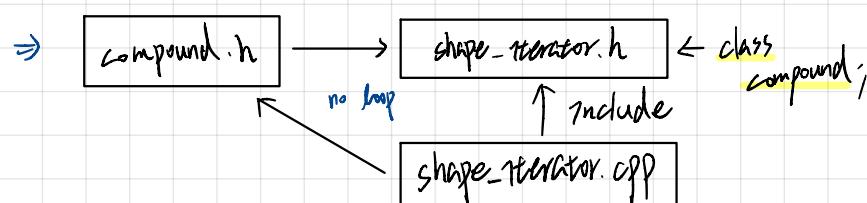


Wed 22 MW
due: 2 week Tue. Pm. 11.59
Composite Iterator (os)
1/2 - 1/1 might be poss

header file dependency circular



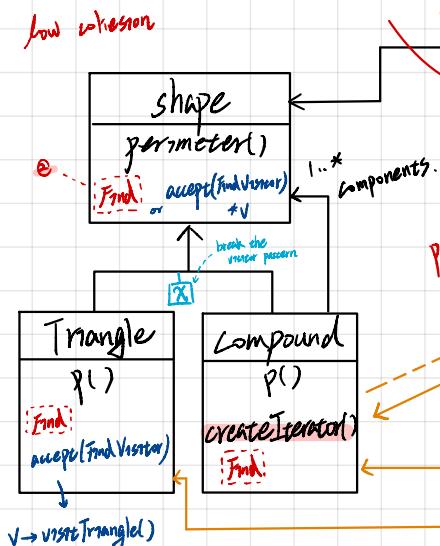
Cff h dependency
All code in h



↳ shape-iterator.cpp

low cohesion

a. where to put find?



protocols

c function

stateful

Shape Iterator

first()
next()
currentItem()
next()

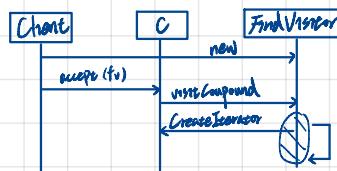
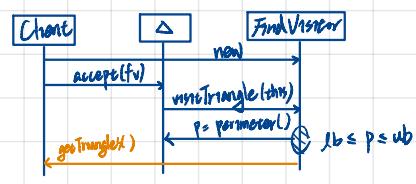
use a visitor

Find Visitor
visitTriangle()
visitCompound()
visit()

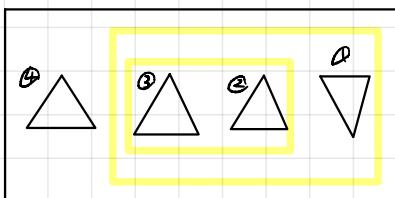
coupled to every concrete shape

high coupling

sequence diagram



forall C in Compound accept(Fv)



Compound {

Triangle 1 1 ①

Compound f

Triangle 2 2 2

Triangle 3 3 3

}

Triangle 4 4 4

read token
and numbers

Syntax Rule

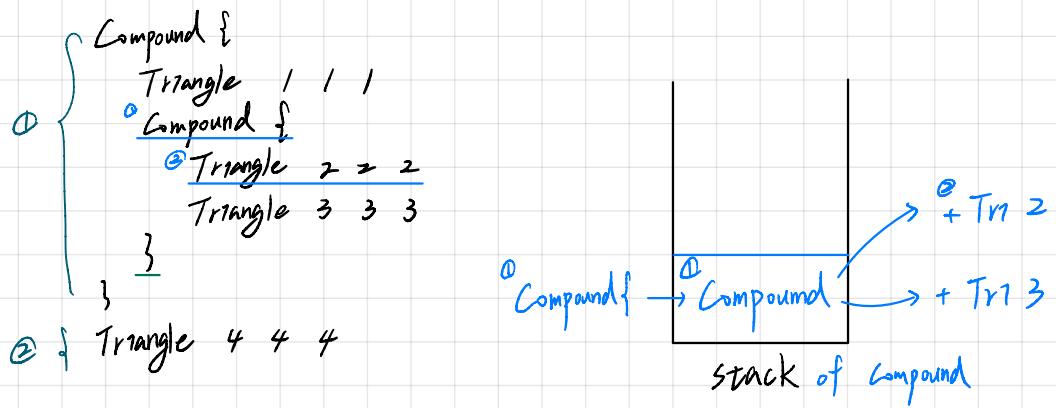
Conversion

Scanner
nextToken
nextDouble
isDone()
setInput

Parser
parse(string)

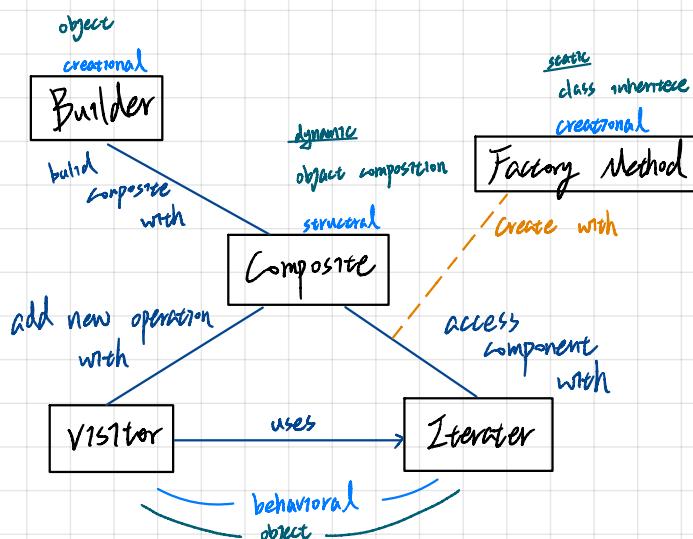
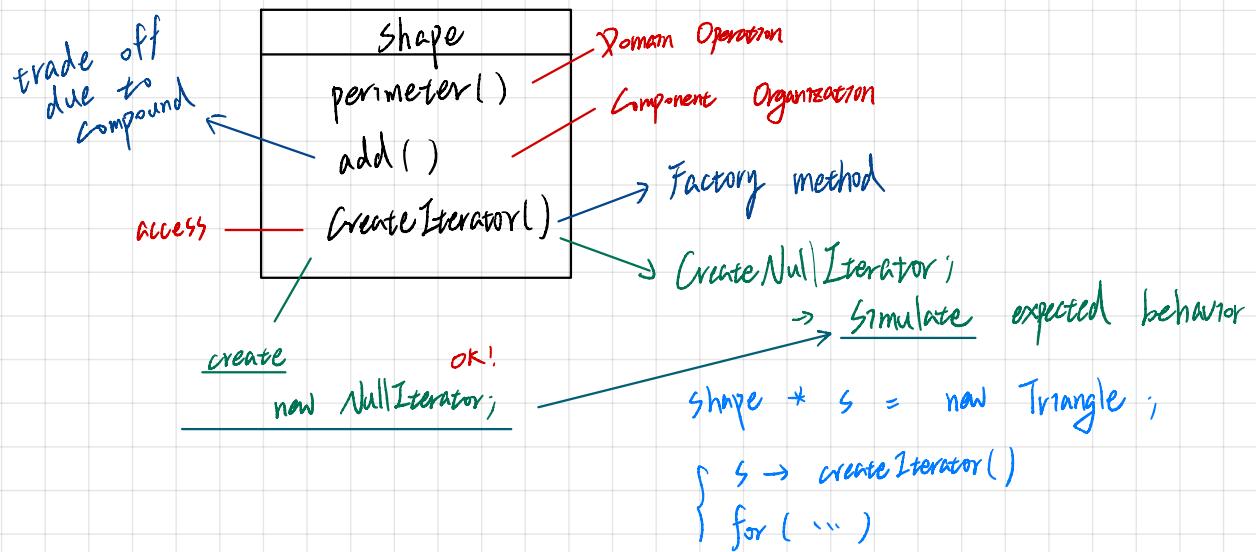
ShapeBuilder
buildTriangle(a, b, c)
buildCompound

w7.



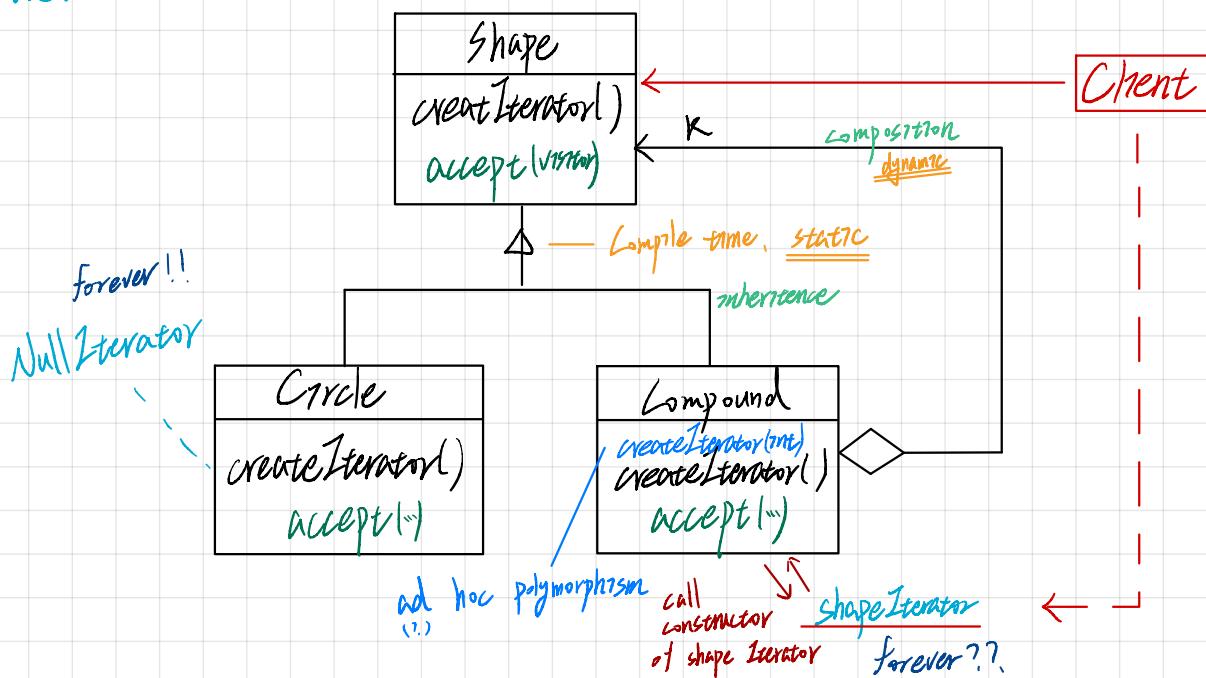
list : [0 | 2]

"); 組裝完成，先 pop 掉，如果 stack 非空，
代表該 Compound 屬於另一個 Compound，加入其中



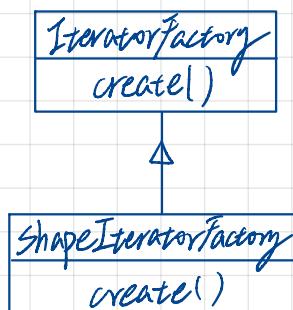
Chapter 1

W8.



What if a DFSIterator is needed instead of a shapeIterator?

Abstract Factory



1/2 : 考到 Builder, Scanner ... (10/23)

chatgpt x . 与 AI x . 畫幕會錄影

cplusplus.com ✓