

Name \_\_\_\_\_

Answer all 9 questions. Answer essay questions as briefly as possible.

The following might be names of patterns: Abstract Class, Adapter, Bridge, Builder, Chain of Responsibility, Collaborator, Command, Command Processor, Composite, Decorator, Factory Method, Flyweight, Interpreter, Iterator, Mediator, Memento, Null Object, Observer, Prototype, Proxy, Singleton, Specification, State, Strategy, Template Method, Visitor.

1. The text claims that design patterns help overcome some common causes of redesign of a system. What pattern would you use to handle the following issues.
  - A. Algorithmic dependencies.
  - B. Inability to alter classes conveniently.
2. Why does the Big Ball of Mud pattern suggest postponing working on architecture when developing software?
3. Assume we have a method called trimBlanks() on the String class that removes all leading and trailing spaces. That is it repeatedly removes the first character of the string as long as it is a space and repeatedly removes the last character of the string as long as it is a space. Write XUnit (where X = J, R, C#, Cpp) test(s) for the method. C++ people can assume that all C++ strings are an instance of the String class.
4. Explain.
  - A. Information Hiding
  - B. Encapsulation
  - C. Abstraction
5. What are the advantages and disadvantages of the Null Object pattern.

6. The following methods are from classes B & C that have a common superclass A. Rewrite the methods using the Template method. Show all the methods you would create and which classes they would be in.

<pre>Class B Key keyFrom(HttpRequest aRequest) {     if (aRequest.identifier().size() &lt; depth() ) {         if (aRequest.hasPostDataAt( "Command"))             return aRequest.postDataAt("Command");         else             return defaultKey();     }     if (containsAction(matchingElement(aRe- quest)) {         aRequest.decodeFormData();     }     return matchingElement(aRequest); }</pre>	<pre>Class C Key keyFrom(HttpRequest aRequest) {     if (aRequest.identifier().size() &lt; depth() ) {         return defaultKey();     }     return matchingElement(aRequest); }</pre>
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7. Explain one of the following types of coupling: Data Coupling, Control Coupling, Inside Internal Object Coupling.
8. Explain one of the following types of cohesion: Logical, Temporal, Procedural, Communication, Sequential. Give an example.
9. Select either the Command pattern or the Decorator pattern and explain how the pattern works.