THIRD EDITION (REVISED PRINTING)

SERVICE-ORIENTED COMPUTING AND WEB SOFTWARE INTEGRATION

FROM PRINCIPLES TO DEVELOPMENT

YINONG CHEN AND WEI-TEK TSAI

Kendall Hunt
publishing company

Table of Contents

Exercise Keys

1.7 Exercises and Projects

Name: _____

Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) Latency is zero.
(B) Bandwidth is infinite.
(C) The network is secure.
(D) Topology doesn't change.
(E) All of them are fallacies.

1.2

(A) service provider and the service broker.
(B) service requester and the service broker.
(C) Yellow Pages and the Green Pages.
(D) producer and the consumer.

1.3

(A) Client-server architecture
(B) CORBA
(C) Service-oriented architecture
(D) DCOM

1.4

(A) Service-oriented architecture
(B) Service-oriented computing
(C) Service-oriented software development
(D) Object-oriented programming

1.5

(A) Service provider
(B) Service broker
(C) Application builder
(D) End user of software

1.6

(A) SOA software has better modularity.
(B) SOA software does not require code-level integration among the services.
(C) DOA software has better reusability.
(D) DOA software better supports cross-language integration.

1.7

(A) BPEL
(B) Choreography
(C) Orchestration
(D) Code integration.

1.8

(A) an object-oriented programming language.
(B) a service-oriented programming language.
(C) a database programming language.
(D) a standard for data representation.

1.9

(A) XML
(B) SOAP
(C) WSDL
(D) UDDI

1.10

(A) Software as operational services.
(B) Users are treated as co-developers.
(C) Use loosely coupled and easy-to-use services to compose applications.
(D) Use services and data from multiple external sources to create new services and applications.
(E) All of the above

1.11

(A) a functional building method.
(B) an imperative programming method.
(C) an object-oriented integration method.
(D) a service-oriented composition method.

1.12

[ ] Memory, CUP, and network
[ ] Data, services, and applications
[ ] Software, hardware, and firmware
[ ] Software, platform, and infrastructure

1.13

(A) from Web to desktop.
(B) from service orientation to object orientation.
(C) from desktop to Web.
(D) from Web 2.0 to Web 3.0.

1.14

[ ] Infrastructure as a service
[ ] Platform as a service
[ ] Programming language as a service
[ ] Software as a service

2.8 Exercises and Projects

Name: _____

Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) is a synonym for a method.
(B) is an antonym for a method.
(C) exists after the corresponding code is compiled.
(D) exists when the corresponding code is running.

1.2

(A) deadlock.
(B) livelock.
(C) starvation.
(D) the dining philosophers problem.

1.3

(A) Add a random delay before writing back the account balance.
(B) Implement a lock mechanism to prevent simultaneous access.
(C) Make sure a single withdrawal does not exceed half of the limit.
(D) Anyone of the above will work.

1.4

(A) Livelock is a synonym of deadlock.

(B) Livelock is a deadlock-resolving technique.

(C) In the case of deadlock, the resources are held. In the case of livelock, the resources are still free.

(D) In the case of livelock, the resources are held. In the case of deadlock, the resources are still free.

1.5

(A) "blocked" state.

(B) "sleep" state.

(C) "ready" state.

(D) "waiting" state.

(E) All states above.

1.6

(A) None

(B) One exactly

(C) Two exactly

(D) Many

1.7

(A) the entire method only, similar to the synchronized method in Java.

(B) the entire class with multiple methods.

(C) a single statement, similar to the synchronized statement in Java.

(D) All statements above are correct.

1.8

(A) exception handling is implied.

(B) an exception can never happen if the lock(…) method is used.

(C) the lock(…) method is used for read-only.

(D) the lock(…) method is used for write-only.

1.9

(A) Monitor.Enter(…);

(B) Monitor.TryEnter(…);

(C) lock(…);

(D) ReaderWriterLock(…);

(E) None of the above

1.10

(A) Monitor.Wait(…);

(B) Monitor.Notify(…);

(C) Monitor.Wake(…);

(D) Monitor.Pulse(…);

(E) All of the above

1.11

(A) Monitor.Enter(…);

(B) Monitor.TryEnter(…);

(C) lock(…);

(D) ReaderWriterLock(…);

(E) None of the above

1.12

(A) The automatic boxing and unboxing functions will handle the problem correctly.

(B) Manual boxing is required before using the variable as the Monitor methods.

(C) There is no way in which a value type of variable can be synchronized.

(D) ReaderWriterLock has to be used, instead of Monitor methods.

1.13

(A) Yes. Reader/Writer locks do not make unnecessary locking, and they are simpler in their implementations than the Monitor locks.

(B) No. Although Reader/Writer locks do not make unnecessary locking, it takes longer to execute the Reader/Writer locks.

1.14

(A) Mutex allows reader-reader threads to overlap.

(B) Mutex allows conditional entering of an object.

(C) Mutex can be used to synchronize the processes between different applications.

(D) Mutex methods are faster than Monitor methods.

1.15

(A) prevent more processes (or threads) than permitted from accessing a pool of resources.

(B) prevent any two processes (or threads) from accessing a shared resource simultaneously.

(C) replace Mutex, because Mutex is not efficient in execution time.

(D) coordinate the order of executions among the threads.

1.16

(A) prevent more processes (or threads) than permitted from accessing a pool of resources.

(B) prevent any two processes (or threads) from accessing a shared resource simultaneously.

(C) replace Mutex, because Mutex is not efficient in execution time.

(D) coordinate the order of executions among the threads.

1.17

(A) allows interactions between the computer program and the user or the environment.

(B) uses large modules to build an application program.

(C) supports loosely coupled communications between the modules of the program.

(D) does not allow the interruption between two indivisible instructions.

1.18

(A) allows a method name to be passed as a parameter.

(B) allows the same method call to be associated with different methods.

(D) encapsulates a method with a specific signature.

(D) All of the above.

1.19

(A) An event handler is a part of the control flow in its residing class.

(B) An event handler is a part of the control flow in calling class.

(C) An event handler does not belong to the control flow of any class.

(D) All of the above.

1.20

(A) They handle different type of data.
(B) They differ in the way the cells are accessed.
(C) They differ in the architecture style they are used in.
(D) All of the above.

3.10 Exercises and Projects

Name: _____
Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

[ ] Address [ ] Binding [ ] Client [ ] Contract

1.2

(A) Add Reference…
(B) Add Service Reference…
(C) Add Web Reference…
(D) Add WCF Reference…

1.3

[ ] Platform-independent communication
[ ] Java-based service development
[ ] Workflow application building using BPEL (Business Process Execution Language)
[ ] WS-Security and WS-Reliable Messaging

1.4

(A) exactly the same types of the elements.
(B) few types of the elements.
(C) more types of the elements.
(D) completely different types of the elements.

1.5

[ ] Console Application
[ ] ASP .Net Web site
[ ] Workflow Foundation Application
[ ] Web Browser

1.6

(A) .Net Development Server
(B) IIS
(C) Web server
(D) None of them support external access

1.7

(A) Service registry
(B) Service repository

(C) Service requirement and specification (D) Application Templates
(E) All of the above

1.8

(A) Service registry (B) Service repository
(C) Service requirement and specification (D) Application Templates
(E) All of the above

1.9

(A) Ontology allows more data to be stored.
(B) Ontology allows faster data retrieval.
(C) Ontology can better facilitate service match and discovery.
(D) Ontology can better store executables while databases can better store data.

1.10

(A) It is a part of the White Pages in UDDI. (B) It is a part of the Yellow Pages in UDDI.
(C) It is a part of the Green Pages in UDDI. (D) It is a part of all the three Pages in UDDI.

1.11

(A) One exactly. (B) Two exactly
(C) Three exactly (D) It can have multiple binding templates

1.12

(A) a synonym of the server broker.
(B) a synonym of the service requester.
(C) the interface of a service that is exposed to outside.
(D) a virtual object in the service requester that creates a channel to a (remote) service.

1.13

(A) a synonym of the server broker.
(B) a synonym of the service requester.
(C) the interface of a service that is exposed to outside.
(D) a virtual object in the service requester that creates a channel to a (remote) service.

1.14

(A) Method name of the remote method (B) Code of the remote method
(C) Parameter list of the remote method (D) Return type of the remote method

1.15

(A) Java programming language itself (B) Eclipse programming environment
(C) Axis2 (D) Tomcat

1.16

(A) Java programming language itself
(B) Eclipse programming environment
(C) Axis2
(D) Tomcat

Name: _____

4.8 Exercises and Projects

Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) There is a unique root element.

(B) Each element is quoted between an open and a closing tag.

(C) There are no overlapped tags.

(D) All of the above.

1.2

(A) complete graph.

(B) binary tree.

(C) rooted tree.

(D) star structure.

1.3

(A) Between any pair of elements

(B) Inside the opening tag of an element

(C) Inside the closing tag of an element

(D) Before the first element or after the last element

1.4

(A) CDATA contains nonprintable characters only, while PCDATA contains printable characters only.

(B) PCDATA contains nonprintable characters only, while CDATA contains printable characters only.

(C) CDATA contains digits only, while PCDATA contains letters only.

(D) CDATA will not be checked for syntax errors by XML parsers, while PCDATA will be checked for syntax errors.

1.5

(A) DOM (Document Object Model)

(B) SAX (Simple API for XML)

(C) XMLTextReader

(D) XMLTextWriter

1.6

(A) XmlDocument class

(B) XmlNode class

(C) XmlTextReader class

(D) XmlTextWriter Class

1.7

(A) XmlDocument class
(B) XmlNode class
(C) XmlTextReader class
(D) XmlTextWriter class

1.8

(A) follows XML syntax.
(B) is used to define the structure of an XML file.
(C) is used to define the structure of an XML schema file.
(D) extends the C# XmlDocument class.

1.9

(A) The XML instance file must have an element <course>
(B) The XML instance file must have an element <officeHours>
(C) The XML instance file must have an element <phone>
(D) All of the above

1.10

(A) DTD cannot be used to validate the syntax of XML files.
(B) A DTD file must be embedded in the XML file and cannot be placed externally.
(C) DTD cannot define child elements.
(D) DTD does not follow XML syntax.

1.11

(A) To introduce a new element that has not been defined in other namespaces
(B) To reduce the number of namespace qualifiers prefixed to the element names
(C) To define a new type instantly
(D) To override an existing namespace

1.12

(A) Document Type Definition file
(B) XML Schema file
(C) XML instance file
(D) XML namespace file

1.13

(A) is always implicitly qualified by the namespace-qualifier of the element.
(B) is implicitly qualified by the default namespace only.
(C) is never implicitly qualified by the qualifier of the element.
(D) (A) and (B).

1.14

(A) an HTML file, but not to another XML file.

(B) another XML file, but the tree structure cannot be changed.

(C) another XML file, with the same or a different structure.

(D) None of the above.

1.15

[ ] Input and output of mashup applications.

[ ] Input and output of RESTful services.

[ ] Input and output of BPEL services.

[ ] Input and output of assembly language programs.

1.16

[ ] Allow multiple items per feed.

[ ] Allow autoupdate.

[ ] Allow autodiscovery.

[ ] Allow copyright information.

5.9 Exercises and Projects

Name: _____

Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) Pure HTML with sever support
(B) Client-side scripting
(C) Server-side scripting
(D) Out-of-browser computing

1.2

(A) Pure HTML with sever support
(B) Client-side scripting
(C) Server-side scripting
(D) Out-of-browser computing

1.3

(A) ASAX file (Global)
(B) ASCX file (User controls)
(C) ASPX file (Web form)
(D) ASMX (Web service)

1.4

(A) ASAX file (Global)
(B) ASCX file (User controls)
(C) ASPX file (Web form)
(D) ASMX (Web service)

1.5

(A) ASAX file (Global)
(B) ASCX file (User controls)
(C) ASPX file (Web form)
(D) Web.config
(E) DLL file

1.6

(A) ASAX file (Global)
(B) ASCX file (User controls)
(C) ASPX file (Web form)
(D) Web.config
(E) DLL file

1.7

(A) ASAX file (Global)
(B) ASCX file (User controls)
(C) ASPX file (Web form)
(D) Web.config
(E) DLL file

1.8

(A) Copy and paste the user control into each ASPX page.
(B) Link the reference to the user control page into each ASPX page.
(C) Once added to the project, a user control is automatically visible to all pages
(D) The user control must be registered in the Web.config file

1.9

[ ] Pure HTML form
[ ] HTML form with embedded scripts written in a scripting language
[ ] ASPX page with embedded scripts written in a scripting language
[ ] ASPX page with C# programs as event handlers

1.10

(A) Computing tasks have to be sent to the server and the results have to be sent back to the client.
(B) Scripts (programs) are visible by "View Source" in the browser.
(C) Scripts are pre-compiled.
(E) All of the above

1.11

[ ] Addressing the problem of simultaneous write on the variable.
[ ] Creating session states in the global file.
[ ] Creating two global files that can coordinate with each other
[ ] Addressing the performance problem if the lock mechanism is used.

1.12

(A) Copy the class into the Default.aspx page
(B) Copy the class into the bin folder, and then the class will be visible in all aspx pages.
(C) Use the "Add Reference" option in Visual Studio to include the class.
(D) All of the above

1.13

[ ] int
[ ] string
[ ] double
[ ] object defined by a class

1.14

(A) int
(C) string
(B) double
(D) object defined by a class

1.15

(A) within all pages in the session
(B) across all sessions of the application
(C) in the aspx page, in which the variable is created
(D) in the .cs file, in which the variable is created

1.16

[ ] Create an aspx page in client browser.
[ ] Use a cookie to store the session id.

[ ] Put the session ID in the URL as a part of the address.

[ ] Put the session id in the application state as a static variable.

1.17

(A) all pages in the current session, but not the other sessions in the application.

(B) all sessions in the current application, but not the other applications.

(C) all applications in the Web server.

(D) None of the above

1.18

(A) XML reader class

(B) XML writer class

(C) Path class

(D) FileStream class

1.19

(A) XMLTextReader (Stream based)

(B) XMLDocument (Document tree based)

(C) Both XMLTextReader and XMLDocument

(D) Neither XMLTextReader nor XMLDocument

1.20

(A) It caches the entire XHTML page

(B) XMLDocument (Document tree based)

(C) Both XMLTextReader and XMLDocument

(D) Neither XMLTextReader nor XMLDocument

1.21

(A) It caches the entire XHTML page.

(B) It caches a part of the XHTML page defined by a user control.

(C) It caches any object created by a new() operation in the program.

(D) It caches any output data, such as Label and ListBox in an aspx page.

1.22

[ ] Application state variables can save strings only.

[ ] Application state variables do not have automated caching management support.

[ ] Application state variables need cookie support.

[ ] Application state variables are not thread safe.

1.23

[ ] When we want to insert a new data object into the cache.

[ ] When we want to add an expiration time into an existing cache object.

[ ] When we want to add a dependency object into an existing cache object.

[ ] When we want to retrieve a specific item from an existing cache object.

1.24

(A) The entire Web page generated from the ASPX page.
(B) The data related to the User Control.
(C) Object selected by the developer.
(D) All of the above.

1.25

(A) Always in the level-one or level-two cache memory of the server.
(B) Always in the main memory of the server.
(C) Always in the file system of the server.
(D) Can be in cache, memory, and disk.

1.26

(A) Cache class
(B) CacheDependency class
(C) OutputCach class
(D) ResponseElement class

6.6 Exercises and Projects

Name: _____

Date: _____

- Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) continuity of service in [0, t].
(B) the readiness of service at time point t.
(C) non-occurrence of catastrophic consequence.
(D) the validity and consistence of data and message.

1.2

(A) Confidentiality
(B) Safety
(C) Vulnerability
(D) All of the above

1.3

(A) Reliability is needed
(B) Confidentiality is needed.
(C) Digital signature is needed.
(D) All of the above.

1.4

(A) Access control list
(B) IP address restrictions
(C) Domain name restrictions
(D) Encrypted HTTP connections
(E) All of the above

1.5

(A) ASAX file (Global)
(B) ASCX file (User controls)
(C) ASPX file (Web form)
(D) Web.config
(E) DLL file

1.6

(A) Passwords are stored in clear text
(B) Sequential comparisons of user name and password
(C) Unmanageable if accessibility needs to be changed frequently
(D) All of the above

1.7

(A) Authentication
(B) Authorization
(C) Both (A) and (B)
(D) None of (A) and (B)

1.8

(A) <allow users= "*" />
(B) <deny users="?" />

(C) <allow users = "Bob" /> <deny users = "*" />

(D) <deny users "*" /> <allow users = "Bob" />

1.9

(A) secrete algorithm has been published.
(B) encryption key is short.
(C) algorithm complexity is too high.
(D) code is open source.

1.10

(A) WS-Security
(B) Reliable Sessions (WS-R)
(C) Interoperability (WS-I)
(D) All of the above

1.11

(A) At-Least-Once delivery, At-Most-Once delivery, and Exactly-Once delivery
(B) Guaranteed message ordering for delivery
(C) Both (A) and (B)
(D) None of the above

1.12

(A) in the entire program by default
(B) defined using an object of TransactionScope class
(C) quoted by a pair of special of tags < transaction> … </transaction>
(D) left to the user to write a rollback method that commits the transaction calls simultaneously

1.13

(A) data confidentiality
(B) data integrity
(C) Both (A) and (B)
(D) Neither (A) nor (B)

1.14 .

[ ] Lost messages
[ ] Duplicated messages
[ ] Messages received out of order
[ ] Guaranteed Secure Socket Layer data confidentiality

7.6 Exercises and Projects

Name: _____

Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) ServiceMetadataBehavior
(B) ServiceHost
(C) Uri
(D) WsHttpBinding

1.2

(A) WCF class called GenerateProxy.

(B) A class in the Console Application template.

(C) Web Administrative Tool in ASP .Net.

(D) An independent tool called Service Model Metadata Utility Tool.

1.3

(A) Uri baseAddress = new Uri("http://localhost:8000/Service");

(B) ServiceHost selfHost = new ServiceHost(typeof(myService), baseAddress);

(C) selfHost.AddServiceEndpoint(typeof(myInterface), new WSHttpBinding(), "myService");

(D) selfHost.Description.Behaviors.Add(smb);

1.4

(A) Duplex (B) One-way

(C) Request-Reply (D) All of the above

1.5

(A) Duplex (B) One-way

(C) Request-Reply (D) All of the above

1.6

(A) PerCall (B) PerSession (C) Single (D) Reentrant

1.7

(A) PerCall (B) Reentrant (C) Single (D) Multiple

1.8

(A) SOAP (B) TCP/IP (C) MSMQ (D) HTTP

1.9

(A) always corresponds to a single data item.

(B) can correspond to a single or a set of data items.

(C) always corresponds to a WebMethod.

(D) replaces SOAP in traditional Web services.

1.10

(A) rooted tree. (B) binary tree.

(C) B+ tree. (D) red-black tree.

1.11

[ ] Communication is stateless.

[ ] Communication is stateful.

[ ] A server can initiate a request to a client.

[ ] Each resource is given a unique identifier, called URI.

1.12

[ ] RESTful services focus on performing (verb) a task for the client.
[ ] RESTful services focus on the result (noun) of performing (verb) a task.
[ ] SOAP services focus on performing (verb) a task for the client.
[ ] SOAP services focus on the result (noun) of performing (verb) a task.

1.13

[ ] Use HTTP for data exchanges.
[ ] Use SOAP for data exchanges.
[ ] Focus on data and resources to be exposed.
[ ] Focus on WebMethods to be exposed.

1.14

(A) Encoded in XML
(B) Encoded in SOAP
(C) Encoded in WSDL
(D) Encoded in URI

1.15

(A) /add2?x=7&x=12
(B) /add2/7/12
(C) /add2(x=5, y=12)
(D) /add2(5, 12)

1.16

(A) Yes
(B) No

1.17

(A) stateless service, as RESTful services are always stateless.
(B) a stateless service, as there is no need of saving state in the service.
(C) a stateful service that correlates multiple accesses from the same client.
(D) a stateful service, as the dynamic image is cached for performance reason.

1.18

[ ] Atom [ ] JSON [ ] SOAP [ ] XML

1.19

(A) add an additional layer of abstraction in application development.
(B) offer a new service development template.
(C) provide a service hosting environment.
(D) implement application logic in a database.

1.20

(A) In an XML file.
(B) In an XAML file.
(C) In a C# code file
(D) In a C# interface file

8.9 Exercises and Projects

Name: _____
Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) Each service involved can communicate with multiple partners in the application.
(B) Each service involved must communicate with at least two partners in the application.
(C) Involved services communicate with the central process only.
(D) The process itself is not a service,

1.2

(A) <invoke>
(B) <receive>
(C) <assign>
(D) All of the above.

1.3

(A) A "portType"
(B) A "receive" activity
(C) A "reply" activity
(D) None of the above

1.4

(A) <scope>
(B) <sequence>
(C) <flow>
(D) <namespace>

1.5

(A) <invoke>
(B) <receive>
(C) <assign>
(D) <copy>

1.6

(A) a set partner link types using XML schema
(B) a SOAP packet to be transmitted between two Web services
(C) the order of the activities to be performed in a Web service
(D) the WSDL interface of a Web service

1.7

(A) Java
(B) WSDL with extended elements
(C) ebXML
(D) SOAP

1.8

(A) <invoke> from client side and <send> from the server side
(B) <receive> from client side and <reply> from the server side
(C) <invoke> from client side and <invoke> from the server side
(D) All of the above

1.9

(A) asynchronous and queued message services.
(B) synchronous one-way communication.
(C) synchronous two-way communication.
(D) All of the above.

1.10

(A) URI of RESTful service.
(B) URL of the client.
(C) URL of the server
(D) subscribing topics or queues.

1.11

(A) SOAP.
(B) MSMQ.
(C) JMS
(D) WSDL.

1.12

(A) Database-based
(B) JMS-based
(C) MSMQ-based
(D) None of the above

1.13

[ ] IBM WebSphere
[ ] Microsoft BizTalk
[ ] Oracle SOA Suite
[ ] Visual Studio

1.14

(A) takes multiple Web services as components.
(B) consumes RESTful services.
(C) combines data or functionality from two or more sources
(D) accesses database in object-oriented manner.

1.15

[ ] Loop
[ ] Foreach
[ ] Switch
[ ] Split

9.11 Exercises and Projects

Name: _____

Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

[ ] Faster response time of application
[ ] Application is platform independent
[ ] Control flow based development
[ ] Reusable services

1.2

(A) All inputs are known at the start of the program.
(B) Many sensory inputs can be better described by events.
(C) Data flow does not exist
(D) Control flow does not exist

1.3

(A) Services (B) Service directory (C) Applications (D) All of the above

1.4

(A) Activity (B) Calculate (C) Merge (D) Variable

1.5

(A) It waits for one of the incoming data items to arrive.
(B) It waits for all incoming data items to arrive.
(C) It checks the result of a condition and then chooses one of incoming data items
(D) It must be used in pair with Merge

1.6

(A) If (B) Join (C) While (D) Switch

1.7

(A) To replace the value output of a string type.
(B) To replace the value output of a Boolean type.
(C) To provide an event output in addition to a value output.
(D) To provide a second value output.

1.8

(A) A basic activity
(B) A composite activity
(C) A composite activity wrapped with service interface
(D) All of the above

1.9

(A) It is basic activity.
(B) It is a mathematical model for the ALU.
(C) It represents voice output service.
(D) It is a configuration file that links a service to a real or simulate robot.

1.10

(A) DistanceMeasurements[0]
(B) DistanceMeasurements[45]
(C) DistanceMeasurements[90]
(D) DistanceMeasurements[180]

1.11

(A) a set of inputs occurring together at the starting state.
(B) a sequence of inputs occurring one after another.
(C) a set of inputs occurring together at the terminating state.
(D) nonoccurrence of any input.

1.12

(A) A super service is defined that translate all service driver into a generic service
(B) An VPL activity is written to map the device driver to the VPL interface
(C) A DSS service is written to map the device driver to the VPL interface.
(D) USB interface is a part of MRDS standard and no translation is needed.

10.6 Exercises and Projects

Name: _____
Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) Support hierarchical structure of data access.
(B) Support device-independent data access from multiple sources.
(C) Make it easier for the data to pass across firewall.
(D) All of the above

1.2

(A) an array of homogeneous data.
(B) a single table of data.
(C) a set of tables.
(D) a set of data, each of which can have different type.

1.3

(A) Data adapter.
(B) Data provider.
(C) DataSet.
(D) None of the above.

1.4

(A) an array of homogeneous data.
(B) a single table of data.
(C) a set of tables that can be accessed by indices and as an XML tree.
(D) a set of data, each of which can have different type.

1.5

(A) Insert a column
(B) Delete a column
(C) Update a column
(D) Select the maximum value from a column

1.6

(A) sequentially access the elements of an aggregate object.
(B) parameterize clients with different requests of actions.
(C) vary the interactions among the different objects independently.
(D) define a one-to-many dependency between objects.

1.7

(A) SqlConnection conn = new SqlConnection;
(B) conn.Open();
(C) SqlCommand cmd = new SqlCornmand();
(D) cmd.Connection = conn;

1.8

(A) Yes
(B) No

1.9

[ ] Save XML file as it is.
[ ] Transform XML file into tables.
[ ] Save semi-structured data.
[ ] Use the same the query language that has been used in relational database.

1.10

[ ] There is no programming language that can be used to define the transformation.
[ ] The transforming may end up with using many tables or a large table with many null columns.
[ ] The ordering information may get lost.
[ ] The file after the transformation can not be updated.

1.11

(A) imperative programming language.
(B) functional programming language.
(C) object-oriented programming language.

(D) service-oriented programming language.

1.12

(A) Oracle 11g and IBM DB 9.5
(B) dbXML
(C) eXist
(D) Apache Xindice
(E) All of the above

1.13

(A) Pure XML documents
(B) Plain tables
(C) Images files
(D) All of the above

1.14

(A) an imperative programming language.
(B) a database query language.
(C) a pointer-based programming language with flexible data types.
(D) a programming language designed for scientific computing.

1.15

(A) imperative programming language.
(B) object-oriented programming languages.
(C) service-oriented programming languages.
(D) declarative programming languages.

11.7 Exercises and Projects

Name: _____

Date: _____

1. Multiple choice questions. Choose one answer in each question only, unless otherwise specified.

1.1

(A) pair: (subject, predicate)
(B) pair: (subject, object)
(C) triple: (resource, property, class)
(D) triple: (subject, predicate, object)

1.2

(A) resource, property, and statement
(B) ontology, semantic Web, and database
(C) int, character, and string
(D) class, object, and instantiation

1.3

[ ] domain
[ ] range
[ ] superclass
[ ] type

1.4

(A) not an ontology language
(B) a less powerful (less expressive) ontology language than RDF
(C) a more powerful (more expressive) ontology language than RDF
(D) none of the above

1.5

(A) True
(B) False

1.6

(A) Prolog
(B) RDF
(C) RDFS
(D) OWL

1.7

(A) True
(B) False

1.8

(A) OWL Lite
(B) OWL DL and OWL Full
(C) OWL Full
(D) None of the above

1.9

[ ] sameAs
[ ] disjointWith
[ ] subClassOf
[ ] validationOf

1.10

[ ] complementOf
[ ] disjointWith
[ ] subClassOf
[ ] validationOf

14.15 Exercises and Projects

Name: _____

Date: _____

1. Multiple choice questions. Choose one answer in each question only. Choose the best answer if multiple answers are acceptable.

1.1

(A) It is identical to SOA software, and there is no difference.
(B) SaaS does not use SOA technology at all.
(C) SaaS is similar to SOA software; however, it is often hosted on a cloud environment.
(D) SaaS is the same as a Web service.
(E) All of the above.

1.2

(A) SaaS can be changed at all at any time.
(B) People can use the source code of SaaS to change to fit their applications.
(C) The kinds of customization will be limited by the SaaS design.
(D) Only functionality of SaaS can be changed, but not user interface.
(E) All of the above.

1.3

(A) It is a house that is for rent by tenants.
(B) Each tenant will have specific source code within a multi-tenancy SaaS customized for specific applications.
(C) Each tenant can contribute their software as a part of SaaS.
(D) Only one version of the software is used for all tenants.
(E) It is not possible to scale multi-tenancy architecture for large applications.

1.4

(A) GAE is a data center for efficient data storage and retrieval of structure data.
(B) GAE is a data center for efficient data storage and retrieval of semi-structured data.
(C) GAE is a hosting server for Google's search engine.
(D) GAE is an application development, hosting, and data management system.

1.5

(A) To extend the content capacity of Google File System (GFS).
(B) To store metadata, such as indices, to the contents in Google File System (GFS).
(C) To use a big data table to store all the data in one place.
(D) To take the advantage of the space locality for efficient block data retrieval.

1.6

(A) A failure of a critical component that can lead to the failure of the entire system.
(B) Repeated occurrences of transient failures in a short period of time.
(C) Automatic transferring the functions of a failed component to other components.
(D) An event that indicating the occurrence of a failure.

1.7

(A) Google map and multi-tenancy architecture.
(B) group and join query algorithm.
(C) functions as first-class objects in functional programming languages.
(D) high-order functions in functional programming languages.

1.8

(A) Multi-tenancy architecture
(B) Event-driven architecture for hosting real-time applications
(C) Application of B+ Tree in massive data management
(D) Elastic scalability in infrastructure services