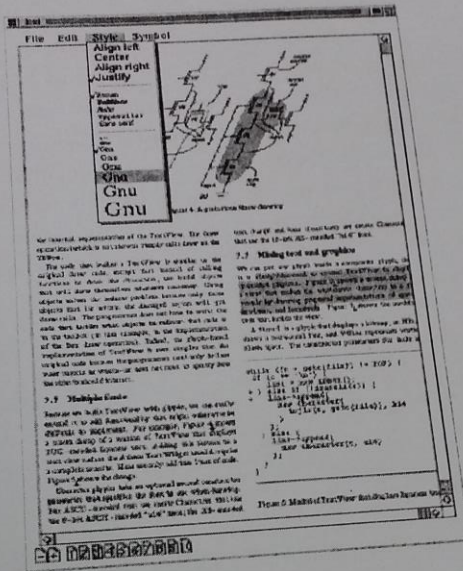


1. We are going to design a document editor. The document can mix text and graphics freely in a variety of formatting styles. Surrounding the document are the usual pull-down menus and scroll bars, plus a collection of page icons for jumping to a particular page in the document. The interface is like the following figure.

AF
Factory
Adapter
Builder
Proxy
Observer
Template
Interpreter
COR
Strategy
State
Composite
Command
Prototype
16 Visitor
Bridge
Facade
Mediator
Decorator



There are a couple of problems in the design as listed below, please provide an appropriate design pattern to solve each problem. **10%** Choose any one of the design patterns and write the skeleton code in Java. **10%**

- 1) Formatting. How does our design actually arrange text and graphics into lines and columns? We need to consider having objects to carry out different formatting policies. *把文字放在line上?*
- 2) Embellishing the user interface. The user interface includes scroll bars, borders, and drop shadows that embellish the WYSIWYG document interface. Such embellishments are likely to change as the user interface evolves. Hence it's important to be able to add and remove embellishments easily without affecting the rest of the application.
- 3) Supporting multiple look-and-feel standards. The design should adapt easily to different look-and-feel standards such as Motif and Presentation Manager (PM) without major modification.

5個問題分別5個pattern

解釋code

code選一個pattern

encapsulation

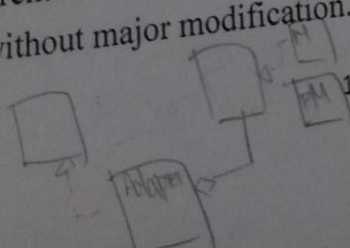
encapsulation

encapsulation

encapsulation

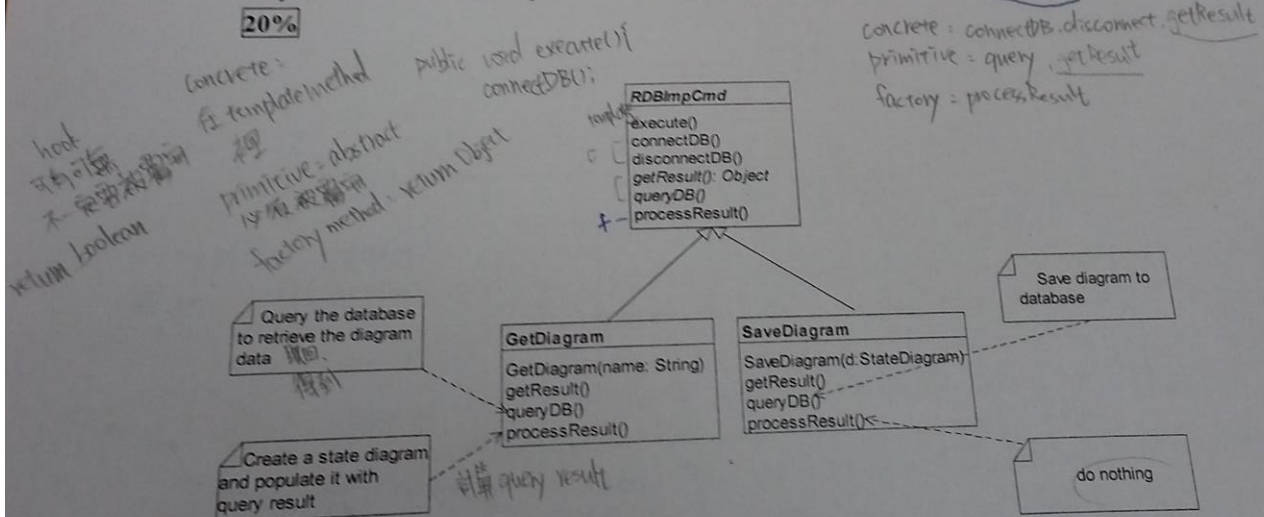
Decorator

不同的人有不同介面 Adapter



- public class ST extend?
- 不同標準操作不同系統
- Supporting multiple window systems. Different look-and-feel standards are usually implemented on different window systems. This design should be as independent of the window system as possible. Bridge
 - Spelling checking and hyphenation. This design should support analytical operations such as checking for misspelled words and determining hyphenation points. Further, we should minimize the number of classes we have to modify to add a new analytical operation. 檢查文法

- Using an ATM, customers can access their bank accounts in order to make cash withdrawals. An ATM will give the customers the amount of money based on what it has. Please use the Chain of Responsibility Design Pattern to describe the process of how the cash withdraw and write the program in JAVA, 20% .code
- The template method pattern can be applied to improve the database access commands in the persistence framework. The following figure shows how to accomplish this. Based on the given diagram, please specify which shall be concrete operation, primitive operation, factory method and hook operation? Why do you think so? Please implement the template method in the example in Java code. 20%



4. Please apply abstract factory, factory method, builder, and prototype to the text statediagram editor editor diagram case discussed in the textbook and explain their relationships. 40%

