

CS 3415 MID TERM EXAMINATION

Oct. 23th, 2008

Duration: One and half hours

Name:

Student Number:

Note: There are total 6 pages in this exam set. Please check the page numbers before you start to solve questions. This is a close-book exam.

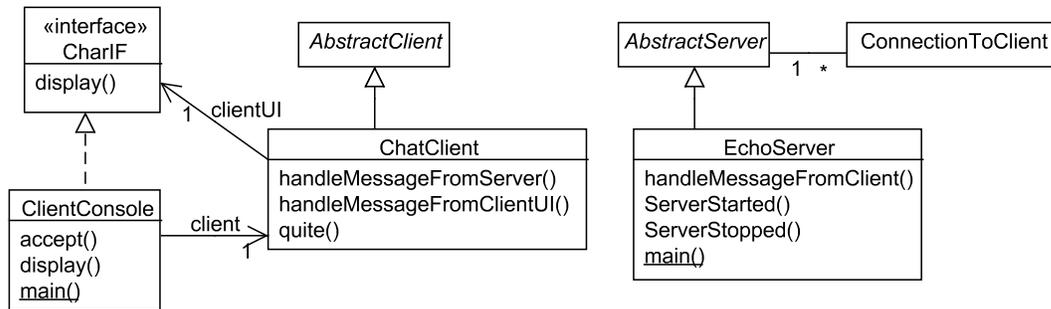
Problem 1

Fill Y/N in each of the brackets to indicate the statement is correct or incorrect.

1. Classes are the units of data abstraction in an object-oriented program. ()
2. Object-oriented software engineering is designed for Java programs. ()
3. A framework is reusable software that implements a generic solution to a generalized problem. ()
4. Functional requirements are more important than non-functional requirements in requirement analysis. ()
5. System development should start after the requirement analysis. That means the requirements cannot be changed if the developing started. ()
6. An association is used to show how two classes will reference each other. ()
7. Read-only patterns are used when the attributes of a class can never be changed. ()
8. The Abstraction-Occurrence pattern is most frequently found in class diagrams that form part of a system domain model. ()
9. In order for reuse to occur, software developers must not only reuse existing good-quality components, but must also contribute to reusable components that others can use. ()
10. OCL defined in UML can be used to something other than specifying constraints. ()

Problem 2

The following UML diagram is the system modeling of `SimpleChat` which uses the OCSF framework.



1. Explain all the associations and generalizations in the diagram.

2. Validate the association between `ClientConsole` and `ChatClient`.

Problem 3

The UML diagram of this Problem is same as that of Problem 2. Answer the following questions.

1. What is the main purpose of using the Factory pattern?
2. Explain how to use the Factory pattern to the `ConnectionToClient` for the `SimpleChat`.

Problem 4

Describe in detail the following use case in a university register system.

Use case: Register in course

Actors: A student

Goals:

Preconditions:

Steps:

Postconditions:

Problem 5

The following figure describes a modification of SimpleChat using the Observable pattern and Adaptable pattern.

1. Indicate all the mistakes of this design and give the corrections.
2. Discuss the advantages to use the Observable pattern in the SimpleChat.

