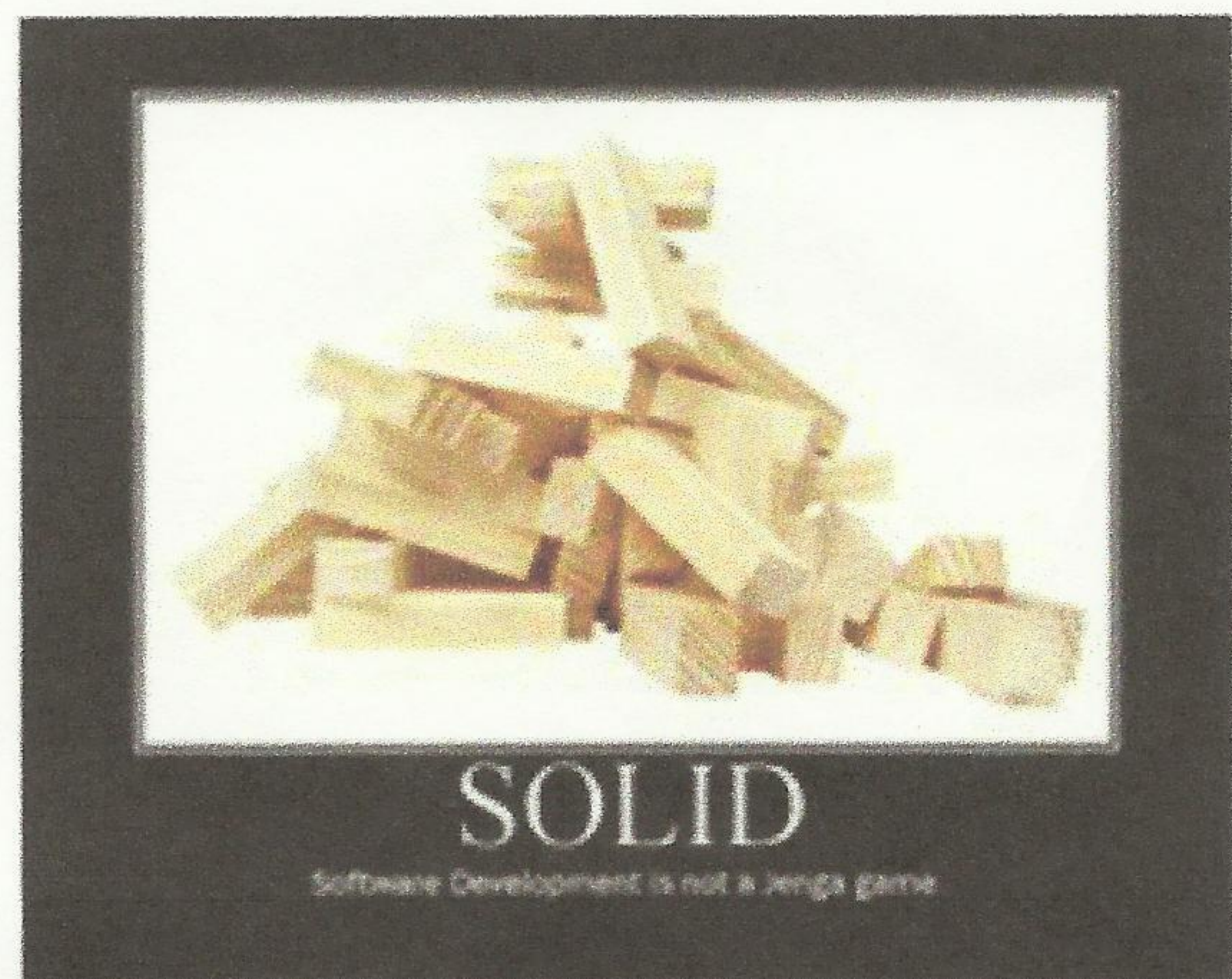Here is the Clearent code challenge. You don't need to write a user interface, just create unit tests using your favorite testing framework (xUnit, JUnit, NUnit, etc.). The tests running is all that is needed to "prove" the example. While this solution can be solved very simply, your ability to use and explain your use of SOLID programming principles is the real test.

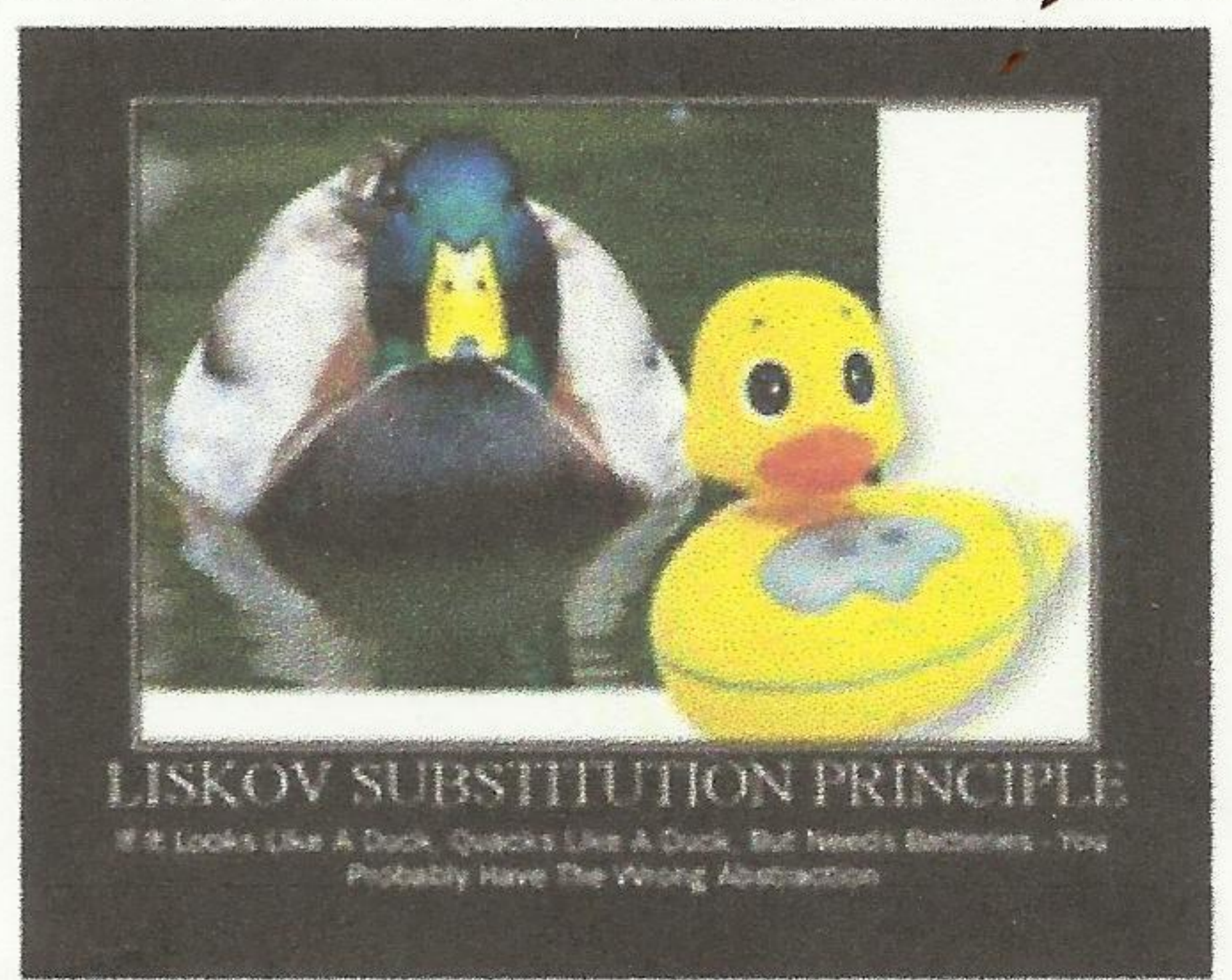There are two <u>requirements</u> to be considered:
- You MUST use a testing framework (xUnit, JUnit, NUnit, etc.)
- Please post your answer on http://github.com

SOLID
Software Development is not a Jenga game

SINGLE RESPONSIBILITY PRINCIPLE
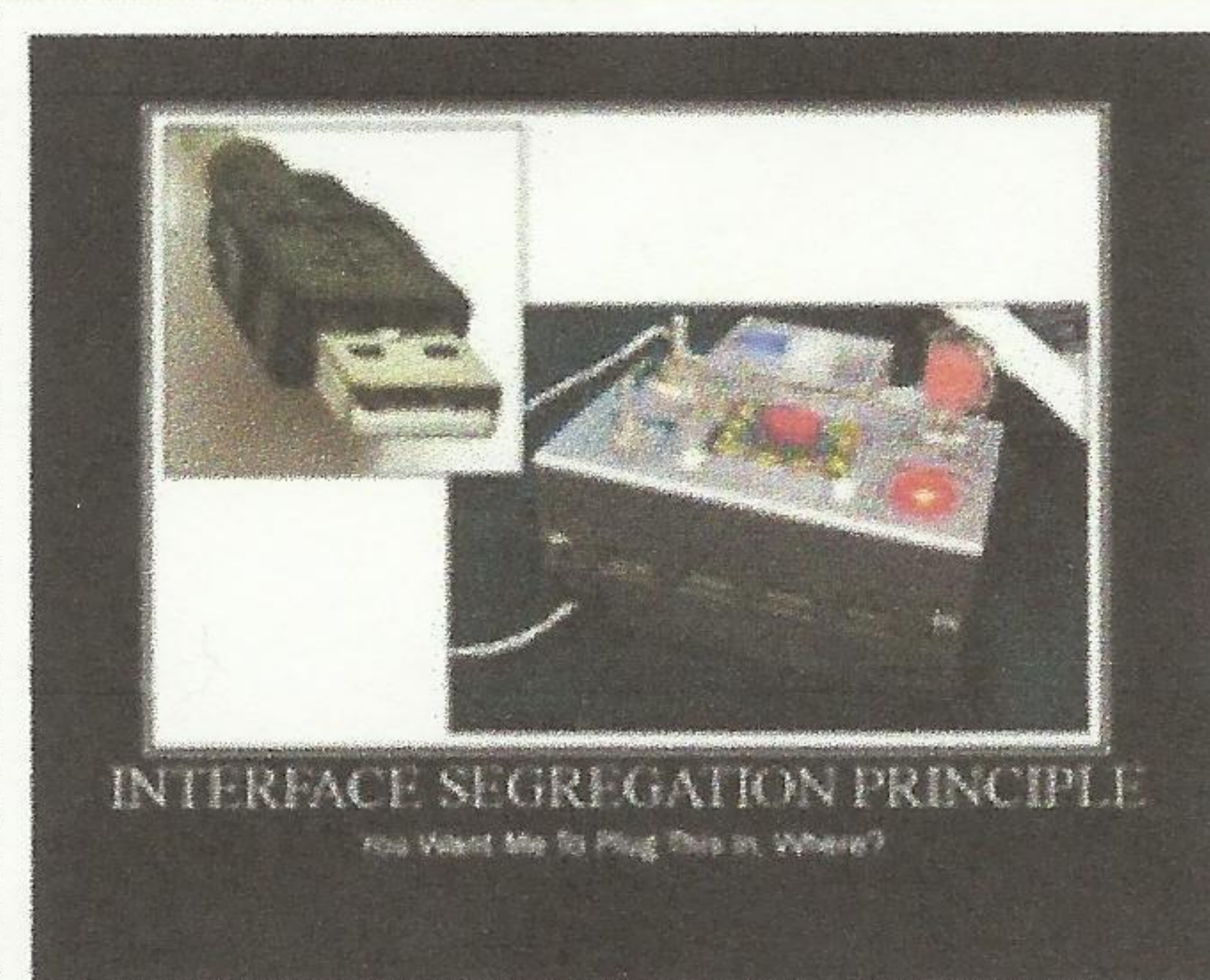Just Because You Can, Doesn't Mean You Should

The Single Responsibility Principle – Every object should have a single responsibility and that responsibility should be entirely encapsulated by the class.
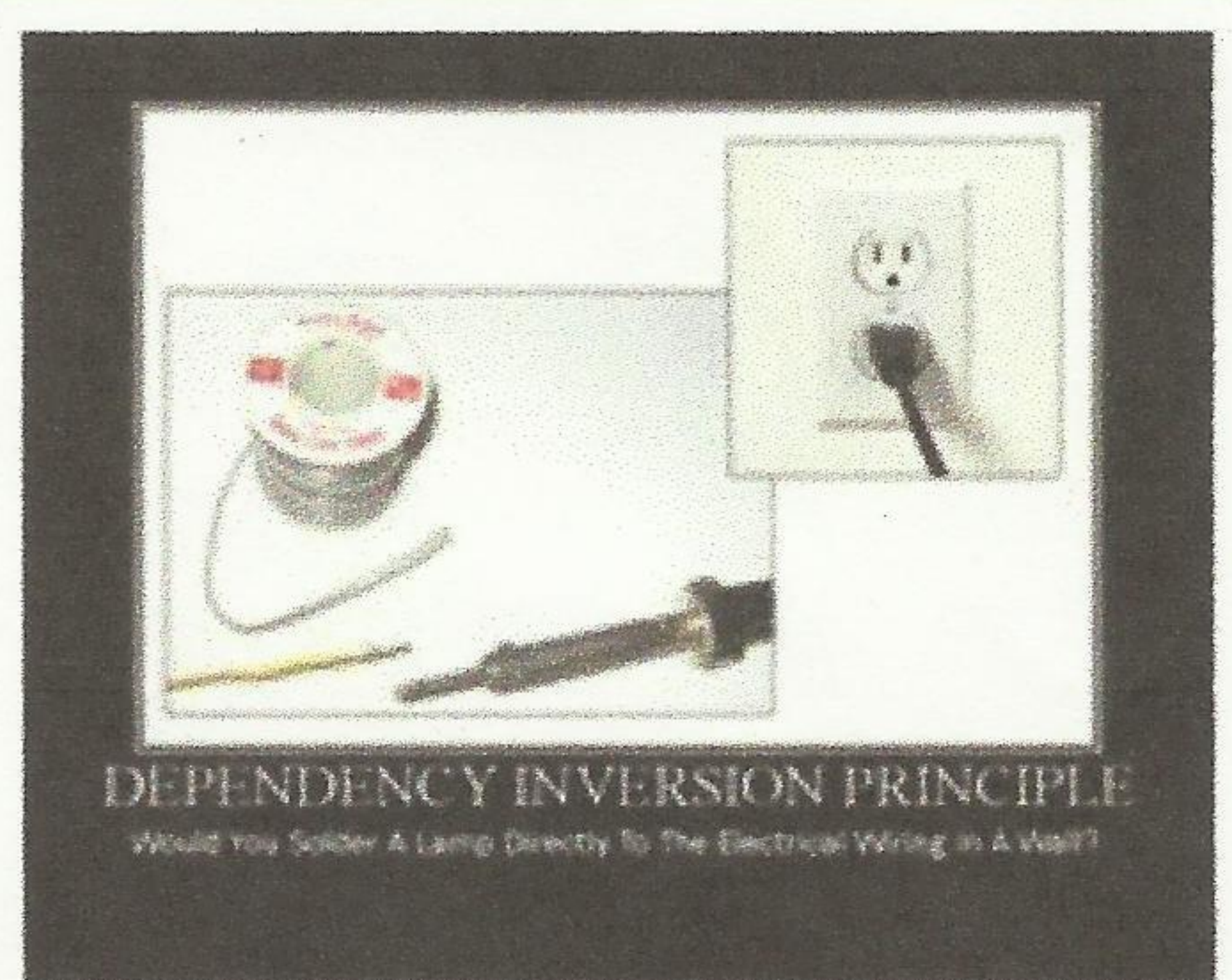

OPEN CLOSED PRINCIPLE
Open Chest Surgery Is Not Needed When Putting On A Coat

The Open / Close Principle – Open to extension but closed to modification. What's your pattern approach?

LISKOV SUBSTITUTION PRINCIPLE
If It Looks Like A Duck, Quacks Like A Duck, But Needs Batteries - You Probably Have The Wrong Abstraction

The Liskov Substitution Principle – Are your subtypes substitutable for your base types?

INTERFACE SEGREGATION PRINCIPLE
You Want Me To Plug This In, Where?

The Interface Segregation Principle – Prefer small, cohesive interfaces to 'fat' interfaces

DEPENDENCY INVERSION PRINCIPLE
Would You Solder A Lamp Directly To The Electrical Wiring In A Wall?

The Dependency Inversion Principle – Do you have hidden dependencies that prevent you from testing without fakes or mocks?

Now write a program program that calculates Credit Card interest for a Person.

Visa gets 10%
MC gets 5% interest
Discover gets 1% interest

Each Card Type can have multiple cards and there can be multiple Wallets for a Person.

NOTE: SIMPLE INTEREST for this test case (means 1 month of interest, if the interest rate is 10% and the amount is 100.00 – interest in this case would be 10.00)

Here are the test Cases -

- 1 person has 1 wallet and 3 cards (1 Visa, 1 MC, 1 Discover) – Each Card has a balance of $100 – calculate the total interest (simple interest) for this person and per card.
- 1 person has 2 wallets Wallet 1 has a Visa and Discover , wallet 2 a MC - each card has $100 balance - calculate the total interest(simple interest) for this person and interest per wallet
- 2 people have 1 wallet each, person 1 has 1 wallet with 3 cards (1 MC, 1 Visa, 1 Discover), person 2 has 1 wallet with 2 cards (1 Visa, 1 MC) all cards in all wallets for both people have a $100 balance - calculate the total interest(simple interest) for each person and interest per wallet

Please be prepared to discuss your solution on the basis of SOLID programming principles-

http://www.objectmentor.com/resources/articles/Principles_and_Patterns.pdf

http://www.blackwasp.co.uk/SOLIDPrinciples.aspx

http://en.wikipedia.org/wiki/SOLID_(object-oriented_design)

You must post your example on https://github.com/<Your name here>

Let me know if you have any questions. Thanks again for your interest in Clearent