

## ✔ Congratulations! You passed!

Grade  
received **100%**

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higher

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1. Which of these views show the functional design of the software, usually in the form of objects and the relationships between them?

1 / 1 point

- ☐ process view
- ☐ development view
- ☒ logical view
- ☐ physical view



Correct

Correct! The logical view lays out the objects of the system, allowing you to see the key abstractions and the interactions among parts.

2. Which of these UML diagrams are likely to be part of the process view? **Select two correct answers.**

1 / 1 point

- ☐ Class diagram
- ☒ Sequence diagram



Correct

Correct! A sequence diagram illustrates a process in the software.

- ☒ Activity diagram



Correct

Correct! Activity diagrams can illustrate the processes in the system.

☐ State diagram

3. To which view would the Package Diagram belong? Remember that a package diagram shows the packages that make up a software and how they are related.

1 / 1 point

- ☐ logical view
- ☐ process view
- ☒ development view
- ☐ physical view

✓ **Correct**

Correct! The internal makeup of the software is expressed in the development view. Another UML diagram you might find here is a Component diagram.

4. Which of these statements about Component Diagrams is **true**?

1 / 1 point

- ☐ They are useful for clarifying the artifacts that will be produced from development
- ☐ They do not show third-party libraries
- ☒ They clarify dependency relationships
- ☐ They give a dynamic view of the system

✓ **Correct**

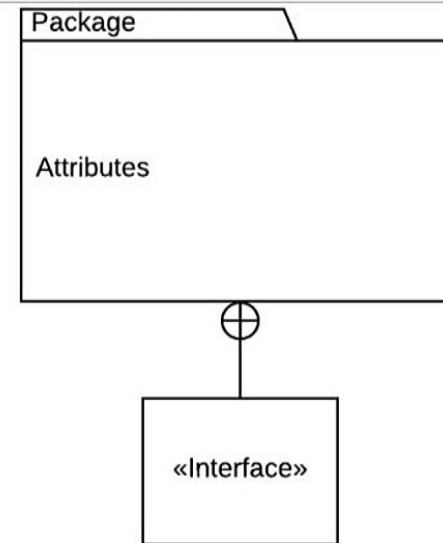
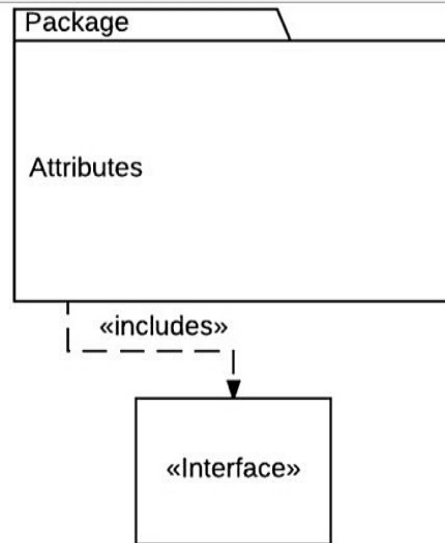
Correct! Dependencies are shown with ball and socket and other connectors.

5. Which of these Package Diagrams is **invalid**?

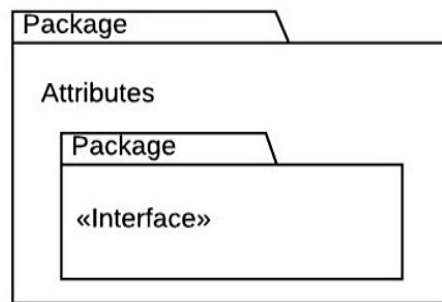
1 / 1 point

a)

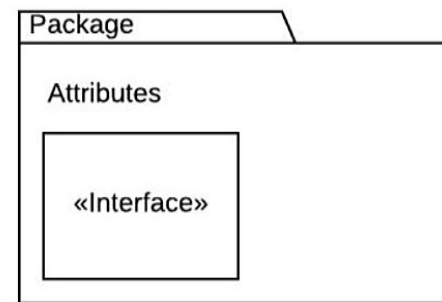
b)



c)



d)



☐ a)

☐ b)

☒ c)

☐ d)

✓ Correct

Correct! Includes is not a keyword that is used in package diagrams. Use the crossed box instead.

6. Which of these will you **NOT** find in a deployment diagram?

1 / 1 point

- ☐ device
- ☐ artifact
- ☐ execution environment
- ☐ component
- ☒ class
- ☐ library

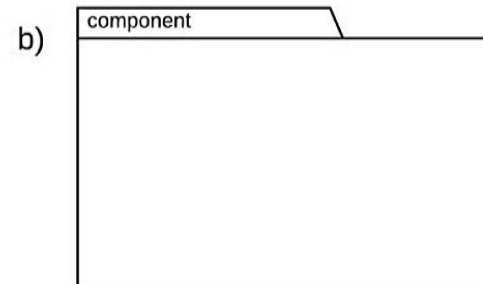
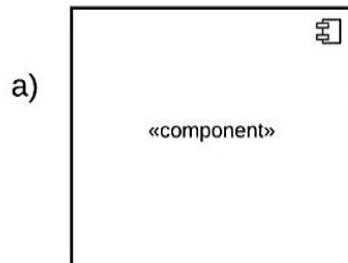


**Correct**

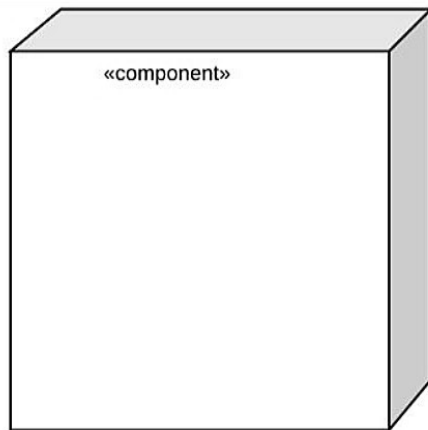
Correct! The lowest level usually depicted in a deployment diagram is a component. Individual classes are not shown.

7. Which of these diagrams correctly shows a component?

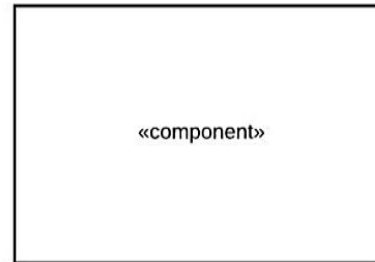
1 / 1 point



c)



d)



☒ a)

☐ b)

☐ c)

☐ d)



Correct

Correct! A component can also be shown with a large version of the icon in the top right.

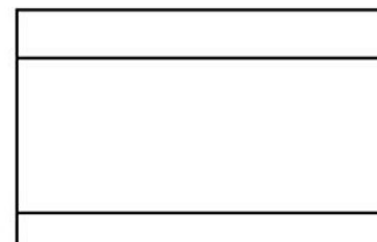
8. Which of these does **NOT** belong on an activity diagram?

1 / 1 point

a)



b)





c)



d)



- ☐ a)
- ☒ b)
- ☐ c)
- ☐ d)



**Correct**

Correct! Classes are too low-level to show in the higher-level activity diagram.

9. What is an **artifact**?

1 / 1 point

- ☐ A part of a device that is nonetheless important to depict on the deployment diagram, like a hard-drive
- ☐ Part of the development process that is important to the developers, but not the end- users

Activate Windows  
Go to Settings to activate Windows.

- ☒ A physical realization of a software component
- ☐ An unintended effect that the software has on the device.



**Correct**

Correct! This could be an executable file or a config file, for example.

10. What is an abstract data type?

1 / 1 point

- ☐ a data type that is not actually storing data; instead it is used to define interfaces
- ☒ a data schema that is defined by the developer
- ☐ an interface that defines how to store data in a class
- ☐ a data type that dynamically allows the storage of different primitives



**Correct**

Correct! Abstract data types are defined by the developer to structure data in ways that are meaningful and show the key concepts of interactions.

11. Which of these are advantages of main program and subroutine architectural style? Select **two correct answers**.

1 / 1 point

- ☒ efficient for computation focused problems



**Correct**

Correct! Having objects for an algorithmic problem may be neither necessary nor useful.

- ☐ abstract data types are easy to define and extend

- ☒ promotes function modularity and reuse



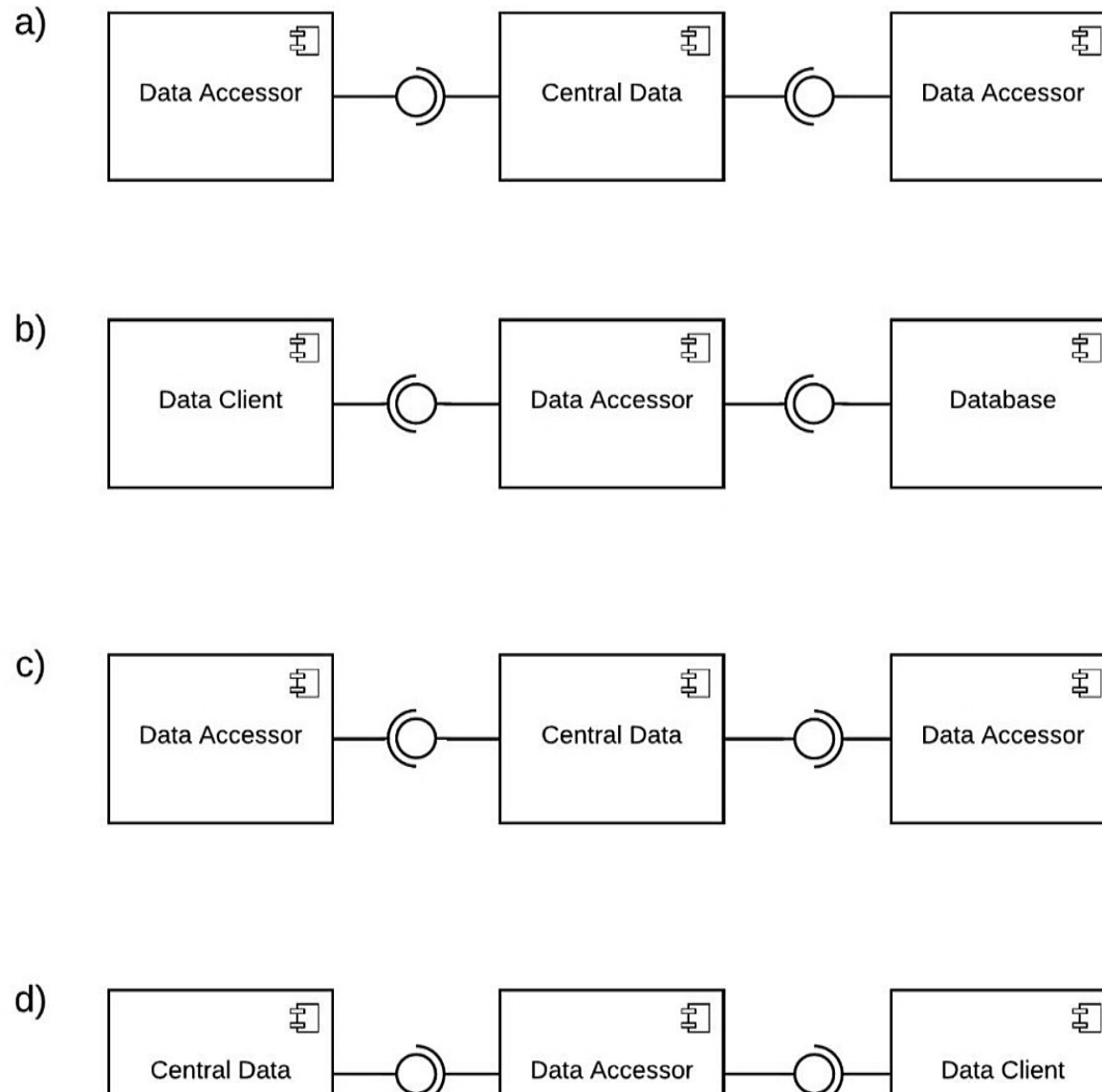
**Correct**

Correct! Like reusing classes in object-oriented languages, developers try to write functions in a rewriteable way.

☐ easily mapped to all kinds of real-world problem spaces

12. Which of these accurately represents basic Database Architecture?

1 / 1 point





- ☐ a)
- ☐ b)
- ☒ c)
- ☐ d)



**Correct**

Correct! There are only two parts to basic database architecture, and the data accessors are clients of the central data.

**13.** Select the **one accurate statement** about layered architecture:

**1 / 1 point**

- ☐ Upper layers act as service providers to lower layers
- ☐ Passthrough should be avoided at all costs
- ☐ Enforcing communication only between adjacent layers and within a layer is key to good, layered architecture
- ☒ Layered architecture is often based on layers of abstraction



**Correct**

Correct! This is especially true in communications protocols, but also for operating systems and in other usage.

**14.** What is the correct term for a machine that hosts a server?

**1 / 1 point**

- ☐ server-tier
- ☐ Called by type: e.g. print server or media server
- ☐ server-machine
- ☒ server-host

**Correct**

Correct! A machine hosting a server process is called a server-host.

15. Some programs allow users to record a sequence of inputs - for example keyboard and mouse inputs - to run later. What are these called?

**1 / 1 point**

- ☐ scripts
- ☐ input listeners
- ☐ user recorders
- ☒ macros

**Correct**

Correct! Macros allow users to record sequences of inputs to run later.

16. Data Flow Architecture is also called...

**1 / 1 point**

- ☐ Black Box Architecture
- ☐ Cascade Architecture
- ☒ Pipe and Filter Architecture
- ☐ Data Transformation Architecture

**Correct**

Correct! This architecture consists of pipes (basically flows of data) and filters (which transform the data).

17. Which of these is **NOT** a common component of event-driven architectures?

1 / 1 point

- ☐ event bus
- ☐ event generator
- ☒ event processor
- ☐ event consumer

✓ **Correct**

Correct! The "processing" of events is split between the event bus, which directs them to the correct place, and the event consumers, which decide what to do with them.

18. Which type of process control that we discussed is typically needed for complex systems?

1 / 1 point

- ☐ Machine Learning
- ☒ MAPE-K
- ☐ Feedforward Control + Feedback Control
- ☐ Feedforward Control

✓ **Correct**

Correct! MAPE-K control is good at dealing with more complex systems.

19. Which of these is a **drawback** of n-Tier architecture?

1 / 1 point

- ☐ Limited in scale
- ☐ More hardware nodes are necessary
- ☐ Only asynchronous messaging is possible, leading to challenging development decisions
- ☒ Every tier demands extra resources to manage the client/server relationships



**Correct**

Correct! Typically a server in one tier has many clients; these relationships take resources (for example, IT support) to support.

20. Which of these is **NOT** an example of Interpreter type architecture?

1 / 1 point

- ☐ Scripting and Macros
- ☐ Excel formulas
- ☐ Java Virtual Machine
- ☒ The kernel of an operating system



**Correct**

Correct! This is better described as a layered architecture, wherein the lower layers provide services to the ones above.

21. Which of these terms matches this definition: "The amount of time the system is operational over a set period of time?"

1 / 1 point

- ☐ performance
- ☒ availability
- ☐ usability
- ☐ interoperability



**Correct**

Correct! This is a description of the system's availability.

22. Which of these quality attributes is most important from the developer's perspective?

1 / 1 point

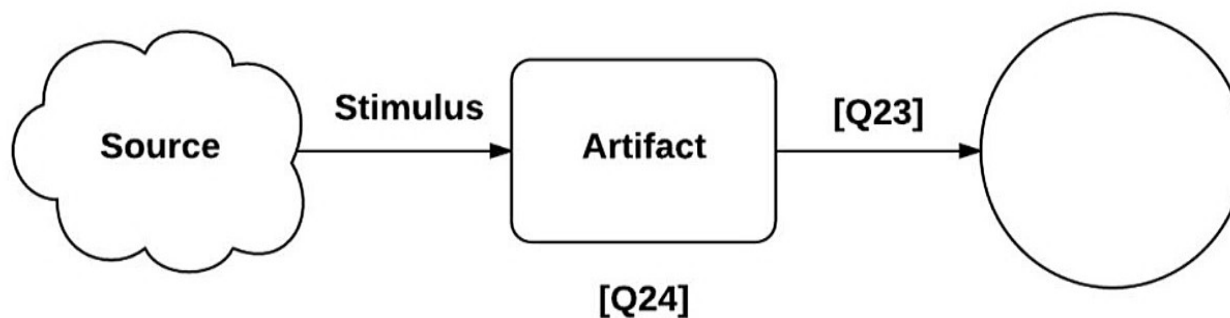
- ☐ security
- ☐ availability
- ☒ flexibility
- ☐ usability

✓ Correct

Correct! Flexibility is how well a system can adapt to requirements change; this is a concern for the developer not the customer.

23. [Q23] could be described as: “**how the artifact will behave as a result of receiving a stimulus.**” What is this called?

1 / 1 point



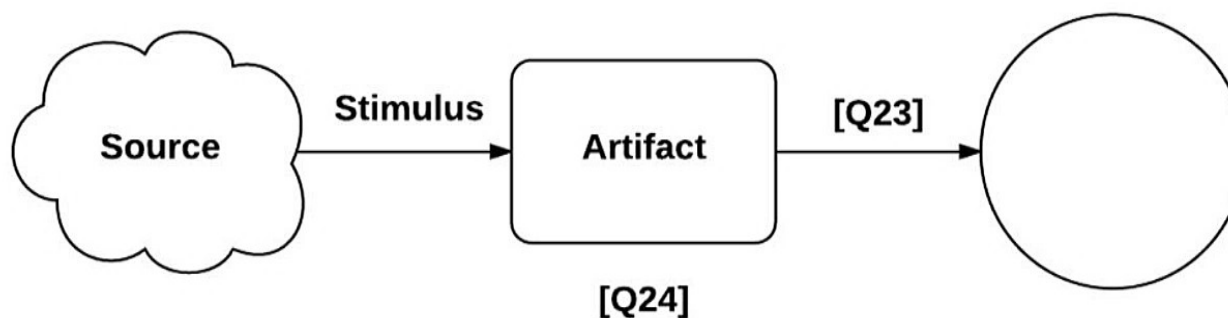
- ☐ output
- ☐ environment
- ☐ response measure
- ☒ response

✓ Correct

Correct! The artifact responds to the stimulus with a response.

24. [Q24] could be described as: “the mode of the system when it receives a stimulus.” What is this called?

1 / 1 point



- ☐ context
- ☐ scenario
- ☐ approach
- ☒ environment

✓ Correct

Correct! This is called the environment.

25. General quality attributes like performance and security have more specific components like throughput and latency for performance. What are these called?

1 / 1 point

- ☐ architecturally significant requirements
- ☐ architecture specifications
- ☒ attribute refinement
- ☐ sensitivity points

**Correct**

Correct! Attribute refinements are qualities that a system has, more specific than very general ones like security or availability.

26. Which strategy is **NOT** part of delivering a high-quality system?

1 / 1 point

- ☐ Involve all stakeholders in design
- ☒ Treat all quality attributes as equally important
- ☐ Set rules for design and implementation
- ☐ Adopt good documentation practices

**Correct**

Correct. In an ideal world you could deliver high quality software in every respect, but time and resources will force you to make tradeoffs in the quality attributes, so it is important to prioritize them.

27. **True or False:** You should focus on situations that are outside the normal execution path when building a quality attribute scenario.

1 / 1 point

- ☒ True
- ☐ False

**Correct**

Correct! These cases will likely be the source of most errors.



28. "Maintenance Downtime" is an attribute refinement of what quality attribute?

1 / 1 point

- ☐ Conceptual Integrity
- ☐ Performance
- ☐ Maintainability
- ☒ Availability



**Correct**

Correct! Availability is the amount of time the system is operational. Maintenance downtime takes away from the availability.

29. Eliza is planning a product line of media boxes. Some of these will connect to traditional television lines, whereas others will only have internet media like video-streaming services. What is this type of difference between products called?

1 / 1 point

- ☐ Adaptation
- ☐ Product-Specifics
- ☐ Extension
- ☒ Variation



**Correct**

Correct! Variations are parts of the product line that some products do and some products do not have.

30. Mozilla Firefox and other browsers have ecosystems of add-ons for their browsers that add functionality, for example by blocking ads or providing tools for online shopping. What is this style of variation called?

1 / 1 point

- ☒ Extension
- ☐ Reference Architecture
- ☐ Adaptation



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**1 / 1 point**

- ☒ Extension
- ☐ Reference Architecture
- ☐ Adaptation
- ☐ Replacement

**Correct**

Correct! Typically a common interface is presented to which many of these add-ons can be fitted.