

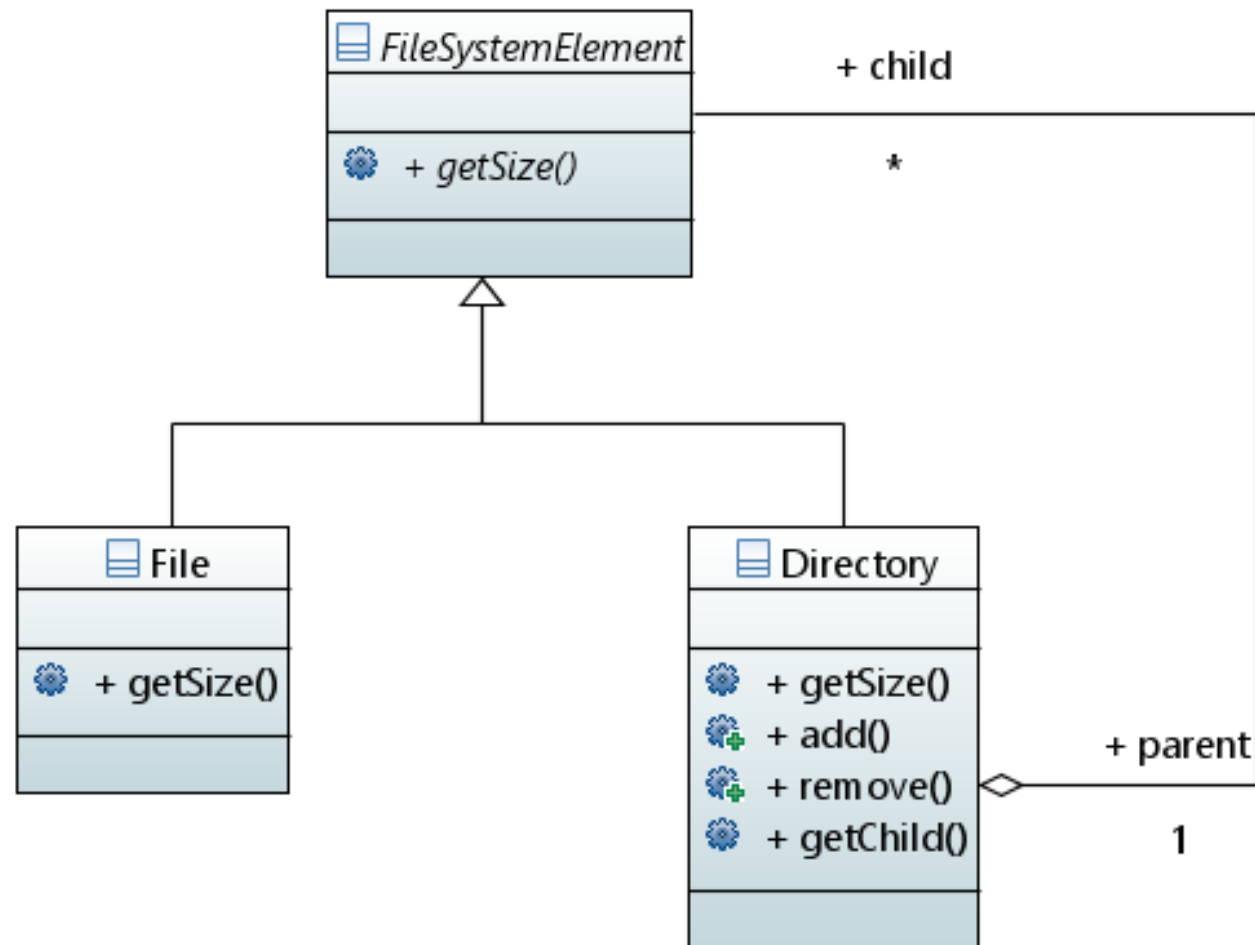
Design Patterns

JEOPARDY!

Design Patterns for \$200

- You work for an accounting office and you develop a software to calculate the size of the entire file system. The `size` of a `Directory` is the sum of sizes of all `Files` in the directory.

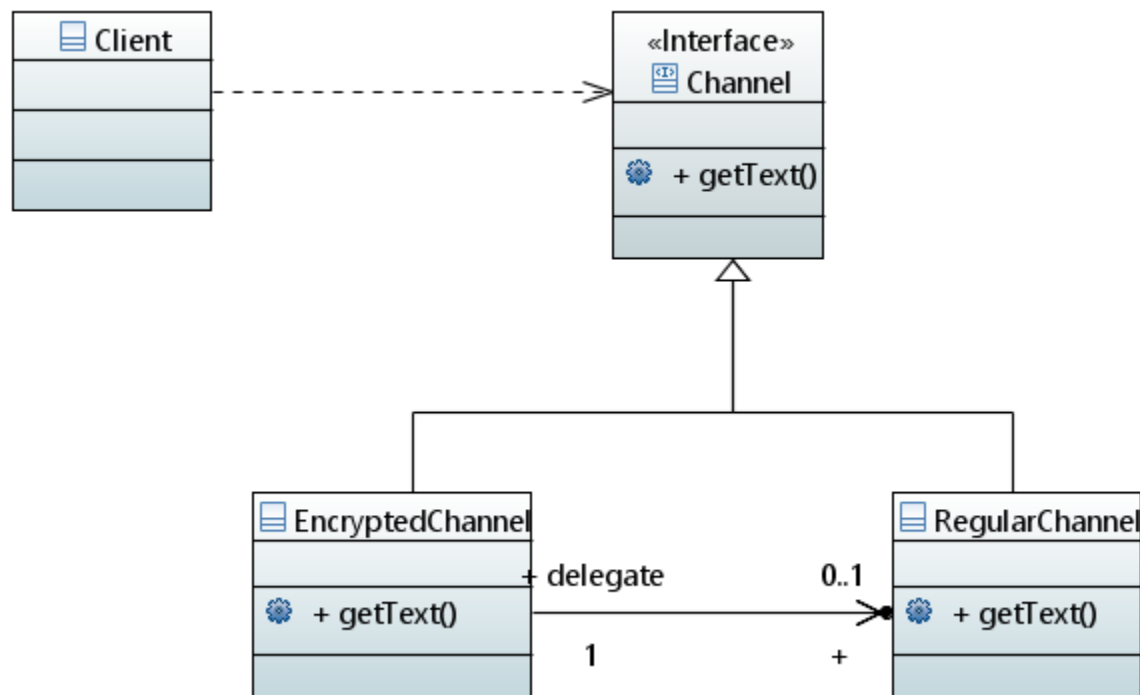
Solution #1 (composite)



Design Patterns for \$400

- We have a configuration, where we send and receive data over a network. At a given moment, the flow of input data changes to encrypted. How do we need to change the client code?

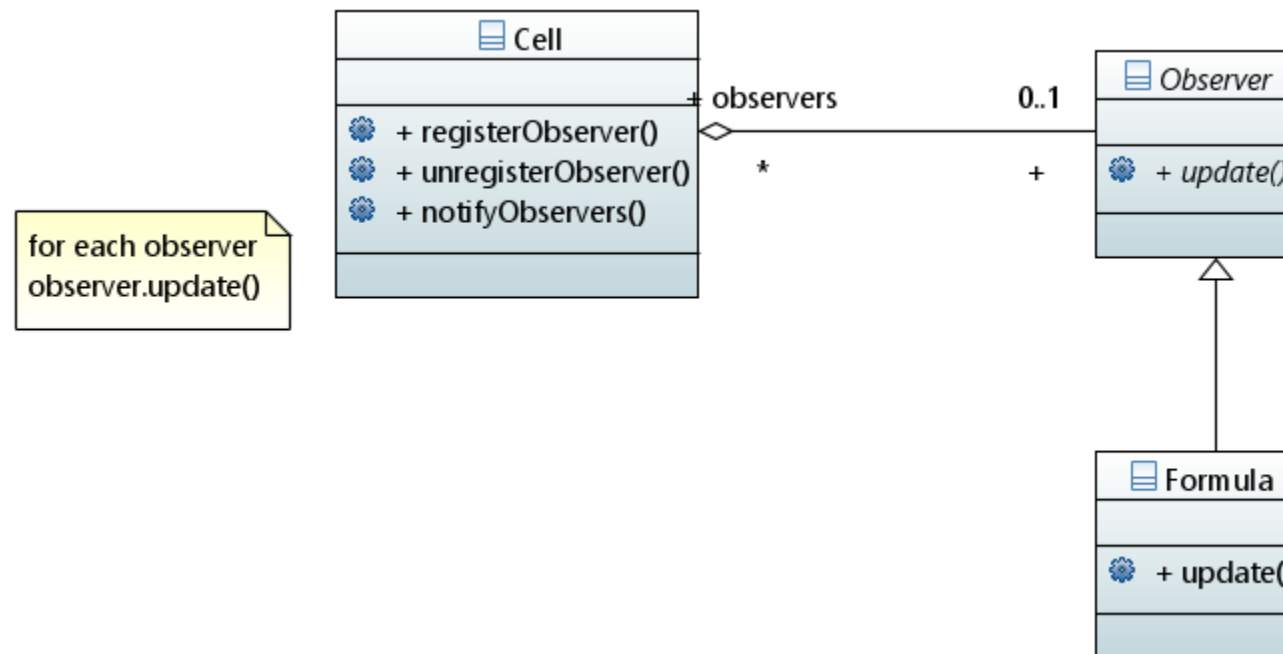
Solution #2 (proxy)



Design Patterns for \$600

- You develop a spreadsheet application that allows to automatically calculate the contents of cells using functions, which depend on other cells.

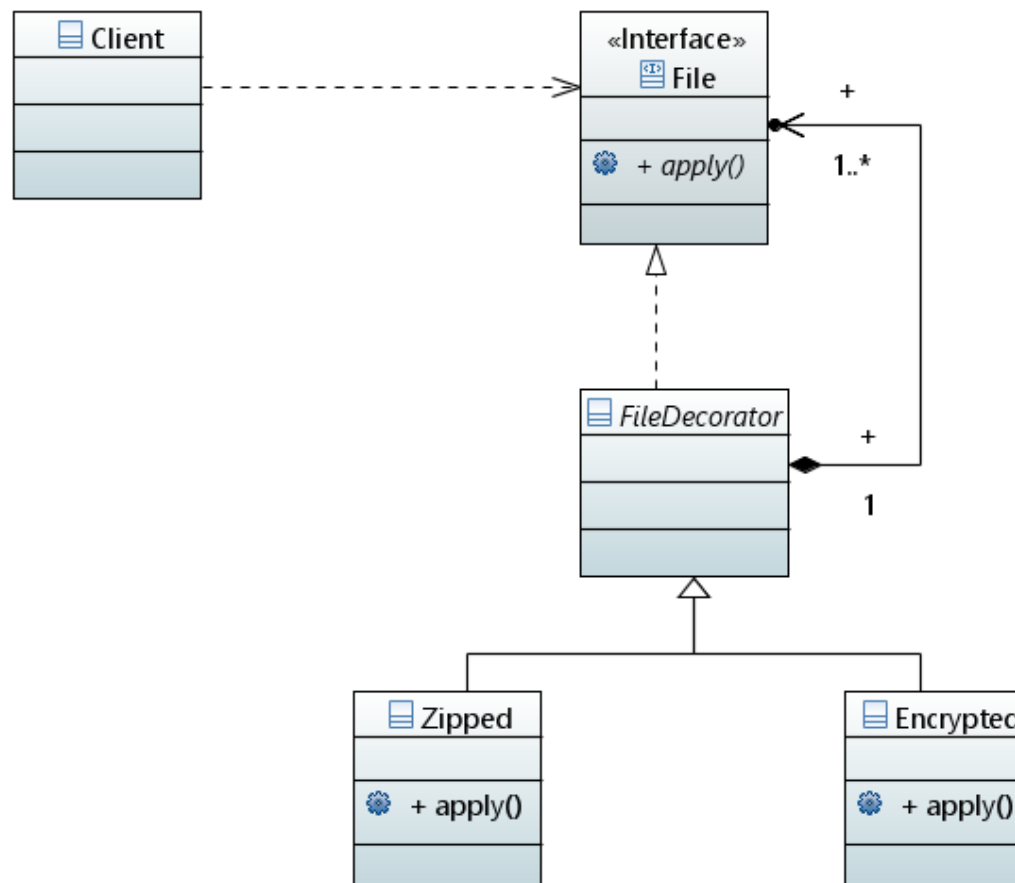
Solution #3 (observer)



Design Patterns for \$800

- You wish to develop a file reader that is capable of reading a file, which may be (a) compressed, (b) encrypted, (c) compressed and encrypted, or (d) encrypted, then compressed, and then encrypted again.

Solution #4 (decorator)

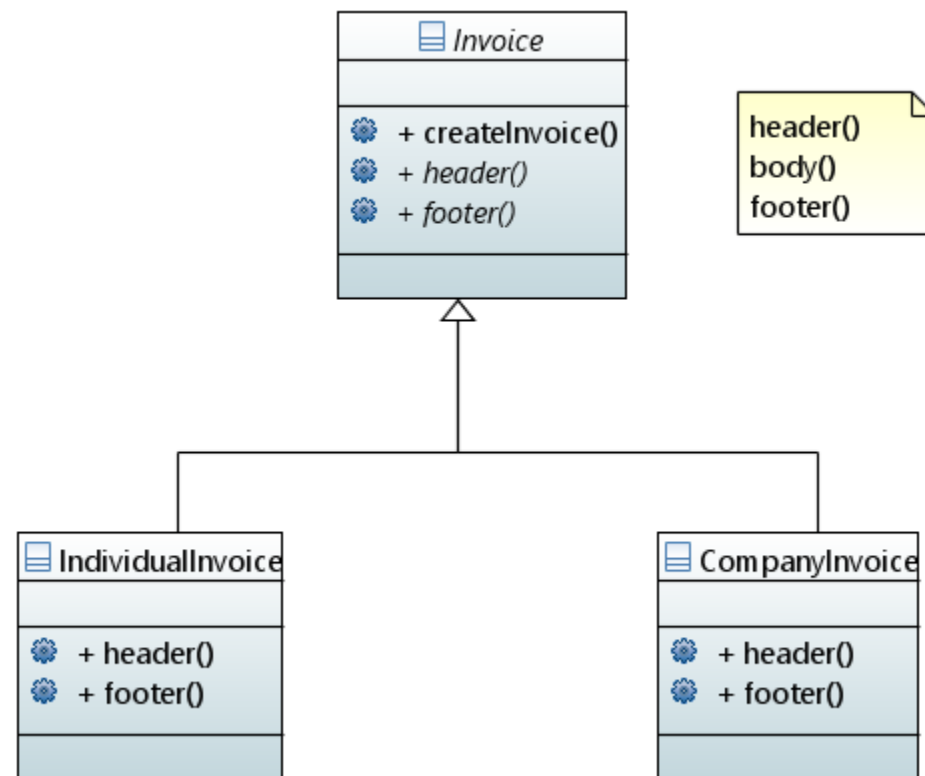


Design Patterns for \$1000

- You have a system that prints invoices, one for individuals and another for companies, which differ between each other on the header and the footer of the page. The content in the body of the invoice is a list of all elements, their prices and the total.



Solution #5 (template method)

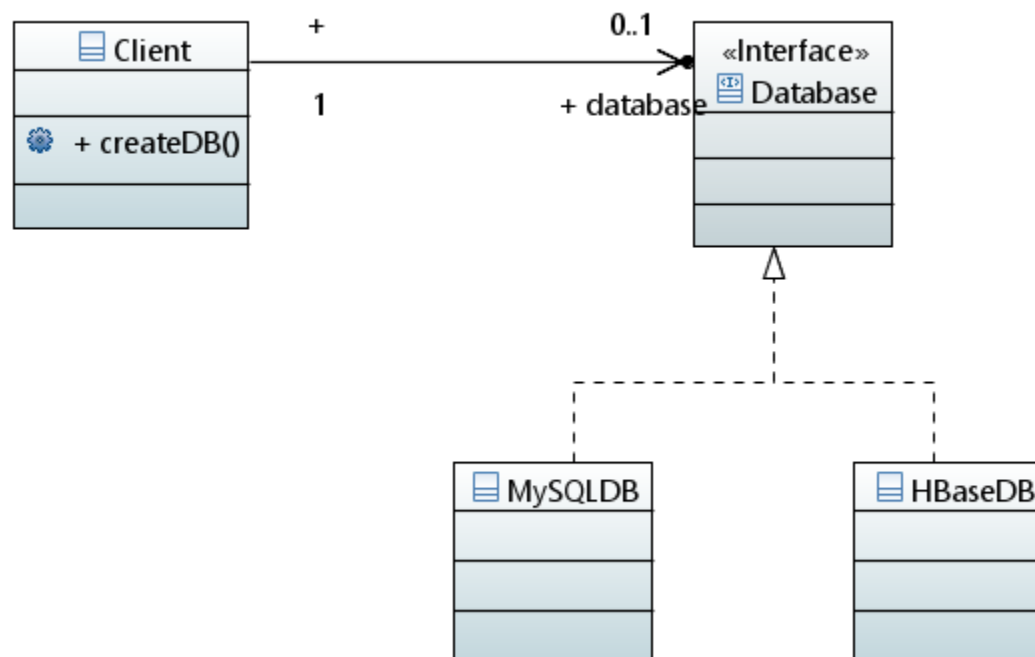


Design Patterns for \$2000

- You have multiple databases, each of which having their own initialization, and you wish that your own application will be able to construct and use each of them in an interchangeable way (db1, db2, ...) at the user's choice.

Solution #6 (factory method)

```
switch(dbType) {
  case "mysql":
    return new MySQLDB();
  case "hbase":
    return new HBaseDB();
  default:
    return null;
}
```



DAILY DOUBLE! (\$4000)

- You are hired by MathWorks (the developers of Matlab). The company would like to provide software to elementary schools, but they want to reuse existing code. You are given code for a scientific calculator and your task is to develop a calculator for children with just the basic operations.

Solution #7 (adapter)

