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## Quiz 4: Service Oriented Architecture I Results for Yufu Liao

Score for this quiz: 40 out of 100 \*

\* Some questions not yet graded

Submitted Oct 3 at 10:27pm

This attempt took 56 minutes.

*Move To... This element is a more accessible alternative to drag & drop reordering. Press Enter or Space to move this question.*

Question 1

20 / 20 pts

Match the aspect of the architecture design with the appropriate approach.

Correct! 6121

Entry point for DDA clients.

Gateway pattern

Correct! 1064

Entry point for SOA clients.

Service facade pattern

Correct! 5737

Unit of data transfer for DDA.

Persistence data object

Correct! 6460

Unit of data transfer for SOA.

Data transfer object.

Correct! 9511

DDA organization of operations on data types.

Constructor-oriented

Correct! 7499

SOA organization of operations on data types.

Observer-oriented.

*Move To... This element is a more accessible alternative to drag & drop reordering. Press Enter or Space to move this question.*

Question 2

20 / 20 pts

Match the description with the design pattern below.

Correct! 716

A service may provide more than one operations, data or binding contract.

Concurrent Contracts

Correct! 3525

A collection of procedures that encapsulates resources and domain logic, abstracting the details of the underlying

domain.

## Service Facade

Correct! 1426

A service contract should not include a dependency on the underlying implementation technology of the service.

## Decoupled Contract

Correct! 9915

Legacy systems are encapsulated so that services are not tightly coupled to their implementation.

## Legacy Wrapper

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Question 3

Not yet graded / 30 pts

1. What is a covariant change in an operations contract?
2. What is a contravariant change in an operations contract?
3. When is it safe to make a covariant change in an operations contract?
4. When is it safe to make a contravariant change in an operations contract?

Your Answer:

1 What is a covariant change in an operations contract?

Add operations to the service interface

2 What is a contravariant change in an operations contract?

Remove operations from the client callback interface

3 When is it safe to make a covariant change in an operations contract?

Covariant change update from top class, and the client is new.

4 When is it safe to make a contravariant change in an operations contract?

Covariant change update is not from top class, but the subtype should be the same, and the client is new.

*Move To... This element is a more accessible alternative to drag & drop reordering. Press Enter or Space to move this question.*

Question 4

Not yet graded / 30 pts

Consider this O'CAML code:

```
let x : List.t = List.insert 3 List.empty
...
let y : int = List.head x
```

1. For opaque types, where in the execution of this code does the list type cross the abstraction boundary from exposed to opaque?
2. For opaque types, where in the execution of this code does the list type cross the abstraction boundary from opaque to exposed?
3. For cryptographic sealing, where in the execution of this code does the list value get encrypted as ciphertext?
4. For cryptographic sealing, where in the execution of this code does the list value get decrypted back to plaintext?

Your Answer:

1. First line, insert in to a empty list
2. Last line, retrieve opaque to int variable.
3. x: List.t
4. y: int

- 4:
1. returned from insert
  2. passed into head
  3. returned from insert
  4. passed into head

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## Quiz Submissions

- [\*This score is pending review, and may change Attempt 1: 40\*](#)

Yufu Liao has no attempts left

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