

TIP

#### Quiz 1

1. What are characteristics of a distributed system? (Select 3 correct answers)

## Component faults are expected and anticipated

Providing minimum resource guarantee

Many servers but one system

**Concurrent execution** 

2. What are characteristics of SOA? (Select 2 correct answers)

## Reusable

Secure

Fault-tolerant

Composable

Which statement is CORRECT about SOA?

#### It is a design philosophy.

It is synonymous with Web service.

It is a programmable library.

It is built on top of HTTP/Web.

4. Benefits of middleware are ... (Select 2 correct answers)

Abstracting the hardware layer for the software layer

Delivering messages to multiple users

Bridging differences among servers

Simplifying the software developer's tasks

5. Characteristics of Web services are ... (Select 2 correct answers)

Platform-independent

**Programmable** 

Detachable

Self-centered

6. On which layer does Web service run?

Transport layer (UDP)

Transport layer (TCP)

Network layer (IP)

Application layer (HTTP)

7. What are the data encoding standards commonly used in Web services? (Select 2 correct answers)

**XML** 

**JSON** 

SQL

HTTP

8. What is a service? (Select 2 correct answers)

A port

A module

A component

An identity

9. What is a "thin client" in the client-server architecture?

The client's screen is small in size, so it cannot display big contents.

## Application code execution hardly occurs on the client.

Client having minimal compute resources.

Client with the lowest privileges.

10. Which messaging modes are asynchronous? (Select 2 correct answers)

#### **Store and Forward**

Remote Procedure Call (RPC)

**Instant Messaging** 

**Publish/Subscribe** 

#### Quiz 3

Which element of a SOAP message must exist one and only one?
 Header

Header block

#### **Body**

Body entry

Which statement is INCORRECT about WSDL?

The service interface can be instantiated by many service implementations. Publicly available operations are defined in the abstract service description.

The abstract definition specifies the concrete protocol and data format to access a Web service.

Service interface definition has no deployment specific detail.

3. Which component converts SOAP messages to programming language specific objects required by the Web service?

Web server

#### **SOAP** server

Web browser

**SOAP** client

4. A service description is needed so that ... (Select 2 correct answers) the service and its detailed processes can be explained by the developer. the service can run correctly.

the service can be published and discovered.

the service can be assembled with other services.

5. Which elements of WSDL resemble each other? (Select 2 correct answers) service

binding

port

portType

6. Which protocol can be used as the transport protocol for SOAP? (Select 2 correct answers)

**HTTP** 

**TCP** 

UDP

**SMTP** 

7. Benefits of WSDL 2.0 over WSDL 1.1: (Select 2 correct answers)

## **More clarity**

More firewall friendly

## Simpler and easier to use

Compatibility support

8. Which SOAP communication style supports automatic serialization/deserialization of messages?

Publish/Subscribe

Document

**RPC** 

**CORBA** 

9. Two parts of a WSDL document that can be defined separately but complement each other are ... (Select 2 correct answers)

## **Concrete implementation**

## **Abstract description**

**Detailed prescription** 

Logical design

10. In an HTTP message, where should a SOAP message be contained?

Request

#### **Body**

Header

Object

#### Quiz 4

1. The structure of a URI should be ... (Select 2 correct answers)

**Understandable** 

Straightforward

Composable

Predetermined

2. Which JSON strings are valid? (Select 2 correct answers)

#### "\"Hello\""

""Hello""

'Hello'

## "\\Hello\/"

3. Whitespace characters in JSON are ... (Select 3 correct answers) Vertical tabulation

Space

Line feed

Carriage return

4. Which ones are valid JSON Numbers? (Select 2 correct answers)

.75

75.0E+0

-0.7500

07.5

5. The minimum and maximum numbers of values in a JSON array are ... one and unbounded

#### zero and unbounded

one and only one zero and one

- 6. Basic design principles of REST are ... (Select 2 correct answers)
  - a. Stateless representation
  - b. Passing data in HTML or JSON
  - c. Exposing tree-like URIs
  - d. Explicit use of HTTP methods

#### C tree-like URIs:



# Directory Structure-Like URIs (1)

- The <u>URIs determine how intuitive the REST Web service is</u> going to be and whether the service is going to be used in ways that the designers can anticipate
- The <u>structure</u> of a URI <u>should be straightforward, predictable,</u> <u>and easily understood</u>
- One way to achieve this level of usability is to <u>define directory</u> <u>structure-like URIs</u>; it is hierarchical, rooted at a single path, and branching from it are subpaths that expose the service's main areas
- According to this definition, <u>a URI</u> is not merely a slashdelimited string, but rather <u>a tree with subordinate and</u> superordinate branches connected at nodes

7. Which statements are CORRECT about JSON? (Select 2 correct answers) JSON is dependent on Java and its related technologies.

JSON represents numbers as sequences of digits.

JSON can be used for data interchange between different systems and platforms.

JSON can specify the meaning of data it contains.

8. Which statement is INCORRECT about the resource representation?

The resource representation is solely determined by the server.

Relationships between resources (objects) in the data model are represented when they are sent to the client.

A resource representation reflects the state of a resource at a particular time.

The resource representation is placed in the payload of the HTTP response returned to the client application.

9. What are the benefits of statelessness in web services? (Select 2 correct answers) It encourages the client to involve in processing web services.

It removes the need to synchronize session data with another application/service. It supports scalability to handle increasing demands.

It reduces the bandwidth required to serve the client.

10. Which HTTP method is NOT idempotent?

PUT

**GET** 

DELETE

**POST** 

#### Quiz 6

1. With microservices, is mixing in different technologies risky?

No, due to the microservice's size, the risk is much reduced.

Yes, it demands high investment.

Yes, mixing technologies brings complexity and overhead.

No, it is irrelevant.

How can tight coupling be prevented with bounded contexts?
 Devising a dedicated model in each bounded context to predict external bounded contexts that may couple too tightly.

# Ensuring that internal-only representations are not exposed unnecessarily in the shared model.

Limiting the external representations to a certain number of bounded contexts.

Making sure that the internal and external representations are different to each other.

3. Why is heterogeneity in technology useful?

Understanding the technology trends.

Enabling diverse collaboration.

Getting the right technology for every task.

Avoiding vendor lock-in.

4. How do microservices differ from shared libraries? (Select 2 correct answers)

## Technology heterogeneity is preserved in microservices.

In microservices, the system's application can be decomposed into smaller components.

The shared libraries naturally support system resiliency.

The shared libraries may become a point of coupling.

5. What does SOA lack of? (Select 2 correct answers)

## No agreement in the industry on how to implement it properly.

It is only a concept and no materialization whatsoever this far.

Many problems still linger on communication protocols, middleware, and the absence of clear guidance.

The idea is too complex to understand and to execute.

6. How can organizational alignment be achieved when the microservice architecture is adopted?

The application is broken into microservices aligned to the organization.

Smaller development teams, each works on particular microservices, are formed and composed of co-located people.

The ownership of all microservices is shifted to a small team comprising people working co-located.

The microservice architecture tries to find a balance between team size and productivity.

7. In terms of composability, what benefits may microservices give? (Select 2 correct answers)

Microservices may be bonded together to strengthen the application's robustness.

Microservices may be functionally reused for other purposes and applications.

Microservices may be replicated in another platform and consumed in different ways.

#### Microservices may be opened up for access by external partners or customers.

8. What are the guidelines to decompose a system's application into bounded contexts? (Select 2 correct answers)

Splitting it sparingly, or else it breaks apart.

Breaking it all the way down as needed.

Making sure that the nested services are always visible to the consumers.

In a nested fashion, separating it according to the organizational structure.

9. What are the advantages of small services? (Select 2 correct answers)

## Well defined

Cheap to build

Highly portable

Easy to debug

10. Advantages of autonomous services are ... (Select 2 correct answers)

More resilient to attack

Increased collaboration

**Isolated failure** 

**Easily replaceable** 

FΙ

#### Quiz 1

1. What are characteristics of a distributed system? (Select 3 correct answers)

Concurrent execution

Component faults are expected and anticipated

Providing minimum resource guarantee

Many servers but one system

2. Which messaging modes are asynchronous? (Select 2 correct answers)

**Instant Messaging** 

Remote Procedure Call (RPC)

Publish/Subscribe

Store and Forward

Which statement is INCORRECT about SOA?

It is well-suited to bolster business automation.

## It is a rebrand of Web services.

It is implementation-agnostic.

It supports fast and cheap development of applications.

4. Examples of simple Web services are ... (Select 3 correct answers)

Inventory management service

#### **News report**

Stock quote information

Courier reservation service

5. Which statement is CORRECT about SOA?

It is synonymous with Web service.

It is a programmable library.

It is built on top of HTTP/Web.

It is a design philosophy.

6. What is a "thin client" in the client-server architecture?

Client having minimal compute resources.

#### Application code execution hardly occurs on the client.

The client's screen is small in size, so it cannot display big contents.

Client with the lowest privileges.

7. What are the data encoding standards commonly used in Web services? (Select 2 correct answers)



SQL

**HTTP** 

**JSON** 

8. Characteristics of Web services are ... (Select 2 correct answers)

Detachable

## Programmable

Self-centered

## Platform-independent

9. What is a service? (Select 2 correct answers)

## A component

A port

## A module

An identity

10. Which element of a message contains key-value pairs?

#### Message headers

#### Message properties

Message body

Message list

#### Quiz 3

What does a WSDL document describe? (Select 2 correct answers)
 Terms and conditions that a user must agree upon before accessing the service

## Data formats and procotols to access the service

The location to get more details about the service

The list of operations of the service

2. Every minute a sensor sends its environment's temperature to a controller Web service. Which message exchange pattern is suitable for that service?

#### One-way

#### **Notification**

Request/response

Solicit/response

- Web services can use different message exchange patterns:
  - ⊕ One-way → the service expects a single message

  - ◆ Solicit/response → upon submitting a message, the service expects a response
  - ⊕ Notification → the service sends a message

Downsides of SOAP: (Select 2 correct answers)

#### **Stateless**

Unscalable

## Not supporting serialization by reference

Closed standards

4. What are the contents of the SOAP Body element? (Select 2 correct answers)

#### Fault message

## Application-specific data

Key-value pairs of metadata

HTTP request or response

5. Which communication style is used in this SOAP message?

RPC

Publish/Subscribe

#### **Document**

**CORBA** 

6. Which statement is INCORRECT about WSDL?

The abstract definition specifies the concrete protocol and data format to access a Web service.

The service interface can be instantiated by many service implementations. Publicly available operations are defined in the abstract service description. Service interface definition has no deployment specific detail.

7. What are described in the service implementation? (Select 2 correct answers)

#### Location of the service

#### Concrete protocol and data format

Data types used by the service Incoming and/or outgoing parameter data

8. A service description is needed so that ... (Select 2 correct answers)

the service and its detailed processes can be explained by the developer.

the service can be assembled with other services.

the service can be published and discovered.

the service can run correctly.

9. Which component converts SOAP messages to programming language specific objects required by the Web service?

Web server

**SOAP** server

SOAP client

Web browser

10. In comparison with WSDL 1.1, which element is removed in WSDL 2.0?

types

operation

binding

message

#### Quiz 4

1. Which JSON strings are valid? (Select 2 correct answers)



""Hello""

'Hello'

"\\Hello\/"

2. Literal name tokens defined in JSON are ... (Select 2 correct answers)

false none right null

3. Which statement is INACCURATE about the issue of stateful vs stateless service?

Stateless services perform better than stateful ones.

Stateless services require clients to send complete and independent requests.

Stateful services are harder to design and build than the stateless ones.

Stateful services transfer the onus to maintain states to the client applications.

4. Which statements are CORRECT about JSON? (Select 2 correct answers) JSON can specify the meaning of data it contains.

JSON represents numbers as sequences of digits.

JSON is dependent on Java and its related technologies.

JSON can be used for data interchange between different systems and platforms.

5. Which HTTP methods should NOT include a payload? (Select 2 correct answers) PUT

DELETE

**GET** 

**POST** 

6. Proper URI structure: (Select 2 correct answers)

No numeric digit

No hyphens or underscores

No script file extensions

No query strings

7. Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)

**Decimal point** 

Extra leading zeros

Minus sign

Infinity token

8. Which statement is INCORRECT about the resource representation?

A resource representation reflects the state of a resource at a particular time.

The resource representation is placed in the payload of the HTTP response returned to the client application.

#### The resource representation is solely determined by the server.

Relationships between resources (objects) in the data model are represented when they are sent to the client.

With regards to objects, which aspects are NOT specified by JSON syntax? (Select 2 correct answers)

#### Uniqueness of names

Data type of names

Separator of name and value

Order of values

#### Quiz 6

1. Why is heterogeneity in technology useful?

Understanding the technology trends.

Enabling diverse collaboration.

Avoiding vendor lock-in.

Getting the right technology for every task.

2. What are characteristics of microservices? (Select 2 correct answers)

Isolated environment

#### Loose coupling

**High cohesion** 

Modular monolith

3. What are some of the things that need more attention to leverage on the benefits of microservices? (Select 2 correct answers)

Fast developing the microservices to avoid bottlenecks among teams.

Adopting microservices wholeheartedly by following the guidelines.

Ensuring scalability and resilience of the system.

Better dealing with deployment, testing, and monitoring.

4. What characterize an evolutionary architect? (Select 3 correct answers)

Collaborating to carry out the system's technical vision.

Balancing all the trade-offs in making decisions.

Conveying the system's technical vision.

Changing the system's technical vision continually.

5. How can organizational alignment be achieved when the microservice architecture is adopted?

The microservice architecture tries to find a balance between team size and productivity. The application is broken into microservices aligned to the organization.

The ownership of all microservices is shifted to a small team comprising people working co-located.

Smaller development teams, each works on particular microservices, are formed and composed of co-located people.

6. In terms of composability, what benefits may microservices give? (Select 2 correct answers)

Microservices may be bonded together to strengthen the application's robustness.

Microservices may be functionally reused for other purposes and applications.

Microservices may be replicated in another platform and consumed in different ways.

Microservices may be opened up for access by external partners or customers.

7. Is it alright to create the bounded contexts along technical boundary? No, it would be problematic.

No, it does not make sense.

Yes, but it should not be the main determinant.

Yes, it perfectly makes sense.

8. How do microservices differ from some language modules? (Select 2 correct answers)

Modules have the tendency to become overly coupled to each other.

Modules may be deployed without taking the whole system down.

Microservices lacks the support of the programming language for proper isolation.

Microservices can scale independently.

9. How can communications between microservices be seen in parallel with business concepts?

To avoid chatty interfaces, communications between microservices must be limited to only passing important business ideas.

New business ideas should be advanced beyond what the microservices can offer. The interfaces of microservices should drive how the organization's business is developed.

The same business terms and forms, sent around the organization, should be reflected in the microservices' interfaces.

DEV
Quiz 1
[LO-1.1] What is "marshalling" in inter-process communication?
Question 1
Select one:
Providing a queue where packets are placed while waiting to be served.
Transforming an object to a data format suitable for transmission among heterogeneous hosts.
Protecting a server against malicious attacks.
Sending a warning to an unresponsive server.
[LO-1.1] Which communication style supports many-to-many?
Question 2
Select one:
Store and Forward
Publish/Subscribe
Synchronous Messaging
Remote Procedure Call (RPC)

[LO-1.1] What are benefits of SOA? (Select 2 correct answers)
Question 4
Select one or more:
Agility and interoperability
Reduced overheads and costs
Fast and responsive technology
Reliable and professional vendor support
[LO-1.1] What can represent a service's logic? (Select 2 correct answers)
Question 5
Select one or more:
A process
<mark>A task</mark>
A bot
An agent
[LO-1.1] Which element of a message contains key-value pairs?
Question 6
Select one:
Message headers
Message properties
Message body
Message list

Question 7
Select one or more:
Self-centered
Detachable
Programmable Progr
Platform-independent
[LO-1.1] What is a "thin client" in the client-server architecture?
Select one:
Client having minimal compute resources.
Application code execution hardly occurs on the client.
Client with the lowest privileges.
Client with the lowest privileges.  The client's screen is small in size, so it cannot display big contents.
The client's screen is small in size, so it cannot display big contents.
The client's screen is small in size, so it cannot display big contents.  [LO-1.1] What are characteristics of SOA? (Select 2 correct answers)
The client's screen is small in size, so it cannot display big contents.  [LO-1.1] What are characteristics of SOA? (Select 2 correct answers)  Question 10
The client's screen is small in size, so it cannot display big contents.  [LO-1.1] What are characteristics of SOA? (Select 2 correct answers)  Question 10  Select one or more:
The client's screen is small in size, so it cannot display big contents.  [LO-1.1] What are characteristics of SOA? (Select 2 correct answers)  Question 10  Select one or more:  Secure

QUIZ 3

[LO-1.2] Which protocol can be used as the transport protocol for SOAP? (Select 2 correct answers)
Question 1
Select one or more:
UDP
<b>SMTP</b>
HTTP
ТСР
[LO-1.2] Every minute a sensor sends its environment's temperature to a controller Web service. Which message exchange pattern is suitable for that service?
Question 2
Select one:
One-way
Solicit/response
Request/response
Notification
[LO-1.2] Two parts of a WSDL document that can be defined separately but complement each other are (Select 2 correct answers)
Question 3
Select one or more:
Logical design
Concrete implementation
Abstract description

Detailed prescription
[LO-1.2] Elements in Abstract Service Description of WSDL: (Select 2 correct answers)
Question 4
Select one or more:
definitions
portType
service
<mark>Message</mark>
[LO-1.2] SOAP communication styles: (Select 2 correct answers)
Question 5
Select one or more:
RPC
Document
CORBA
Publish/Subscribe
[LO-1.2] Which statement about WSDL is INACCURATE?
Question 6
Select one:
Every port element is associated with a portType element.

The binding element needs to specify the portType element.

Use of SOAP is specified in the binding element.

The service element may contain multiple port elements.
[LO-1.2] Elements in a WSDL document: (Select 3 correct answers)
Question 7
Select one or more:
<mark>types</mark>
body
<mark>portType</mark>
<mark>port</mark>
[LO-1.2] What is the root element of a WSDL 1.1 document?
Question 8
Select one:
description
Envelope
service
<u>definitions</u>
[LO-1.2] In an HTTP message, where should a SOAP message be contained?
Question 9
Select one:
<mark>Body</mark>
Request
Object
Header

[LO-1.2] What are the contents of the SOAP Body element? (Select 2 correct answers)
Question 10
Select one or more:
Application-specific data
Key-value pairs of metadata
HTTP request or response
Fault message
Quiz 4
[LO-1.2] Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)
Question 1
Select one or more:
Infinity token
Extra leading zeros
Minus sign
Decimal point
[LO-1.2] In JSON strings, how many characters are required to represent a Unicode code point? (Select 2 correct answers)
Question 2
Select one or more:
Eight

<u>Six</u>
<mark>Twelve</mark>
Four
[LO-1.2] What are the benefits of statelessness in web services? (Select 2 correct answers)
Question 3
Select one or more:
It encourages the client to involve in processing web services.
It reduces the bandwidth required to serve the client.
It supports scalability to handle increasing demands.
It removes the need to synchronize session data with another application/service.
[LO-1.2] Whitespace characters in JSON are (Select 3 correct answers)
Question 4
Select one or more:
Vertical tabulation
Carriage return
<mark>Space</mark>
Line feed
[LO-1.2] Which URI structures are recommended? (Select 2 correct answers)
Question 5
Select one or more:
http://foo.service.com/purchase orders/{PO}

```
http://foo.service.com/POs/{items}
http://foo.service.com/orders/{date}/{order-id}
http://foo.service.com/purchase_orders/{id}
[LO-1.2] Which HTTP method is used to modify a resource (in a RESTful web service)?
Question 6
Select one:
PUT
GET
POST
DELETE
[LO-1.2] Which statement is INCORRECT about REST?
Question 7
Select one:
REST defines a few procotols that run on top of HTTP.
REST is lighter and more concise than SOAP.
REST is rather resource-centric than message-centric.
REST was first introduced in Roy Fielding's dissertation.
[LO-1.2] Referring to the following snippet:
[
  "nrp": "c14200001",
```

```
"name": "Sarah Summers"
},

{
    "nrp": "c14200002",
    "name": "Bill Winters"
}

]

What does it contain?

Question 8

Select one:

Two objects with two name/value pairs

An array of objects

A list of strings
```

[LO-1.2] What is content negotiation? (Select 2 correct answers)

Question 9

Select one or more:

A dictionary of two objects

It specifies how a resource representation should be presented in the client application.

It is a security mechanism to ensure that the resource representation is valid and not harmful to the client.

It is the mechanism to help the user agent specify the resource representation best suited for the user.

It determines how a specific representation is chosen when the resource is called.

[LO-1.2] Drawbacks of JSON: (Select 2 correct answers)
Question 10
Select one or more:
No support for binary data
Semantics must be established separately
No support for real numbers
No support for Unicode characters
Quiz 6
[LO-2.1] Main benefits of microservices are (Select 3 correct answers)
Question 1
Select one or more:
Reusable
Scalable Sca
Decomposable
Technology-agnostic
[LO-2.1] How can tight coupling be prevented with bounded contexts?
Question 2
Select one:
Limiting the external representations to a certain number of bounded contexts.
Making sure that the internal and external representations are different to each other.

Devising a dedicated model in each bounded context to predict external bounded contexts that may couple too tightly. Ensuring that internal-only representations are not exposed unnecessarily in the shared model. [LO-2.1] How is the microservice approach related to SOA? Question 3 Select one: The microservice approach is a real-world implementation of SOA. They are unrelated to each other. The microservice approach is the direct competitor of the SOA approach. The microservice approach is the required foundation to realize SOA. [LO-2.1] Which statements are CORRECT about bounded contexts? (Select 2 correct answers) Question 4 Select one or more: Each bounded context just focuses on things it must do internally. Communication to any bounded context is conducted through models. Every bounded context exposes an interface connecting it with other bounded contexts. A given domain should have exactly one bounded context [LO-2.1] In terms of composability, what benefits may microservices give? (Select 2 correct answers) Question 5

Select one or more:

Microservices may be opened up for access by external partners or customers.

Microservices may be bonded together to strengthen the application's robustness.

Microservices may be functionally reused for other purposes and applications.

Microservices may be replicated in another platform and consumed in different ways.

[LO-2.1] Why is replaceability easy to accomplish with microservices? (Select 2 correct answers)

Question 6

Select one or more:

The cost to replace small-sized microservices is relatively easy to deal with.

The developers would not be emotionally attached to a microservice or mindful of rewriting it, with just a few hundred lines long.

Microservices can smoothly replace a legacy system without anyone realizes it.

The risk of replacing one microservice or multiple microservices is equally the same.

[LO-2.1] How do microservices differ from shared libraries? (Select 2 correct answers)

Question 7

Select one or more:

The shared libraries naturally support system resiliency.

In microservices, the system's application can be decomposed into smaller components.

The shared libraries may become a point of coupling.

Technology heterogeneity is preserved in microservices.

[LO-2.1] What are characteristics of microservices? (Select 2 correct answers)

Question 8

Select one or more:
Isolated environment
Loose coupling
Modular monolith
High cohesion
[LO-2.1] How should scaling be carried out with microservices?
Question 9
Select one:
Replicate only the required microservices.
Scale the entire microservices as a whole.
Run parts of every microservice on smaller, less powerful hardware.
Burst the on-demand microservices in cloud.
[LO-2.1] Advantages of autonomous services are (Select 2 correct answers)
Question 10
Select one or more:
Easily replaceable
Isolated failure
More resilient to attack
Increased collaboration
Jes
Quiz 1

1. Which element of a message contains key-value pairs?

### Message properties

Message list Message headers Message body

2. What is "marshalling" in inter-process communication?

Sending a warning to an unresponsive server.

Protecting a server against malicious attacks.

Transforming an object to a data format suitable for transmission among heterogeneous hosts.

Providing a queue where packets are placed while waiting to be served.

3. What is a "thin client" in the client-server architecture?

Select one:

The client's screen is small in size, so it cannot display big contents.

Application code execution hardly occurs on the client.

Client with the lowest privileges.

Client having minimal compute resources.

4. What can represent a service's logic? (Select 2 correct answers)

A process

A bot

An agent

A task

5. Examples of simple Web services are ... (Select 3 correct answers) Inventory management service Stock quote information **News report** Courier reservation service 6. Goals of employing Web services include ... (Select 2 correct answers) Enable the exploration to new business ventures. Support application integration across business functions. Redefine the roles of existing applications. Extend the life of legacy systems. 7. What are essential aspects of SOA? (Select 2 correct answers) Anonymity Tight coupling Statelessness Searchability 8. Which statement is CORRECT about SOA? It is synonymous with Web service. It is built on top of HTTP/Web.

It is a design philosophy.

It is a programmable library.

9. Which communication style supports many-to-many?

Synchronous Messaging

Store and Forward

Publish/Subscribe

Remote Procedure Call (RPC)

10. Characteristics of Web services are ... (Select 2 correct answers)

# Platform-independent

Self-centered

Detachable

**Programmable** 

#### Quiz 3

1. Which communication style is used in this SOAP message?

```
<env:Body>
  <w:Report>
    <timestamp>1709250000</timestamp>
    <location>
        <city>Surabaya</city>
        <state>East Java</state>
        <country>Indonesia</city>
        </location>
        <temperature>31</temperature>
        <humidity>60</humidity>
        </w:Report>
</env:Body>
```

	CORBA
	Publish/Subscribe
	RPC
	Document
2.	A service description is needed so that (Select 2 correct answers)
	the service can run correctly.
	the service can be assembled with other services.
	the service can be published and discovered.
	the service and its detailed processes can be explained by the developer.
3.	Elements in a WSDL document: (Select 3 correct answers)
	portType
	<mark>types</mark>
	body
	<mark>port</mark>
4.	What are described in the service implementation? (Select 2 correct answers)
	Concrete protocol and data format
	Location of the service
	Data types used by the service
	Incoming and/or outgoing parameter data
5.	Through the online interactive service, the teacher sends a poll to the students. Which message exchange pattern is suitable for that service?

	One-way
	Request/response
	Notification
	Solicit/response
6.	Elements in Abstract Service Description of WSDL: (Select 2 correct answers)
	<mark>message</mark>
	service
	definitions
7	portType  What are the contents of the COAD Body element? (Colort 2 connect annuars)
/.	What are the contents of the SOAP Body element? (Select 2 correct answers)
	HTTP request or response
	Application-specific data
	Key-value pairs of metadata
	Fault message
8.	What advantages are offered by SOAP? (Select 3 correct answers)
	Adaptable
	Secured and fault tolerant
	Easy to parse
	Able to get past firewalls
9.	Benefits of WSDL 2.0 over WSDL 1.1: (Select 2 correct answers)

	More clarity
	More firewall friendly
	Compatibility support
	Simpler and easier to use
10.	Which component converts SOAP messages to programming language specific objects required by the Web service?
	Web server
	SOAP client
	SOAP server
	Web browser
Quiz 4 1.	Which URI structures are recommended? (Select 2 correct answers)
	http://foo.service.com/POs/{items}
	<pre>http://foo.service.com/purchase_orders/{id}</pre>
	http://foo.service.com/orders/{date}/{order-id}
	http://foo.service.com/purchase orders/{PO}
2.	Which HTTP method is NOT idempotent?
	GET
	POST
	DELETE
	PUT

3. Code points that must be escaped in JSON strings are ... (Select 3 correct answers)

solidus hex digits representing any Unicode code point delete quotation mark 4. Drawbacks of JSON: (Select 2 correct answers) No support for binary data Semantics must be established separately No support for Unicode characters No support for real numbers 5. Which ones are structural characters in JSON? (Select 3 correct answers) {} (braces) , (comma) [] (brackets) ; (semicolon) 6. Which statement is INCORRECT about REST? REST is lighter and more concise than SOAP. REST defines a few procotols that run on top of HTTP. REST was first introduced in Roy Fielding's dissertation.

REST is rather resource-centric than message-centric.

7. Which statements are CORRECT about a JSON array? (Select 2 correct answers)

It surrounds the values with a pair of curly brackets.

It surrounds the values with a pair of square brackets.

It contains values separated by commas.

It contains name/value pairs separated by commas.

8. What is content negotiation? (Select 2 correct answers)

It determines how a specific representation is chosen when the resource is called.

It is the mechanism to help the user agent specify the resource representation best suited for the user.

It specifies how a resource representation should be presented in the client application.

It is a security mechanism to ensure that the resource representation is valid and not harmful to the client.

9. Which statement is INACCURATE about the issue of stateful vs stateless service?

Stateless services perform better than stateful ones.

Stateful services transfer the onus to maintain states to the client applications.

Stateful services are harder to design and build than the stateless ones.

Stateless services require clients to send complete and independent requests.

10. Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)

Minus sign

# **Decimal** point

Extra leading zeros

Infinity token

#### Quiz 6

1. What are the advantages of small services? (Select 2 correct answers)

# Easy to debug

Highly portable

# Well defined

Cheap to build

2. What are characteristics of microservices? (Select 2 correct answers)

Isolated environment

# Loose coupling

Modular monolith

# High cohesion

3. How is resilience provided by microservices?

# Service boundaries are logical bulkheads to address the system's failure.

Every failed microservice has to be quickly and manually isolated from the rest of the system.

Multiple bulkheads need to be intentionally built in the microservice-based system.

Redundancy and replication are the keys to a resilient system.

4. Main benefits of microservices are ... (Select 3 correct answers)

Technology-agnostic

**Decomposable** 

Scalable

Reusable

Reusable:

# Composability

One of the key promises of distributed systems and SOA is that we open up opportunities for reuse of functionality

Composable: komponen"/bagian" bisa digabung/dicompose jadi 1 jadi sistem yang kompleks → yang ini key benefitnya microservice

Decomposable: sistem dipecah/didecompose jadi beberapa bagian lebih kecil supaya lebih gampang diatur

5. How is the microservice approach related to SOA?

#### The microservice approach is a real-world implementation of SOA.

They are unrelated to each other.

The microservice approach is the direct competitor of the SOA approach.

The microservice approach is the required foundation to realize SOA.

6. How do we align the bounded contexts with the organization?

Decomposing the organization into bounded contexts based on the shared data.

Modeling the bounded contexts as collaborating business parties.

Creating the bounded contexts along business processes.

### Splitting the bounded contexts according to business functions or capabilities.

7. What are some of the things that need more attention to leverage on the benefits of microservices? (Select 2 correct answers)

Adopting microservices wholeheartedly by following the guidelines.

Ensuring scalability and resilience of the system.

Fast developing the microservices to avoid bottlenecks among teams.

Better dealing with deployment, testing, and monitoring.

8. Why is heterogeneity in technology useful?

Understanding the technology trends.

Getting the right technology for every task.

Avoiding vendor lock-in.

Enabling diverse collaboration.

9. How can organizational alignment be achieved when the microservice architecture is adopted?

The application is broken into microservices aligned to the organization.

The ownership of all microservices is shifted to a small team comprising people working co-located.

The microservice architecture tries to find a balance between team size and productivity.

Smaller development teams, each works on particular microservices, are formed and composed of co-located people.

10. Is it alright to create the bounded contexts along technical boundary?

# Yes, but it should not be the main determinant.

No, it would be problematic.

Yes, it perfectly makes sense.

No, it does not make sense.

BEN

#### Quiz 1

1. Which statement is CORRECT about SOA? Select one:

It is a programmable library.

# It is a design philosophy.

It is built on top of HTTP/Web.

It is synonymous with Web service.

2. Which communication style supports many-to-many? Select one:

Remote Procedure Call (RPC)

### Publish/Subscribe

Synchronous Messaging

Store and Forward

3. Which are non-functional properties of a Web service? (Select 2 correct answers)

**Output formats** 

Service endpoint

Price rate

Mean time between failures

4. Goals of employing Web services include ... (Select 2 correct answers)

Redefine the roles of existing applications.

Support application integration across business functions.

Extend the life of legacy systems.

Enable the exploration to new business ventures.

5. What is "marshalling" in inter-process communication?

Sending a warning to an unresponsive server.

Providing a queue where packets are placed while waiting to be served.

Protecting a server against malicious attacks.

Transforming an object to a data format suitable for transmission among heterogeneous hosts.

6. Which statement is INCORRECT about SOA?

It supports fast and cheap development of applications.

It is well-suited to bolster business automation.

It is a rebrand of Web services.

It is implementation-agnostic.

7. Which element of a message contains key-value pairs?

Message headers

Message list

Message body

Message properties

8. Examples of simple Web services are ... (Select 3 correct answers)

Stock quote information

Courier reservation service

**News** report

Inventory management service

9. What are benefits of SOA? (Select 2 correct answers)

Fast and responsive technology

Reduced overheads and costs

Reliable and professional vendor support

# Agility and interoperability

10. What are characteristics of a distributed system? (Select 3 correct answers)

Concurrent execution

Many servers but one system

Component faults are expected and anticipated

Providing minimum resource guarantee

#### Quiz 3

1. What advantages are offered by SOAP? (Select 3 correct answers)

# Able to get past firewalls

Secured and fault tolerant

Adaptable

Easy to parse

2. Every minute a sensor sends its environment's temperature to a controller Web service. Which message exchange pattern is suitable for that service?

# One-way

### **Notification**

Solicit/response

Request/response

3. Roles of SOAP intermediaries: (Select 2 correct answers)

Routing the SOAP messsages to the right destination host.

Processing the header blocks of a SOAP message.

Helping the SOAP server to attain scalability.

Intercepting SOAP messages and converting them to locally defined objects.

4. Through the online interactive service, the teacher sends a poll to the students. Which message exchange pattern is suitable for that service?

Request/response

One-way
Notification
Solicit/response

5. Which element renamings occur in WSDL 2.0? (Select 2 correct answers)

The description element to definitions

The port element to endpoint

The portType element to interface

The binding element to extends

6. Elements in a WSDL document: (Select 3 correct answers)

types

port

portType

Body

7. Which SOAP communication style supports automatic serialization/deserialization of messages?

**CORBA** 

**RPC** 

Document

Publish/Subscribe

8. Two parts of a WSDL document that can be defined separately but complement each other are ... (Select 2 correct answers)

Concrete implementation

Abstract description

Logical design

**Detailed prescription** 

9. What are described in the service implementation? (Select 2 correct answers)

Concrete protocol and data format

Data types used by the service

### Location of the service

Incoming and/or outgoing parameter data

10. Which statement is INCORRECT about WSDL?

Publicly available operations are defined in the abstract service description.

The service interface can be instantiated by many service implementations.

Service interface definition has no deployment specific detail.

The abstract definition specifies the concrete protocol and data format to access a Web service.

#### Quiz 4

1. Which ones are valid JSON Numbers? (Select 2 correct answers)

.75

07.5

-0.7500

75.0E+0

2. With regards to objects, which aspects are NOT specified by JSON syntax? (Select 2 correct answers)

### Order of values

Data type of names

Separator of name and value

Uniqueness of names

Which JSON strings are valid? (Select 2 correct answers)

"\\Hello\/" "\"Hello\"'

'Hello'

""Hello""

4. Which statements are CORRECT about JSON? (Select 2 correct answers)

JSON represents numbers as sequences of digits.

# JSON can be used for data interchange between different systems and platforms.

JSON can specify the meaning of data it contains.

JSON is dependent on Java and its related technologies.

5. Which statement is INCORRECT about the resource representation?

Relationships between resources (objects) in the data model are represented when they are sent to the client.

# The resource representation is solely determined by the server.

The resource representation is placed in the payload of the HTTP response returned to the client application.

A resource representation reflects the state of a resource at a particular time.

6. Which HTTP header is used to negotiate the representation of a resource?

application/\*

# Accept-\*

Negotiate-\*

Content-\*

7. Which URI structures are recommended? (Select 2 correct answers)

http://foo.service.com/POs/{items}

### http://foo.service.com/orders/{date}/{order-id}

http://foo.service.com/purchase orders/{PO}

http://foo.service.com/purchase\_orders/{id}

8. Which statement is INACCURATE about the issue of stateful vs stateless service?

Stateless services perform better than stateful ones.

Stateless services require clients to send complete and independent requests.

Stateful services are harder to design and build than the stateless ones.

Stateful services transfer the onus to maintain states to the client applications.

9. Literal name tokens defined in JSON are ... (Select 2 correct answers)

right



1. What are some of the things that need more attention to leverage on the benefits of microservices? (Select 2 correct answers)

# Better dealing with deployment, testing, and monitoring.

Fast developing the microservices to avoid bottlenecks among teams.

#### Ensuring scalability and resilience of the system.

Adopting microservices wholeheartedly by following the guidelines.

2. Why is replaceability easy to accomplish with microservices? (Select 2 correct answers)

Microservices can smoothly replace a legacy system without anyone realizes it. The risk of replacing one microservice or multiple microservices is equally the same. The developers would not be emotionally attached to a microservice or mindful of rewriting it, with just a few hundred lines long.

The cost to replace small-sized microservices is relatively easy to deal with.

What are the guidelines to decompose a system's application into bounded contexts? (Select 2 correct answers)

#### Breaking it all the way down as needed.

Making sure that the nested services are always visible to the consumers. Splitting it sparingly, or else it breaks apart.

In a nested fashion, separating it according to the organizational structure.

4. How can organizational alignment be achieved when the microservice architecture is adopted?

Smaller development teams, each works on particular microservices, are formed and composed of co-located people.

The microservice architecture tries to find a balance between team size and productivity. The application is broken into microservices aligned to the organization.

The ownership of all microservices is shifted to a small team comprising people working co-located.

5. What does SOA lack of? (Select 2 correct answers)

It is only a concept and no materialization whatsoever this far.

Many problems still linger on communication protocols, middleware, and the absence of clear guidance.

The idea is too complex to understand and to execute.

No agreement in the industry on how to implement it properly.

6. What are the advantages of small services? (Select 2 correct answers)

# Easy to debug

Cheap to build

#### Well defined

Highly portable

7. What are characteristics of microservices? (Select 2 correct answers)

# Loose coupling

# High cohesion

Modular monolith

Isolated environment

8. How should scaling be carried out with microservices?

### Replicate only the required microservices.

Burst the on-demand microservices in cloud.

Scale the entire microservices as a whole.

Run parts of every microservice on smaller, less powerful hardware.

9. How can tight coupling be prevented with bounded contexts?

Devising a dedicated model in each bounded context to predict external bounded contexts that may couple too tightly.

# Ensuring that internal-only representations are not exposed unnecessarily in the shared model.

Making sure that the internal and external representations are different to each other. Limiting the external representations to a certain number of bounded contexts.

Ella

#### Quiz 1

1. Benefits of middleware are ... (Select 2 correct answers)

Select one or more:

- a. Simplifying the software developer's tasks
- b. Bridging differences among servers
- c. Abstracting the hardware layer for the software layer
- d. Delivering messages to multiple users

#### Quiz 3

1. Which characteristics of a messaging protocol are satisfied by SOAP? (Select 2 correct answers)

Select one or more:

- a. Loose coupling
- b. Compact
- c. Efficient
- d. Scalable
- 2. What are the roles of SOAP? (Select 2 correct answers)

Select one or more:

- a. Processing messages in a heterogeneous, distributed environment.
- b. Routing a message packet to the right destination.
- c. Transfering data without knowing the content.
- d. Exchanging structured and typed information between hosts.

#### Quiz 4

1. The structure of a URI should be ... (Select 2 correct answers)

#### Select one or more:

- a. Predetermined
- b. Straightforward
- c. Composable
- d. Understandable
- 2. Beneficial features of JSON: (Select 3 correct answers)

Select one or more:

- a. Support for expressing objects
- b. Support for lists of values
- c. Support for cylic graphs
- d. The grammar may never change
- 3. What are characteristics of a JSON String? (Select 2 correct answers)

Select one or more:

- a. Enclosed by quotation marks
- b. May contain two-character escape sequences
- c. A sequence of ASCII characters
- d. May contain multiple values separated by commas

#### Quiz 6

1. How do we align the bounded contexts with the organization?

#### Select one:

- a. Splitting the bounded contexts according to business functions or capabilities.
- b. Decomposing the organization into bounded contexts based on the shared data.
- c. Modeling the bounded contexts as collaborating business parties.
- d. Creating the bounded contexts along business processes.
- 2. With microservices, is mixing in different technologies risky?

Select one:

Yes, it demands high investment.

### No, due to the microservice's size, the risk is much reduced.

Yes, mixing technologies brings complexity and overhead.

### Alloy

- 1. What is a service? (Select 2 correct answers)
  - a. A component
  - b. An identity
  - c. A module
  - d. A port
- 2. What is a "thin client" in the client-server architecture?
  - a. Client having minimal compute resources.
  - b. Application code execution hardly occurs on the client.
  - c. Client with the lowest privileges.
  - d. The client's screen is small in size, so it cannot display big contents.
- 3. What is "marshalling" in inter-process communication?
  - a. Providing a queue where packets are placed while waiting to be served.
  - b. Protecting a server against malicious attacks.
  - c. Sending a warning to an unresponsive server.
  - d. Transforming an object to a data format suitable for transmission among heterogeneous hosts.
- 4. What can represent a service's logic? (Select 2 correct answers)
  - a. A task
  - b. A process
  - c. A bot
  - d. An agent
- 5. Which statement is INCORRECT about SOA?
  - a. It is a rebrand of Web services.
  - b. It is well-suited to bolster business automation.
  - c. It supports fast and cheap development of applications.
  - d. It is implementation-agnostic.

- 6. What are the data encoding standards commonly used in Web services? (Select 2 correct answers) a. XML b. SQL c. JSON d. HTTP
- 7. Which communication style supports many-to-many?
  - a. Publish/Subscribe
  - b. Store and Forward
  - c. Synchronous Messaging
  - d. Remote Procedure Call (RPC)
- 8. Goals of employing Web services include ... (Select 2 correct answers)
  - a. Enable the exploration to new business ventures.
  - b. Support application integration across business functions.
  - c. Extend the life of legacy systems.
  - d. Redefine the roles of existing applications.
- 9. Which element of a message contains key-value pairs?
  - a. Message properties
  - b. Message headers
  - c. Message body
  - d. Message list
- 10. What are essential aspects of SOA? (Select 2 correct answers)
  - a. Statelessness
  - b. Searchability
  - c. Tight coupling
  - d. Anonymity
- 11. Which are non-functional properties of a Web service? (Select 2 correct answers)
  - a. Output formats
  - b. Mean time between failures
  - c. Price rate
  - d. Service endpoint
- 12.
- 13. [LO-1.1] Benefits of middleware are ... (Select 2 correct answers
  - a. Abstracting the hardware layer for the software layer
  - b. Bridging differences among servers
  - c. Delivering messages to multiple users
  - d. Simplifying the software developer's tasks

- 1. What does a WSDL document describe? (Select 2 correct answers)
  - a. Data formats and procotols to access the service
  - b. Terms and conditions that a user must agree upon before accesing the service
  - c. The list of operations of the service
  - d. The location to get more details about the service
- 2. In an HTTP message, where should a SOAP message be contained?
  - a. Header
  - b. Body
  - c. Object
  - d. Request
- 3. Which element of a SOAP message must exist one and only one?
  - a. Body entry
  - b. Body
  - c. Header block
  - d. Header
- 4. The patient wants to know his/her doctor's schedule from the hospital service. Which message exchange pattern is suitable for that service?
  - a. One-way
  - b. Solicit/response
  - c. Notification
  - d. Request/response
- 5. Which element renamings occur in WSDL 2.0? (Select 2 correct answers)
  - a. The portType element to interface
  - b. The port element to endpoint
  - c. The binding element to extends
  - d. The description element to definitions
- 6. What are described in the service implementation? (Select 2 correct answers)
  - a. Location of the service
  - b. Concrete protocol and data format
  - c. Data types used by the service
  - d. Incoming and/or outgoing parameter data
- 7. Elements in Abstract Service Description of WSDL: (Select 2 correct answers:
  - a. definitions
  - b. service

- c. portType
- d. message
- 8. Which communication style is used in this SOAP message?

```
<env:Body>
    <w:ShowTemperature>
      <location>Surabaya</location>
      </w:ShowTemperature>
</env:Body>
```

- a. CORBA
- b. Publish/Subscribe
- c. RPC
- d. Document
- 9. What is the *de facto* language for describing the contract that a service exposes to its clients?
  - a. CDL
  - b. BPEL
  - c. WSDL
  - d. SOAP

- 1. Which statement is INCORRECT about REST?
  - a. REST is rather resource-centric than message-centric.
  - b. REST was first introduced in Roy Fielding's dissertation.
  - c. REST defines a few procotols that run on top of HTTP.
  - d. REST is lighter and more concise than SOAP.
- 2. What are characteristics of a JSON String? (Select 2 correct answers)
  - a. A sequence of ASCII characters
  - b. May contain multiple values separated by commas
  - c. May contain two-character escape sequences
  - d. Enclosed by quotation marks
- 3. Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)
  - a. Infinity token
  - b. Minus sign
  - c. Decimal point

- d. Extra leading zeros
- 4. Which ones are structural characters in JSON? (Select 3 correct answers)
  - a. ; (semicolon)
  - b. {} (braces)
  - c. [] (brackets)
  - d. , (comma)
- 5. The minimum and maximum numbers of values in a JSON array are ...
  - a. one and only one
  - b. zero and unbounded
  - c. one and unbounded
  - d. zero and one
- 6. JSON (JavaScript Object Notation) was inspired by ...
  - a. HTML Script
  - b. ECMAScript
  - c. JavaScript
  - d. Shell Script
- 7. Which HTTP method is used to modify a resource (in a RESTful web service)?
  - a. GET
  - b. POST
  - c. PUT
  - d. DELETE
- 8. What are the benefits of statelessness in web services? (Select 2 correct answers)
  - a. It supports scalability to handle increasing demands.
  - b. It reduces the bandwidth required to serve the client.
  - c. It removes the need to synchronize session data with another application/service.
  - d. It encourages the client to involve in processing web services.
- 9. Whitespace characters in JSON are ... (Select 3 correct answers)
  - a. Vertical tabulation
  - b. Carriage return
  - c. Line feed
  - d. Space
- 10. Which statements are CORRECT about JSON? (Select 2 correct answers)
  - a. JSON can be used for data interchange between different systems and platforms.
  - b. JSON is dependent on Java and its related technologies.
  - c. JSON represents numbers as sequences of digits.
  - d. JSON can specify the meaning of data it contains.
- 11. Which HTTP methods should NOT include a payload? (Select 2 correct answers)

- a. PUT
- b. DELETE
- c. POST
- d. GET
- 12. The structure of a URI should be ... (Select 2 correct answers)
  - a. Understandable
  - b. Straightforward
  - c. Predetermined
  - d. Composable
- 13. Which statement is INACCURATE about the issue of stateful vs stateless service?
  - a. Stateless services require clients to send complete and independent requests.
  - b. Stateful services are harder to design and build than the stateless ones.
  - c. Stateless services perform better than stateful ones.
  - d. Stateful services transfer the onus to maintain states to the client applications.
- 14. Standard HTTP headers for content negotiation: (Select 3 correct answers)
  - a. Accept-MIME
  - b. Accept-Language
  - c. Accept
  - d. Accept-Encoding
- 15. Referring to the following snippet:

- a. A dictionary of two objects
- b. An array of objects
- c. Two objects with two name/value pairs
- d. A list of strings

- 1. What does SOA lack of? (Select 2 correct answers)
  - a. Many problems still linger on communication protocols, middleware, and the absence of clear guidance.
  - b. No agreement in the industry on how to implement it properly.
  - c. It is only a concept and no materialization whatsoever this far.
  - d. The idea is too complex to understand and to execute.
- 2. How does the deployment of a microservice-based application differ from that of a monolithic application? (Select 2 correct answers)
  - a. Change to a line of code requires just the affected microservice to be deployed.
  - b. Change to a line of code requires just the affected part of the monolithic application to be deployed.
  - c. Change to a line of code requires the entire microservices to be deployed.
  - d. Change to a line of code requires the whole monolithic application to be deployed.
- 3. Advantages of autonomous services are ... (Select 2 correct answers)
  - a. Easily replaceable
  - b. More resilient to attack
  - c. Isolated failure
  - d. Increased collaboration
- 4. Is it alright to create the bounded contexts along technical boundary?
  - a. Yes, it perfectly makes sense.
  - b. No, it would be problematic.
  - c. No, it does not make sense.
  - d. Yes, but it should not be the main determinant.
- 5. Why is heterogeneity in technology useful?
  - a. Getting the right technology for every task.
  - b. Understanding the technology trends.
  - c. Enabling diverse collaboration.
  - d. Avoiding vendor lock-in.
- 6. What are the advantages of small services? (Select 2 correct answers)
  - a. Cheap to build
  - b. Well defined

- c. Highly portable
- d. Easy to debug
- 7. How should scaling be carried out with microservices?
  - a. Burst the on-demand microservices in cloud.
  - b. Run parts of every microservice on smaller, less powerful hardware.
  - c. Replicate only the required microservices.
  - d. Scale the entire microservices as a whole.
- 8. How is resilience provided by microservices?
  - a. Redundancy and replication are the keys to a resilient system.
  - b. Multiple bulkheads need to be intentionally built in the microservice-based system.
  - c. Service boundaries are logical bulkheads to address the system's failure.
  - d. Every failed microservice has to be quickly and manually isolated from the rest of the system.
- 9. What characterize an evolutionary architect? (Select 3 correct answers):
  - a. Changing the system's technical vision continually.
  - b. Conveying the system's technical vision.
  - c. Collaborating to carry out the system's technical vision.
  - d. Balancing all the trade-offs in making decisions.
- 10. What are characteristics of microservices? (Select 2 correct answers)
  - a. Modular monolith
  - b. High cohesion
  - c. Loose coupling
  - d. Isolated environment
- 11. How can communications between microservices be seen in parallel with business concepts?
  - a. To avoid chatty interfaces, communications between microservices must be limited to only passing important business ideas.
  - b. The same business terms and forms, sent around the organization, should be reflected in the microservices' interfaces.
  - c. The interfaces of microservices should drive how the organization's business is developed.
  - d. New business ideas should be advanced beyond what the microservices can offer.
- 12. What are some of the things that need more attention to leverage on the benefits of microservices? (Select 2 correct answers)
  - a. Adopting microservices wholeheartedly by following the guidelines.
  - b. Ensuring scalability and resilience of the system.

- c. Fast developing the microservices to avoid bottlenecks among teams.
- d. Better dealing with deployment, testing, and monitoring.
- 13. How can tight coupling be prevented with bounded contexts?
  - a. Ensuring that internal-only representations are not exposed unnecessarily in the shared model.
  - b. Making sure that the internal and external representations are different to each other.
  - c. Devising a dedicated model in each bounded context to predict external bounded contexts that may couple too tightly.
  - d. Limiting the external representations to a certain number of bounded contexts.

Jeremy

Quiz 1

Quiz 3

Which characteristics are expected of a messaging protocol? (Select 3 correct answers)

- a. Portable
- b. Scalable
- c. Concise
- d. Effective

Which statements are CORRECT about WSDL? (Select 2 correct answers)

- a. The message elements are nested in the types element.
- b. The message elements are nested in the operation element.
- c. The part elements are nested in the message element.
- d. The operation elements are nested in the portType element.

Which element of WSDL contains the service endpoint(s)?

- a. Service
- b. Port
- c. Binding
- d. portType

Which statements are CORRECT about a JSON object? (Select 2 correct answers)

- a. It contains values separated by commas.
- b. It contains name/value pairs separated by commas.
- c. It surrounds the values with a pair of curly brackets.
- d. It surrounds the values with a pair of square brackets.

Common MIME types used in REST: (Select 2 correct answers)

# application/xhtml+xml

text/html

# application/json

text/xml

#### Quiz 6

Which statements are CORRECT about bounded contexts? (Select 2 correct answers)

- a. A given domain should have exactly one bounded context.
- b. Each bounded context just focuses on things it must do internally.
- c. Communication to any bounded context is conducted through models.
- d. Every bounded context exposes an interface connecting it with other bounded contexts.

#### Kenapa D bener:





# **Bounded Context**

- Any given domain consists of multiple bounded contexts
- Residing within each are things that do not need to be communicated outside as well as things that are shared externally with other bounded contexts
- Each bounded context has an explicit interface, where it decides what models to share with other bounded contexts
- If you want information from a bounded context, or want to make requests of functionality within a bounded context, you <u>communicate with its explicit</u> <u>boundary using models</u>

Service-Oriented Architecture

24

Felina

Quiz 1

Quiz 3

What is the root element of a WSDL 1.1 document?

- a. description
- b. definitions
- c. service

d. Envelope

Which element of WSDL contains the service interface?

- a. types
- b. message
- c. portType
- d. part

Characteristics of SOAP header: (Select 2 correct answers)

- a. Extensibility
- b. Modularity
- c. Durability
- d. Security

Kenapa b sama a kemungkinan **BENAR**: (kedua hal tersebut termasuk characteristics)





# SOAP Header (3)

- Identifying the header block version by its namespace enables a SOAP receiver to switch processing models, or to reject messages if it does not support the specified version
  - This modularity enables different parts of a SOAP message to be processed independently of other parts and to evolve separately, e.g., the version of SOAP <Envelope> or <Header> block may change over time while the structure of the application specific contents in the <Body> element remains the same
  - This modularity enables developers to use different code libraries to process different parts of a SOAP message
- The SOAP <Header> element also provides for extensibility, in which additional information required for a particular service (e.g., authenticating the requester before a method is invoked) can be added to SOAP; this can be accomplished without changing the message body

Service-Oriented Architecture

18

Kenapa d kemungkinan **SALAH**, soalnya dianggap feature bukan characteristic:

# SOAP Header (1)

- A SOAP <Header> element contains blocks of information relevant to how the message is to be processed (e.g., where the document shall be sent, where it originated, who sent it)
- The header's purpose is to encapsulate extensions to the message format without having to couple them to the payload or to modify the fundamental structure of SOAP; hence, it facilitates additional features like security, transactions, object references, billing, QoS attributes, etc.
- The schema for the optional SOAP header element allows for an unlimited number of child elements in the header
  - The immediate child elements are called header blocks, representing a logical grouping of data that can individually be targeted at SOAP nodes that might be encountered in the path of a message from a sender to an ultimate receiver
  - Each header block should have its own namespace for easy identification and processing

Quiz 4

Quiz 6

ANON

QUIZ 1

- 1. What is a service? (Select 2 correct answers)
  - a. A component
  - b. An identity
  - c. A module

- d. A port
- 2. What is a "thin client" in the client-server architecture?
  - a. Client having minimal compute resources.
  - b. Application code execution hardly occurs on the client.
  - c. Client with the lowest privileges.
  - d. The client's screen is small in size, so it cannot display big contents.
- 3. What is "marshalling" in inter-process communication?
  - a. Providing a queue where packets are placed while waiting to be served.
  - b. Protecting a server against malicious attacks.
  - c. Sending a warning to an unresponsive server.
  - d. Transforming an object to a data format suitable for transmission among heterogeneous hosts.
- 4. What can represent a service's logic? (Select 2 correct answers)
  - a. A task
  - b. A process
  - c. A bot
  - d. An agent
- 5. Which statement is INCORRECT about SOA?
  - a. It is a rebrand of Web services.
  - b. It is well-suited to bolster business automation.
  - c. It supports fast and cheap development of applications.
  - d. It is implementation-agnostic.
- 6. What are the data encoding standards commonly used in Web services? (Select 2 correct answers)
  - a. XML
  - b. SQL
  - c. JSON
  - d. HTTP
- 7. Which communication style supports many-to-many?
  - a. Publish/Subscribe
  - b. Store and Forward
  - c. Synchronous Messaging
  - d. Remote Procedure Call (RPC)
- 8. Goals of employing Web services include ... (Select 2 correct answers)
  - a. Enable the exploration to new business ventures.
  - b. Support application integration across business functions.
  - c. Extend the life of legacy systems.
  - d. Redefine the roles of existing applications.

- 9. Which element of a message contains key-value pairs?
  - a. Message properties
  - b. Message headers
  - c. Message body
  - d. Message list
- 10. Examples of simple Web services are ... (Select 3 correct answers)
  - a. News report
  - b. Courier reservation service
  - c. Inventory management service
  - d. Stock quote information
- 11. What are essential aspects of SOA? (Select 2 correct answers)
  - a. Statelessness
  - b. Searchability
  - c. Tight coupling
  - d. Anonymity
- 12. Which are non-functional properties of a Web service? (Select 2 correct answers)
  - a. Output formats
  - b. Mean time between failures
  - c. Price rate
  - d. Service endpoint
- 13.
- 14. [LO-1.1] Benefits of middleware are ... (Select 2 correct answers
  - a. Abstracting the hardware layer for the software layer
  - b. Bridging differences among servers
  - c. Delivering messages to multiple users
  - d. Simplifying the software developer's tasks

#### QUIZ 3 - SOAP AND WSDL

- 1. Roles of SOAP intermediaries: (Select 2 correct answers)
  - a. Intercepting SOAP messages and converting them to locally defined objects.
  - b. Routing the SOAP messsages to the right destination host.

- c. Helping the SOAP server to attain scalability.
- d. Processing the header blocks of a SOAP message.
- 2. Which component converts SOAP messages to programming language specific objects required by the Web service?
  - a. SOAP client
  - b. SOAP server
  - c. Web browser
  - d. Web server
- 3. Through the online interactive service, the teacher sends a poll to the students. Which message exchange pattern is suitable for that service?
  - a. Request/response
  - b. Solicit/response
  - c. One-way
  - d. Notification
- 4. Benefits of WSDL 2.0 over WSDL 1.1: (Select 2 correct answers)
  - a. More firewall friendly
  - b. More clarity
  - c. Simpler and easier to use
  - d. Compatibility support
- 5. Which statements are CORRECT about WSDL? (Select 2 correct answers)
  - a. The part elements are nested in the message element.
  - b. The message elements are nested in the operation element.
  - c. The operation elements are nested in the portType element.
  - d. The message elements are nested in the types element.
- 6. SOAP communication styles: (Select 2 correct answers)
  - a. CORBA
  - b. Publish/Subscribe
  - c. Document
  - d. RPC
- 7. A service description is needed so that ... (Select 2 correct answers)
  - a. the service can run correctly.
  - b. the service and its detailed processes can be explained by the developer.
  - c. the service can be assembled with other services.
  - d. the service can be published and discovered.
- 8. Which protocol can be used as the transport protocol for SOAP? (Select 2 correct answers)
  - a. HTTP
  - b. SMTP

- c. UDP
- d. TCP
- 9. Two parts of a WSDL document that can be defined separately but complement each other are ... (Select 2 correct answers)
  - a. Logical design
  - b. Concrete implementation
  - c. Abstract description
  - d. Detailed prescription
- 10. Which element of WSDL contains the service endpoint(s)?
  - a. service
  - b. port
  - c. binding
  - d. portType
- 11. What does a WSDL document describe? (Select 2 correct answers)
  - a. Data formats and procotols to access the service
  - b. Terms and conditions that a user must agree upon before accesing the service
  - c. The list of operations of the service
  - d. The location to get more details about the service
- 12. In an HTTP message, where should a SOAP message be contained?
  - a. Header
  - b. Body
  - c. Object
  - d. Request
- 13. Downsides of SOAP: (Select 2 correct answers)
  - a. Closed standards
  - b. Stateless
  - c. Not supporting serialization by reference
  - d. Unscalable
- 14. Which element of a SOAP message must exist one and only one?
  - a. Body entry
  - b. Body
  - c. Header block
  - d. Header
- 15. The patient wants to know his/her doctor's schedule from the hospital service. Which message exchange pattern is suitable for that service?

- a. One-way
- b. Solicit/response
- c. Notification
- d. Request/response
- 16. Which element renamings occur in WSDL 2.0? (Select 2 correct answers)
  - The portType element to interface
  - b. The port element to endpoint
  - c. The binding element to extends
  - d. The description element to definitions
- 17. What are described in the service implementation? (Select 2 correct answers)
  - a. Location of the service
  - b. Concrete protocol and data format
  - c. Data types used by the service
  - d. Incoming and/or outgoing parameter data
- 18. Elements in Abstract Service Description of WSDL: (Select 2 correct answers:
  - a. definitions
  - b. service
  - c. portType
  - d. message
- 19. Which communication style is used in this SOAP message?

```
<env:Body>
    <w:ShowTemperature>
      <location>Surabaya</location>
    </w:ShowTemperature>
</env:Body>
```

- a. CORBA
- b. Publish/Subscribe
- c. RPC
- d. Document
- 20. What is the *de facto* language for describing the contract that a service exposes to its clients?
  - a. CDL
  - b. BPEL
  - c. WSDL
  - d. SOAP

- Which statement is INCORRECT about REST?
  - a. REST is rather resource-centric than message-centric.
  - b. REST was first introduced in Roy Fielding's dissertation.
  - c. REST defines a few procotols that run on top of HTTP.
  - d. REST is lighter and more concise than SOAP.
- 2. What are characteristics of a JSON String? (Select 2 correct answers)
  - a. A sequence of ASCII characters
  - b. May contain multiple values separated by commas
  - c. May contain two-character escape sequences
  - d. Enclosed by quotation marks
- 3. Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)
  - a. Infinity token
  - b. Minus sign
  - c. Decimal point
  - d. Extra leading zeros
- 4. Which ones are structural characters in JSON? (Select 3 correct answers)
  - a.; (semicolon)
  - b. {} (braces)
  - c. [] (brackets)
  - d. , (comma)
- 5. The minimum and maximum numbers of values in a JSON array are ...
  - a. one and only one
  - b. zero and unbounded
  - c. one and unbounded
  - d. zero and one
- 6. Which statement is INCORRECT about the resource representation?
  - a. The resource representation is solely determined by the server.
  - b. The resource representation is placed in the payload of the HTTP response returned to the client application.
  - c. Relationships between resources (objects) in the data model are represented when they are sent to the client.
  - d. A resource representation reflects the state of a resource at a particular time.
- 7. JSON (JavaScript Object Notation) was inspired by ...
  - a. HTML Script
  - b. ECMAScript

- c. JavaScript
- d. Shell Script
- 8. Which URI structures are recommended? (Select 2 correct answers)
  - a. <a href="http://foo.service.com/purchase orders/fid">http://foo.service.com/purchase orders/fid</a>
  - b. <a href="http://foo.service.com/orders/">http://foo.service.com/orders/</a>{date}/{order-id}
  - c. <a href="http://foo.service.com/purchase">http://foo.service.com/purchase</a> orders/{PO}
  - d. <a href="http://foo.service.com/POs/{items">http://foo.service.com/POs/{items</a>}
- 9. Which HTTP method is used to modify a resource (in a RESTful web service)?
  - a. GET
  - b. POST
  - c. PUT
  - d. DELETE
- 10. What are the benefits of statelessness in web services? (Select 2 correct answers)
  - a. It supports scalability to handle increasing demands.
  - b. It reduces the bandwidth required to serve the client.
  - c. It removes the need to synchronize session data with another application/service.
  - d. It encourages the client to involve in processing web services.
- 11. Whitespace characters in JSON are ... (Select 3 correct answers)
  - a. Vertical tabulation
  - b. Carriage return
  - c. Line feed
  - d. Space
- 12. Code points that must be escaped in JSON strings are ... (Select 3 correct answers)
  - a. solidus
  - b. hex digits representing any Unicode code point
  - c. delete
  - d. quotation mark
- 13. Which statements are CORRECT about JSON? (Select 2 correct answers)
  - a. JSON can be used for data interchange between different systems and platforms.
  - b. JSON is dependent on Java and its related technologies.
  - c. JSON represents numbers as sequences of digits.
  - d. JSON can specify the meaning of data it contains.
- 14. Which HTTP methods should NOT include a payload? (Select 2 correct answers)
  - a. PUT
  - b. DELETE
  - c. POST
  - d. GET

- 15. The structure of a URI should be ... (Select 2 correct answers)
  - a. Understandable
  - b. Straightforward
  - c. Predetermined
  - d. Composable
- 16. Which statement is INACCURATE about the issue of stateful vs stateless service?
  - a. Stateless services require clients to send complete and independent requests.
  - b. Stateful services are harder to design and build than the stateless ones.
  - c. Stateless services perform better than stateful ones.
  - d. Stateful services transfer the onus to maintain states to the client applications.
- 17. Standard HTTP headers for content negotiation: (Select 3 correct answers)
  - a. Accept-MIME
  - b. Accept-Language
  - c. Accept
  - d. Accept-Encoding
- 18. Referring to the following snippet:

- 19. What does it contain?
  - a. A dictionary of two objects
  - b. An array of objects
  - c. Two objects with two name/value pairs
  - d. A list of strings

- 1. In terms of composability, what benefits may microservices give? (Select 2 correct answers)
  - a. Microservices may be opened up for access by external partners or customers.
  - b. Microservices may be functionally reused for other purposes and applications.
  - c. Microservices may be replicated in another platform and consumed in different ways.
  - d. Microservices may be bonded together to strengthen the application's robustness.
- 2. What does SOA lack of? (Select 2 correct answers)
  - a. Many problems still linger on communication protocols, middleware, and the absence of clear guidance.
  - b. No agreement in the industry on how to implement it properly.
  - c. It is only a concept and no materialization whatsoever this far.
  - d. The idea is too complex to understand and to execute.
- What are the guidelines to decompose a system's application into bounded contexts? (Select 2 correct answers)
  - a. In a nested fashion, separating it according to the organizational structure.
  - b. Making sure that the nested services are always visible to the consumers.
  - c. Splitting it sparingly, or else it breaks apart.
  - d. Breaking it all the way down as needed.
- 4. How does the deployment of a microservice-based application differ from that of a monolithic application? (Select 2 correct answers)
  - a. Change to a line of code requires just the affected microservice to be deployed.
  - b. Change to a line of code requires just the affected part of the monolithic application to be deployed.
  - c. Change to a line of code requires the entire microservices to be deployed.
  - d. Change to a line of code requires the whole monolithic application to be deployed.
- 5. Advantages of autonomous services are ... (Select 2 correct answers)
  - a. Easily replaceable
  - b. More resilient to attack
  - c. Isolated failure
  - d. Increased collaboration
- 6. Is it alright to create the bounded contexts along technical boundary?
  - a. Yes, it perfectly makes sense.
  - b. No, it would be problematic.

- c. No, it does not make sense.
- d. Yes, but it should not be the main determinant.
- 7. How do microservices differ from shared libraries? (Select 2 correct answers)
  - a. The shared libraries may become a point of coupling.
  - b. Technology heterogeneity is preserved in microservices.
  - c. The shared libraries naturally support system resiliency.
  - d. In microservices, the system's application can be decomposed into smaller components.
- 8. Why is heterogeneity in technology useful?
  - a. Getting the right technology for every task.
  - b. Understanding the technology trends.
  - c. Enabling diverse collaboration.
  - d. Avoiding vendor lock-in.
- 9. What are the advantages of small services? (Select 2 correct answers)
  - a. Cheap to build
  - b. Well defined
  - c. Highly portable
  - d. Easy to debug
- 10. How should scaling be carried out with microservices?
  - a. Burst the on-demand microservices in cloud.
  - b. Run parts of every microservice on smaller, less powerful hardware.
  - c. Replicate only the required microservices.
  - d. Scale the entire microservices as a whole.
- 11. With microservices, is mixing in different technologies risky?
  - a. Yes, mixing technologies brings complexity and overhead.
  - b. Yes, it demands high investment.
  - c. No, it is irrelevant.
  - d. No, due to the microservice's size, the risk is much reduced.
- 12. How is resilience provided by microservices?
  - a. Redundancy and replication are the keys to a resilient system.
  - b. Multiple bulkheads need to be intentionally built in the microservice-based system.
  - c. Service boundaries are logical bulkheads to address the system's failure.
  - d. Every failed microservice has to be quickly and manually isolated from the rest of the system.
- 13. What characterize an evolutionary architect? (Select 3 correct answers):
  - a. Changing the system's technical vision continually.
  - b. Conveying the system's technical vision.

- c. Collaborating to carry out the system's technical vision.
- d. Balancing all the trade-offs in making decisions.
- 14. What are characteristics of microservices? (Select 2 correct answers)
  - a. Modular monolith
  - b. High cohesion
  - c. Loose coupling
  - d. Isolated environment
- 15. How can communications between microservices be seen in parallel with business concepts?
  - a. To avoid chatty interfaces, communications between microservices must be limited to only passing important business ideas.
  - b. The same business terms and forms, sent around the organization, should be reflected in the microservices' interfaces.
  - c. The interfaces of microservices should drive how the organization's business is developed.
  - d. New business ideas should be advanced beyond what the microservices can offer.
- 16. What are some of the things that need more attention to leverage on the benefits of microservices? (Select 2 correct answers)
  - a. Adopting microservices wholeheartedly by following the guidelines.
  - b. Ensuring scalability and resilience of the system.
  - c. Fast developing the microservices to avoid bottlenecks among teams.
  - d. Better dealing with deployment, testing, and monitoring.
- 17. How can tight coupling be prevented with bounded contexts?
  - a. Ensuring that internal-only representations are not exposed unnecessarily in the shared model.
  - b. Making sure that the internal and external representations are different to each other.
  - c. Devising a dedicated model in each bounded context to predict external bounded contexts that may couple too tightly.
  - d. Limiting the external representations to a certain number of bounded contexts.

- 1. What are essential aspects of SOA? (Select 2 correct answers) Select one or more:
- a. Searchability
- b. Statelessness
- c. Tight coupling
- d. Anonymity
- 2. On which layer does Web service run? Select one:
  - a. Transport layer (TCP)
  - b. Network layer (IP)
  - c. Transport layer (UDP)
  - d. Application layer (HTTP)
- 3. What is "marshalling" in inter-process communication? Select one:
  - a. Transforming an object to a data format suitable for transmission among heterogeneous hosts.
  - b. Protecting a server against malicious attacks.
  - c. Providing a queue where packets are placed while waiting to be served.
  - d. Sending a warning to an unresponsive server.
- 4. Which element of a message contains key-value pairs? Select one:
  - a. Message properties
  - b. Message list
  - c. Message body
  - d. Message headers
- 5. Which statement is CORRECT about SOA? Select one:
  - a. It is synonymous with Web service.
  - b. It is a design philosophy.
  - c. It is a programmable library.
  - d. It is built on top of HTTP/Web.

- 6. Which messaging modes are asynchronous? (Select 2 correct answers)a. Instant Messagingb. Publish/Subscribe
  - d. Remote Procedure Call (RPC)

c. Store and Forward

- 7. What are characteristics of SOA? (Select 2 correct answers)
  - a. Reusable
  - b. Secure
  - c. Composable
  - d. Fault-tolerant
- 8. What are the data encoding standards commonly used in Web services? (Select 2 correct answers)
  - a. SQL
  - b. JSON
  - c. XML
  - d. HTTP
- 9. Which communication style supports many-to-many?
  - a. Publish/Subscribe
  - b. Store and Forward
  - c. Remote Procedure Call (RPC)
  - d. Synchronous Messaging
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  - b. Enable the exploration to new business ventures.
  - c. Support application integration across business functions.
  - d. Redefine the roles of existing applications.

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  - a. Terms and conditions that a user must agree upon before accesing the service
  - b. Data formats and procotols to access the service
  - c. The list of operations of the service
  - d. The location to get more details about the service
- 2. Two parts of a WSDL document that can be defined separately but complement each other are ... (Select 2 correct answers)
  - a. Detailed prescription
  - b. Logical design
  - c. Concrete implementation
  - d. Abstract description
- 3. Which communication style is used in this SOAP message?

```
<env:Body>
  <w:Report>
  <timestamp>1709250000</timestamp>
  <location>
    <city>Surabaya</city>
    <state>East Java</state>
    <country>Indonesia</city>
    </location>
    <temperature>31</temperature>
    <humidity>60</humidity>
  </w:Report>
</env:Body>
```

- a. Document
- b. CORBA
- c. Publish/Subscribe
- d. RPC

- 4. Every minute a sensor sends its environment's temperature to a controller Web service. Which message exchange pattern is suitable for that service?
  - a. Request/response
  - b. Notification
  - c. Solicit/response
  - d. One-way
- 5. What are the roles of the Header element in a SOAP message? (Select 2 correct answers)
  - a. Specifying a set of encoding rules to serialize data over the network.
  - b. Supporting value-added extensions to the message.
  - c. Storing the source and destination hosts of the message.
  - d. Containing information on how to process the message.
- 6. What is the root element of a WSDL 1.1 document?
  - a. Envelope
  - b. service
  - c. description
  - d. definitions
- 7. Which characteristics are expected of a messaging protocol? (Select 3 correct answers)
  - a. Concise
  - b. Effective
  - c. Portable
  - d. Scalable
- 8. What are the roles of SOAP? (Select 2 correct answers)
  - a. Exchanging structured and typed information between hosts.
  - b. Transfering data without knowing the content.
  - c. Routing a message packet to the right destination.
  - d. Processing messages in a heterogeneous, distributed environment.

- 9. Which element of WSDL contains XML schema?a. partb. types
  - c. message
  - d. definitions
- 10. Elements in Service Implementation of WSDL: (Select 2 correct answers)
  - a. binding
  - b. types
  - c. port
  - d. transport

- 1. Code points that must be escaped in JSON strings are ... (Select 3 correct answers)
  - a. delete
  - b. quotation mark
  - c. solidus
  - d. hex digits representing any Unicode code point
- 2. Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)
  - a. Extra leading zeros
  - b. Decimal point
  - c. Infinity token
  - d. Minus sign
- 3. Which statements are CORRECT about a JSON array? (Select 2 correct answers)
  - a. It contains name/value pairs separated by commas.
  - b. It surrounds the values with a pair of curly brackets.
  - c. It contains values separated by commas.
  - d. It surrounds the values with a pair of square brackets.

- 4. What are the benefits of statelessness in web services? (Select 2 correct answers)
  - a. It supports scalability to handle increasing demands.
  - b. It removes the need to synchronize session data with another application/service.
  - c. It encourages the client to involve in processing web services.
  - d. It reduces the bandwidth required to serve the client.
- 5. Which statement is INCORRECT about REST?
  - a. REST was first introduced in Roy Fielding's dissertation.
  - b. REST is lighter and more concise than SOAP.
  - c. REST defines a few procotols that run on top of HTTP.
  - d. REST is rather resource-centric than message-centric.
- 6. Beneficial features of JSON: (Select 3 correct answers)
  - a. Support for lists of values
  - b. Support for cylic graphs
  - c. The grammar may never change
  - d. Support for expressing objects
- 7. Proper URI structure: (Select 2 correct answers)
  - a. No query strings
  - b. No script file extensions
  - c. No hyphens or underscores
  - d. No numeric digit
- 8. What is content negotiation? (Select 2 correct answers)
  - a. It is the mechanism to help the user agent specify the resource representation best suited for the user.
  - b. It specifies how a resource representation should be presented in the client application.
  - c. It determines how a specific representation is chosen when the resource is called.
  - d. It is a security mechanism to ensure that the resource representation is valid and not harmful to the client.

- 9. Which HTTP method is used to modify a resource (in a RESTful web service)?
  - a. GET
  - b. POST
  - c. PUT
  - d. DELETE
- 10. Whitespace characters in JSON are ... (Select 3 correct answers)
  - a. Space
  - b. Carriage return
  - c. Line feed
  - d. Vertical tabulation

- 1. How should scaling be carried out with microservices?
  - a. Run parts of every microservice on smaller, less powerful hardware.
  - b. Burst the on-demand microservices in cloud.
  - c. Scale the entire microservices as a whole.
  - d. Replicate only the required microservices.
- 2. Advantages of autonomous services are ... (Select 2 correct answers)
  - a. More resilient to attack
  - b. Isolated failure
  - c. Easily replaceable
  - d. Increased collaboration
- 3. How is resilience provided by microservices?
  - a. Every failed microservice has to be quickly and manually isolated from the rest of the system.
    - b. Service boundaries are logical bulkheads to address the system's

# failure.

- c. Multiple bulkheads need to be intentionally built in the microservice-based system.
- d. Redundancy and replication are the keys to a resilient system.

- 4. How can tight coupling be prevented with bounded contexts?
  - a. Limiting the external representations to a certain number of bounded contexts.
  - b. Making sure that the internal and external representations are different to each other.
  - c. Devising a dedicated model in each bounded context to predict external bounded contexts that may couple too tightly.
  - d. Ensuring that internal-only representations are not exposed unnecessarily in the shared model.
- 5. Main benefits of microservices are ... (Select 3 correct answers)
  - a. Decomposable
  - b. Reusable
  - c. Technology-agnostic
  - d. Scalable
- 6. What are some of the things that need more attention to leverage on the benefits of microservices? (Select 2 correct answers)
  - a. Better dealing with deployment, testing, and monitoring.
  - b. Fast developing the microservices to avoid bottlenecks among teams.
  - c. Adopting microservices wholeheartedly by following the guidelines.
  - d. Ensuring scalability and resilience of the system.
- How do microservices differ from some language modules? (Select 2 correct answers)
  - a. Microservices lacks the support of the programming language for proper isolation.
    - b. Microservices can scale independently.
    - c. Modules may be deployed without taking the whole system down.
    - d. Modules have the tendency to become overly coupled to each other.
- 8. What characterize an evolutionary architect? (Select 3 correct answers)
  - a. Conveying the system's technical vision.
  - b. Balancing all the trade-offs in making decisions.
  - c. Changing the system's technical vision continually.
  - d. Collaborating to carry out the system's technical vision.

- 9. How do we align the bounded contexts with the organization?
  - a. Creating the bounded contexts along business processes.
  - b. Splitting the bounded contexts according to business functions or

# capabilities.

- c. Modeling the bounded contexts as collaborating business parties.
- d. Decomposing the organization into bounded contexts based on the shared data.
- 10. Why is heterogeneity in technology useful?
  - a. Avoiding vendor lock-in.
  - b. Understanding the technology trends.
  - c. Getting the right technology for every task.
  - d. Enabling diverse collaboration.

### Map

#### Quiz01

- 1. Which communication style supports many-to-many?
  - a. Publish/Subscribe
  - b. Store and Forward
  - c. Remote Procedure Call RPC)
  - d. Synchronous Messaging
- 2. What is "marshalling" in inter-process communication?
  - a. Sending a warning to an unresponsive server.
  - b. Providing a queue where packets are placed while waiting to be served.
  - c. Transforming an object to a data format suitable for transmission among heterogeneous hosts.
  - d. Protecting a server against malicious attacks.
- 3. Examples of simple Web services are ... (Select 3 correct answers)

Select one or more:

- a. Stock quote information
- b. News report
- c. Courier reservation service
- d. Inventory management service
- 4. What are the data encoding standards commonly used in Web Services? (Select 2 correct answers)
  - a. JSON
  - b. SQL
  - c. HTTP

# d. XML

- 5. What can represent a service's logic? (Select 2 correct answers)
  - Select one or more:
    - a. A process
    - b. A task
    - c. An agent
    - d. A bot
- 6. Benefits of middleware are ... (Select 2 correct answers)
  - a. Delivering messages to multiple users
  - b. Abstracting the hardware layer for the software layer
  - c. Simplifying the software developer's tasks
  - d. Bridging differences among servers
- 7. Which statement is CORRECT about SOA?
  - a. It is a design philosophy.
  - b. It is synonymous with Web service.
  - c. It is built on top of HTTP/Web.
  - d. It is a programmable library.
- 8. On which layer does Web service run?
  - a. Transport layer (TCP)
  - b. Transport layer (UDP)
  - c. Network layer (IP)
  - d. Application layer (HTTP)
- 9. What is a service? (Select 2 correct answers)
  - a. An identity
  - b. A module
  - c. A port
  - d. A component
- 10. What are characteristics of a distributed system? (Select 3 correct answers)
  - a. Concurrent execution
  - b. Component faults are expected and anticipated
  - c. Many servers but one system
  - d. Providing minimum resource guarantee

- 1. Elements in a WSDL document: (Select 3 correct answers)
  - a. port
  - b. portType
  - c. types

- d. body
- 2. Which protocol can be used as the transport protocol for SOAP? (Select 2 correct answers)
  - a. TCP
  - b. SMTP
  - c. UDP
  - d. HTTP
- 3. In comparison with WSDL 1.1, which element is removed in WSDL 2.0?
  - a. binding
  - b. operation
  - c. types
  - d. message
- 4. What are the contents of the SOAP Body element? (Select 2 correct answers)
  - a. Application-specific data
  - b. Key-value pairs of metadata
  - c. Fault message
  - d. HTTP request or response
- 5. Which communication style is used in this SOAP message?
  - <env:Body>
  - <w:ShowTemperature>
  - <location>Surabaya</location>
  - </w:Show Temperature>
  - </env:Body>
    - a. CORBA
    - b. RPC
    - c. Publish/Subscribe
    - d. Document
- 6. Which characteristics are expected of a messaging protocol? (Select 3 correct answers)
  - a. Concise
  - b. Portable
  - c. Effective
  - d. Scalable
- 7. The news website sends the summary of headlines to all subscribers. Which message exchange pattern is suitable for that service?
  - a. Notification
  - b. One-way
  - c. Request/response
  - d. Solicit/response

- 8. Which element of WSDL contains XML schema?
  - a. message
  - b. part
  - c. definitions
  - d. types
- 9. A service description is needed so that ... (Select 2 correct answers)
  - a. the service can be assembled with other services.
  - the service and its detailed processes can be explained by the developer.
  - c. the service can be published and discovered.
  - d. the service can run correctly.
- 10. What are described in the service implementation? (Select 2 correct answers)
  - a. Data types used by the service
  - b. Concrete protocol and data format
  - c. Location of the service
  - d. Incoming and/or outgoing parameter data

- 1. Basic design principles of REST are ... (Select 2 correct answers)
  - a. Exposing tree-like URIs
  - b. Stateless representation
  - c. Explicit use of HTTP methods
  - d. Passing data in HTML or JSON
- 2. Which statements are CORRECT about a JSON array? (Select 2 correct answers)
  - a. It contains values separated by commas.
  - b. It surrounds the values with a pair of curly brackets.
  - c. It surrounds the values with a pair of square brackets.
  - d. It contains name/value pairs separated by commas.
- 3. What are the benefits of statelessness in web services? (Select 2 correct answers)
  - a. It encourages the client to involve in processing web services.
  - b. It reduces the bandwidth required to serve the client.
  - c. It supports scalability to handle increasing demands.
  - d. It removes the need to synchronize session data with another application/service.
- 4. Whitespace characters in JSON are ... (Select 3 correct answers)
  - a. Carriage return
  - b. Vertical tabulation
  - c. Line feed
  - d. Space

- 5. Standard HTTP headers for content negotiation: (Select 3 correct answers)
  - a. Accept-MIME
  - b. Accept-Language
  - c. Accept-Encoding
  - d. Accept
- 6. Beneficial features of JSON: (Select 3 correct answers)
  - a. Support for lists of values
  - b. The grammar may never change
  - c. Support for cylic graphs
  - d. Support for expressing objects
- 7. Code points that must be escaped in JSON strings are ... (Select 3 correct answers)
  - a. quotation mark
  - b. delete
  - c. solidus
  - d. hex digits representing any Unicode code point
- 8. Proper URI structure: (Select 2 correct answers)
  - a. No numeric digit
  - b. No hyphens or underscores
  - c. No script file extensions
  - d. No query strings
- 9. Which HTTP method is NOT idempotent?
  - a. GET
  - b. DELETE
  - c. POST
  - d. PUT
- 10. Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)
  - a. Minus sign
  - b. Decimal point
  - c. Infinity token
  - d. Extra leading zeros

- 1. What are the advantages of small services? (Select 2 correct answers)
  - a. Cheap to build
  - b. Highly portable
  - c. Well defined
  - d. Easy to debug

- 2. How does the deployment of a microservice-based application differ from that of a monolithic application? (Select 2 correct answers)
  - a. Change to a line of code requires just the affected part of the monolithic application to be deployed.
  - b. Change to a line of code requires just the affected microservice to be deployed.
  - c. Change to a line of code requires the entire microservices to be deployed.
  - d. Change to a line of code requires the whole monolithic application to be deployed.
- 3. With microservices, is mixing in different technologies risky?
  - a. Yes, it demands high investment.
  - b. Yes, mixing technologies brings complexity and overhead.
  - c. No, due to the microservice's size, the risk is much reduced.
  - d. No, it is irrelevant.
- 4. Main benefits of microservices are ... (Select 3 correct answers)
  - a. Decomposable
  - b. Scalable
  - c. Technology-agnostic
  - d. Reusable
- Advantages of autonomous services are ... (Select 2 correct answers)
  - a. Easily replaceable
  - b. Isolated failure
  - c. Increased collaboration
  - d. More resilient to attack
- 6. In terms of composability, what benefits may microservices give? (Select 2 correct answers)
  - a. Microservices may be replicated in another platform and consumed in different ways.
  - b. Microservices may be functionally reused for other purposes and applications.
  - c. Microservices may be opened up for access by external partners or customers.
  - d. Microservices may be bonded together to strengthen the application's robustness.
- 7. How is the microservice approach related to SOA?
  - a. The microservice approach is a real-world implementation of SOA.
  - b. They are unrelated to each other.
  - c. The microservice approach is the direct competitor of the SOA approach.
  - d. The microservice approach is the required foundation to realize SOA.
- 8. Which statements are CORRECT about bounded contexts? (Select 2 correct answers)
  - a. Communication to any bounded context is conducted through models.

- b. Each bounded context just focuses on things it must do internally.
- c. A given domain should have exactly one bounded context.
- Every bounded context exposes an interface connecting it with other bounded contexts.
- 9. What does SOA lack of? (Select 2 correct answers)
  - a. Many problems still linger on communication protocols, middleware, and the absence of clear guidance.
  - b. No agreement in the industry on how to implement it properly.
  - c. The idea is too complex to understand and to execute.
  - d. It is only a concept and no materialization whatsoever this far.
- 10. How can tight coupling be prevented with bounded contexts?
  - a. Devising a dedicated model in each bounded context to predict external bounded contexts that may couple too tightly.
  - b. Making sure that the internal and external representations are different to each other.
  - c. Limiting the external representations to a certain number of bounded contexts.
  - d. Ensuring that internal-only representations are not exposed unnecessarily in the shared model.

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- 1. Examples of simple Web services are ... (Select 3 correct answers) Select one or more:
  - a. Inventory management service
  - b. News report
  - c. Stock quote information
  - d. Courier reservation service
- 2. Which element of a message contains key-value pairs? Select one:
  - a. Message body
  - b. Message headers
  - c. Message properties
  - d. Message list
- 3. What are essential aspects of SOA? (Select 2 correct answers) Select one or more:
  - a. Statelessness
  - b. Anonymity
  - c. Searchability
  - d. Tight coupling
- 4. Which communication style supports many-to-many? Select one:
  - a. Publish/Subscribe
  - b. Store and Forward
  - c. Synchronous Messaging
  - d. Remote Procedure Call (RPC)
- 5. Characteristics of Web services are ... (Select 2 correct answers)Select one or more:
  - a. Programmable
  - b. Self-centered
  - c. Detachable
  - d. Platform-independent
- 6. What are characteristics of SOA? (Select 2 correct answers)Select one or more:
  - a. Reusable
  - b. Composable
  - c. Fault-tolerant
  - d. Secure
- 7. What are characteristics of a distributed system? (Select 3 correct answers) Select one or more:
  - a. Component faults are expected and anticipated
  - b. Concurrent execution
  - c. Many servers but one system
  - d. Providing minimum resource guarantee

- 8. What is a "thin client" in the client-server architecture? Select one:
  - a. Client with the lowest privileges.
  - b. Client having minimal compute resources.
  - c. Application code execution hardly occurs on the client.
  - d. The client's screen is small in size, so it cannot display big contents.
- 9. Which statement is INCORRECT about SOA? Select one:
  - a. It is a rebrand of Web services.
  - b. It is well-suited to bolster business automation.
  - c. It supports fast and cheap development of applications.
  - d. It is implementation-agnostic.
- 10. On which layer does Web service run? Select one:
  - a. Transport layer (TCP)
  - b. Network layer (IP)
  - c. Application layer (HTTP)
  - d. Transport layer (UDP)

- 1. What is the *de facto* language for describing the contract that a service exposes to its clients? Select one:
  - a. CDL
  - b. SOAP
  - c. WSDL
  - d. BPEL
- 2. What are the contents of the SOAP Body element? (Select 2 correct answers)Select one or more:
  - a. Application-specific data
  - b. Key-value pairs of metadata
  - c. Fault message
  - d. HTTP request or response
- 3. What advantages are offered by SOAP? (Select 3 correct answers)Select one or more:
  - a. Easy to parse
  - b. Able to get past firewalls
  - c. Secured and fault tolerant
  - d. Adaptable
- 4. Which communication style is used in this SOAP message? Select one:

<env:Body>

<w:Report>

<timestamp>1709250000</timestamp>

<location>

- a. RPC
- b. Document
- c. CORBA
- d. Publish/Subscribe
- 5. Which characteristics are expected of a messaging protocol? (Select 3 correct answers) Select one or more:
  - a. Concise
  - b. Effective
  - c. Portable
  - d. Scalable
- 6. Two parts of a WSDL document that can be defined separately but complement each other are ... (Select 2 correct answers)Select one or more:
  - a. Logical design
  - b. Concrete implementation
  - c. Abstract description
  - d. Detailed prescription
- 7. Which element renamings occur in WSDL 2.0? (Select 2 correct answers)Select one or more:
  - a. The port element to endpoint
  - b. The portType element to interface
  - c. The binding element to extends
  - d. The description element to definitions
- 8. Elements in Service Implementation of WSDL: (Select 2 correct answers) Select one or more:
  - a. transport
  - b. binding
  - c. port
  - d. Types
- 9. Which element of WSDL contains the service interface? Select one:

- a. types
- b. portType
- c. message
- d. Part
- 10. Which characteristics of a messaging protocol are satisfied by SOAP? (Select 2 correct answers) Select one or more:
  - a. Compact
  - b. Loose coupling
  - c. Efficient
  - d. Scalable

- 1. What is content negotiation? (Select 2 correct answers)Select one or more:
  - a. It determines how a specific representation is chosen when the resource is called.
  - b. It specifies how a resource representation should be presented in the client application.
  - c. It is a security mechanism to ensure that the resource representation is valid and not harmful to the client.
  - d. It is the mechanism to help the user agent specify the resource representation best suited for the user.
- 2. Which statement is INACCURATE about the issue of stateful vs stateless service? Select one:
  - a. Stateless services require clients to send complete and independent requests.
  - b. Stateless services perform better than stateful ones.
  - c. Stateful services transfer the onus to maintain states to the client applications.
  - d. Stateful services are harder to design and build than the stateless ones.
- 3. Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)Select one or more:
  - a. Decimal point
  - b. Infinity token
  - c. Minus sign
  - d. Extra leading zeros
- 4. Code points that must be escaped in JSON strings are ... (Select 3 correct answers) Select one or more:
  - a. solidus
  - b. hex digits representing any Unicode code point
  - c. Delete
  - d. quotation mark

- 5. With regards to objects, which aspects are NOT specified by JSON syntax? (Select 2 correct answers)Select one or more:
  - a. Separator of name and value
  - b. Uniqueness of names
  - c. Order of values
  - d. Data type of names
- 6. Basic design principles of REST are ... (Select 2 correct answers) Select one or more:
  - a. Explicit use of HTTP methods
  - b. Passing data in HTML or JSON
  - c. Exposing tree-like URIs
  - d. Stateless representation
- 7. Which HTTP methods should NOT include a payload? (Select 2 correct answers)Select one or more:
  - a. PUT
  - b. GET
  - c. DELETE
  - d. POST
- 8. Which ones are structural characters in JSON? (Select 3 correct answers)Select one or more:
  - a. , (comma)
  - b. [] (brackets)
  - c. {} (braces)
  - d.; (semicolon)
- 9. Proper URI structure: (Select 2 correct answers)Select one or more:
  - a. No query strings
  - b. No numeric digit
  - c. No script file extensions
  - d. No hyphens or underscores
- 10. Drawbacks of JSON: (Select 2 correct answers)Select one or more:
  - a. Semantics must be established separately
  - b. No support for Unicode characters
  - c. No support for real numbers
  - d. No support for binary data

- 1. With microservices, is mixing in different technologies risky? Select one:
  - a. Yes, it demands high investment.
  - b. Yes, mixing technologies brings complexity and overhead.
  - c. No, it is irrelevant.

- d. No, due to the microservice's size, the risk is much reduced.
- 2. What are some of the things that need more attention to leverage on the benefits of microservices? (Select 2 correct answers)Select one or more:
  - a. Adopting microservices wholeheartedly by following the guidelines.
  - b. Ensuring scalability and resilience of the system.
  - c. Fast developing the microservices to avoid bottlenecks among teams.
  - d. Better dealing with deployment, testing, and monitoring.
- 3. What are characteristics of microservices? (Select 2 correct answers)Select one or more:
  - a. Isolated environment
  - b. Loose coupling
  - c. High cohesion
  - d. Modular monolith
- 4. How can communications between microservices be seen in parallel with business concepts?Select one:
  - a. The same business terms and forms, sent around the organization, should be reflected in the microservices' interfaces.
  - b. To avoid chatty interfaces, communications between microservices must be limited to only passing important business ideas.
  - c. The interfaces of microservices should drive how the organization's business is developed.
  - d. New business ideas should be advanced beyond what the microservices can offer.
- 5. How do microservices differ from some language modules? (Select 2 correct answers)
  Select one or more:
  - a. Modules have the tendency to become overly coupled to each other.
  - b. Microservices can scale independently.
  - c. Modules may be deployed without taking the whole system down.
  - d. Microservices lacks the support of the programming language for proper isolation.
- 6. What are the advantages of small services? (Select 2 correct answers)Select one or more:
  - a. Easy to debug
  - b. Well defined
  - c. Cheap to build
  - d. Highly portable
- 7. How should scaling be carried out with microservices? Select one:
  - a. Replicate only the required microservices.
  - b. Run parts of every microservice on smaller, less powerful hardware.

- c. Scale the entire microservices as a whole.
- d. Burst the on-demand microservices in cloud.
- 8. How can organizational alignment be achieved when the microservice architecture is adopted? Select one:
  - a. Smaller development teams, each works on particular microservices, are formed and composed of co-located people.
  - b. The ownership of all microservices is shifted to a small team comprising people working co-located.
  - c. The application is broken into microservices aligned to the organization.
  - d. The microservice architecture tries to find a balance between team size and productivity.
- 9. What are the guidelines to decompose a system's application into bounded contexts? (Select 2 correct answers)Select one or more:
  - a. In a nested fashion, separating it according to the organizational structure.
  - b. Making sure that the nested services are always visible to the consumers.
  - c. Breaking it all the way down as needed.
  - d. Splitting it sparingly, or else it breaks apart.
- 10. How does the deployment of a microservice-based application differ from that of a monolithic application? (Select 2 correct answers)Select one or more:
  - a. Change to a line of code requires the whole monolithic application to be deployed.
  - b. Change to a line of code requires the entire microservices to be deployed.
  - c. Change to a line of code requires just the affected microservice to be deployed.
  - d. Change to a line of code requires just the affected part of the monolithic application to be deployed.

- 1. Which element of a message contains key-value pairs?
  - a. Publish/Subscribe
  - b. Store and Forward
  - c. Remote Procedure Call RPC)
  - d. Synchronous Messaging
- 2. What is a "thin client" in the client-server architecture?
  - a. Client having minimal compute resources.
  - b. Client with the lowest privileges.
  - c. Application code execution hardly occurs on the client.
  - d. The client's screen is small in size, so it cannot display big contents.
- 3. Benefits of middleware are ... (Select 2 correct answers)
  - a. Bridging differences among servers
  - b. Abstracting the hardware layer for the software layer
  - c. Delivering messages to multiple users
  - d. Simplifying the software developer's tasks
- 4. On which layer does Web service run?
  - a. Application layer (HTTP)
  - b. Network layer (IP)
  - c. Transport layer (TCP)
  - d. Transport layer (UDP)
- 5. What are the characteristics of SOA? (Select 2 correct answers)
  - a. Fault-tolerant
  - b. Reusable
  - c. Secure
  - d. Composable
- 6. What can represent a service's logic? (Select 2 correct answers)
  - a. A task
  - b. A process
  - c. A bot
  - d. An agent
- 7. Examples of simple Web services are ... (Select 3 correct answers)
  - a. Stock quote information
  - b. News report
  - c. Courier reservation service
  - d. Inventory management service
- 8. What are the benefits of SOA? (Select 2 correct answers)

- a. Fast and responsive technology
- b. Reliable and professional vendor support
- c. Reduced overheads and costs
- d. Agility and interoperability
- 9. What are characteristics of a distributed system? (Select 3 correct answers)
  - a. Many servers but one system
  - b. Concurrent execution
  - c. Component faults are expected and anticipated
  - d. Providing minimum resource guarantee
- 10. What are the data encoding standards commonly used in Web services? (Select 2 correct answers)
  - a. JSON
  - b. XML
  - c. HTTP
  - d. SQL
- Quiz 03
- Quiz 04
- Quiz 05
- Quiz 06
- Quiz 07

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## Quiz01 - SOA, Web Service, and Distributed Infrastructure

What are characteristics of a distributed system? (Select 3 correct answers) Select one or more :

- Concurrent execution
- Many servers but one system
- Component faults are expected and anticipated
- Providing minimum resource guarantee

Which statement is CORRECT about SOA?

- It is a programmable library
- It is a design philosophy
- It is built on top of HTTP/Web
- It is synonymous with Web service

Which communication style supports many-to-many?

#### Select one:

- Remote Procedure Call (RPC)
- Publish/Subscribe
- Synchronous Messaging
- Store and Forward

Which are non-functional properties of a Web service? (Select 2 correct answers)

- Output formats
- Service endpointc
- Price rate
- Mean time between failures

Goals of employing Web services include ... (Select 2 correct answers) Select one or more:

- Redefine the roles of existing applications
- Support application integration across business functions
- Extend the life of legacy systems
- Enable the exploration to new business ventures

What is "marshalling" in inter-process communication? Select one:

- Sending a warning to an unresponsive server
- Providing a queue where packets are placed while waiting to be served
- Protecting a server against malicious attacks
- Transforming an object to a data format suitable for transmission among heterogeneous hosts.

Which statement is INCORRECT about SOA?

- It supports fast and cheap development of applications
- It is well-suited to bolster business automation
- It is a rebrand of web services
- It is implementation-agnostic

Which element of a message contains key-value pairs?

- Message headers
- Message list
- Message body
- Message properties

Examples of simple Web services are ... (Select 3 correct answers)

- Stock guote information
- Courier reservation service
- News report

Inventory Management service

What are benefits of SOA? (Select 2 correct answers)

- Fault and responsive technology
- Reduced overheads and costs
- Reliable and professional vendor support
- Agility and interoperability

What can represent a service's logic? (Select 2 correct answers) Select one or more:

- A process
- A bot
- An agent
- A task

What are the data encoding standards commonly used in Web services? (Select 2 correct answers)

Select one or more:

- JSON
- HTTP
- XML
- SQL

What is a "thin client" in the client-server architecture?

- Select one:
  - Application code execution hardly occurs on the client.

- The client's screen is small in size, so it cannot display big contents.

- Client with the lowest privileges.
- Client having minimal compute resources.

Benefits of middleware are ... (Select 2 correct answers) Select one or more:

- Simplifying the software developer's tasks
- Bridging differences among servers
- Abstracting the hardware layer for the software layer
- Delivering messages to multiple users

What are essential aspects of SOA? (Select 2 correct answers) Select one or more:

- Anonymity
- Tight coupling
- Statelessness
- Searchability

Characteristics of Web services are ... (Select 2 correct answers)

- Platform-independent
- Self-centered
- Detachable
- Programmable

What are characteristics of SOA? (Select 2 correct answers)

- Secure
- Fault-tolerant
- Reusable
  - Composable

What is a service? (Select 2 correct answers)

- A port
- A component
- An identity
- A module

Goals of employing Web services include ... (Select 2 correct answers)

- Support application integration across business functions.
  - Extend the life of legacy systems.
- Redefine the roles of existing applications.
- Enable the exploration to new business ventures.

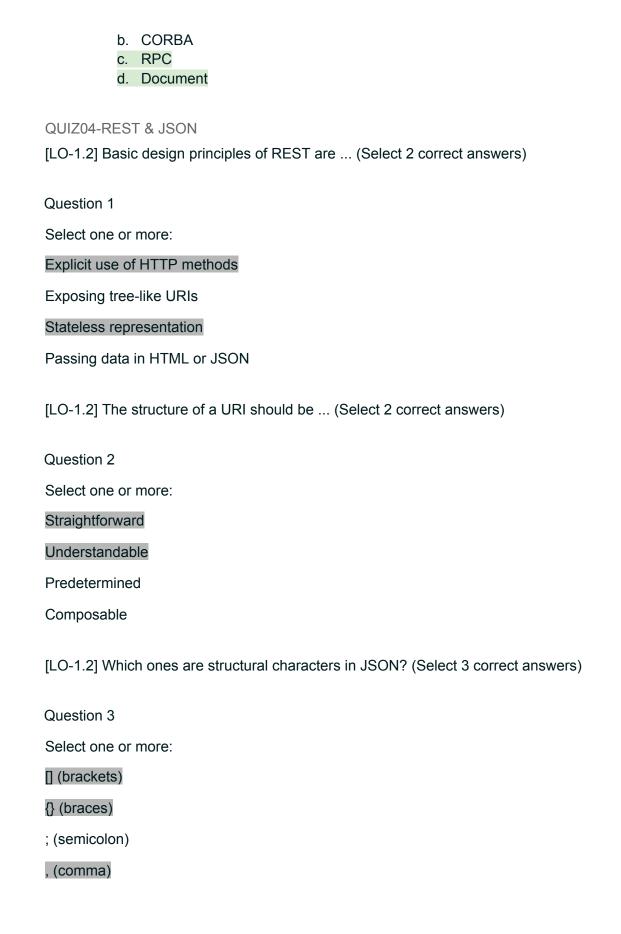
On which layer does Web service run?

- Transport layer (UDP)
- Transport layer (TCP)
- Network layer (IP)
- Application layer (HTTP)

# Quiz03-SOAP & WSDL (slh 1)

- 1. Which component converts SOAP messages to programming language specific objects required by the Web service?
  - a. SOAP server
  - b. Web server
  - c. SOAP client
  - d. Web browser
- 2. What are the roles of SOAP? (Select 2 correct answers)

- a. Exchanging structured and typed information between hosts.
- b. Processing messages in a heterogeneous, distributed environment.
- c. Routing a message packet to the right destination.
- d. Transfering data without knowing the content.
- Which statement about WSDL is INACCURATE?
  - a. The binding element needs to specify the portType element.
  - b. Use of SOAP is specified in the binding element.
  - c. Every port element is associated with a portType element.
  - d. The service element may contain multiple port elements.
- 4. What are the roles of the Header element in a SOAP message? (Select 2 correct answers)
  - a. Containing information on how to process the message.
  - b. Supporting value-added extensions to the message.
  - c. Specifying a set of encoding rules to serialize data over the network.
  - d. Storing the source and destination hosts of the message.
- 5. Elements in a WSDL document: (Select 3 correct answers)
  - a. portType
  - b. Port
  - c. Body
  - d. types
- 6. which statements are CORRECT about WSDL? (Select 2 correct answers)
  - a. The message elements are nested in the operation element.
  - b. The message elements are nested in the types element.
  - c. The part elements are nested in the message element.
  - d. The operation elements are nested in the portType element.
- 7. What is the *de facto* language for describing the contract that a service exposes to its clients?
  - a. CDL
  - b. BPEL
  - c. SOAP
  - d. WSDL
- 8. Benefits of WSDL 2.0 over WSDL 1.1: (Select 2 correct answers)
  - a. More firewall friendly
  - b. Compatibility support
  - c. More clarity
  - d. Simpler and easier to use
- 9. Which characteristics of a messaging protocol are satisfied by SOAP? (Select 2 correct answers)
  - a. Compact
  - b. Scalable
  - c. Loose coupling
  - d. Efficient
- 10. SOAP communication styles: (Select 2 correct answers)
  - a. Publish/Subscribe



[LO-1.2] Besides digits, what characters may be accepted in JSON numbers? (Select 2 correct answers)
Question 4
Select one or more:
Extra leading zeros
Decimal point
Infinity token
Minus sign
[LO-1.2] What are the benefits of statelessness in web services? (Select 2 correct answers)
Question 5
Select one or more:
It removes the need to synchronize session data with another application/service.
It encourages the client to involve in processing web services.
It reduces the bandwidth required to serve the client.
It supports scalability to handle increasing demands.
[LO-1.2] The minimum and maximum numbers of values in a JSON array are
Question 6
Select one:
zero and one
one and unbounded
one and only one
zero and unbounded

[LO-1.2] Standard HTTP headers for content negotiation: (Select 3 correct answers)
Question 7
Select one or more:
Accept-Language
Accept-MIME
Accept-Encoding
Accept
[LO-1.2] Which HTTP method is used to modify a resource (in a RESTful web service)?
Question 8
Select one:
DELETE
POST
GET
PUT
[LO-1.2] Which JSON strings are valid? (Select 2 correct answers)
Question 9
Select one or more:
"'"Hello"'"
'Hello'
"\"Hello\""
"\\Hello\/"
[LO-1.2] Beneficial features of JSON: (Select 3 correct answers)
Question 10
Select one or more:

Support for cylic graphs

The grammar may never change

Support for lists of values

Support for expressing objects

#### **QUIZ06-MICROSERVICES**

1. [LO-2.1] How can tight coupling be prevented with bounded contexts?

#### Select one:

- a. Limiting the external representations to a certain number of bounded contexts.
- b. Making sure that the internal and external representations are different to each other.
- c. Ensuring that internal-only representations are not exposed unnecessarily in the shared model.
- d. Devising a dedicated model in each bounded context to predict external bounded contexts that may couple too tightly.
- 2. [LO-2.1] What does SOA lack of? (Select 2 correct answers)

#### Select one or more:

# No agreement in the industry on how to implement it properly.

The idea is too complex to understand and to execute.

It is only a concept and no materialization whatsoever this far.

Many problems still linger on communication protocols, middleware, and the absence of clear guidance.

3. [LO-2.1] Is it alright to create the bounded contexts along technical boundary?

# Select one:

### Yes, but it should not be the main determinant.

No, it does not make sense.

Yes, it perfectly makes sense.

No, it would be problematic.

4. [LO-2.1] How is the microservice approach related to SOA?

Select one:

They are unrelated to each other.

The microservice approach is the required foundation to realize SOA.

The microservice approach is the direct competitor of the SOA approach.

The microservice approach is a real-world implementation of SOA.

5. [LO-2.1] What are characteristics of microservices? (Select 2 correct answers)

Select one or more:

Loose coupling

High cohesion

Isolated environment

Modular monolith

6. [LO-2.1] In terms of composability, what benefits may microservices give? (Select 2 correct answers)

Select one or more:

Microservices may be functionally reused for other purposes and applications.

Microservices may be replicated in another platform and consumed in different ways.

Microservices may be opened up for access by external partners or customers.

Microservices may be bonded together to strengthen the application's robustness.

7. [LO-2.1] What characterize an evolutionary architect? (Select 3 correct answers)

Select one or more:

Changing the system's technical vision continually.

Collaborating to carry out the system's technical vision.

Balancing all the trade-offs in making decisions.

Conveying the system's technical vision.

8. [LO-2.1] Why is replaceability easy to accomplish with microservices? (Select 2 correct answers)

Select one or more:

The cost to replace small-sized microservices is relatively easy to deal with.

The risk of replacing one microservice or multiple microservices is equally the same.

The developers would not be emotionally attached to a microservice or mindful of rewriting it, with just a few hundred lines long.

Microservices can smoothly replace a legacy system without anyone realizes it.

9. [LO-2.1] How is resilience provided by microservices?

Select one:

Redundancy and replication are the keys to a resilient system.

Every failed microservice has to be quickly and manually isolated from the rest of the system.

Multiple bulkheads need to be intentionally built in the microservice-based system.

Service boundaries are logical bulkheads to address the system's failure

10. [LO-2.1] Main benefits of microservices are ... (Select 3 correct answers)

Select one or more:

Technology-agnostic

**Decomposable** 

Reusable

Scalable