Congratulations! You passed!
TO PASS 75% or higher

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Final Exam

LATEST SUBMISSION GRADE
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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**

- ○ physical view
- ○ process view
- ◉ logical view
- ○ development 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**. **0 / 1 point**

- ☐ Class diagram
- ☑ Activity diagram

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

- ☑ State diagram

This should not be selected
Incorrect. This belongs in the logical view.

- ☐ Sequence 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**

- ○ process view
- ○ physical view
- ◉ development view
- ○ logical 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.

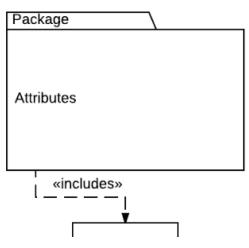
4. Which of these statements about Component Diagrams is **true**? **1 / 1 point**

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

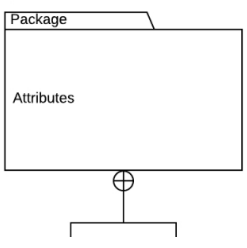
Correct
Correct! Dependencies are shown with ball and socket and other connectors.

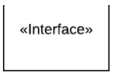
5. Which of these Package Diagrams is **invalid**? **1 / 1 point**

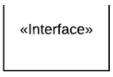
a)



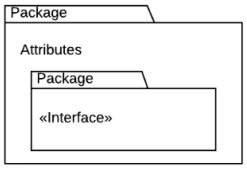
b)



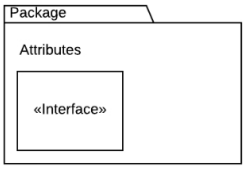




c)



d)



- a)
- b)
- c)
- d)

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

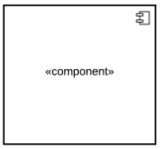
6. Which of these will you **NOT** find in a deployment diagram? **1 / 1 point**

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

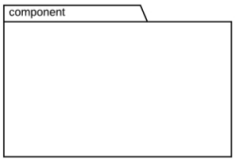
Correct
Correct! The lowest level usually depicted in a deployment diagram is a component. Individual classes are not shown.

7. Which of these diagrams correctly shows a component? **1 / 1 point**

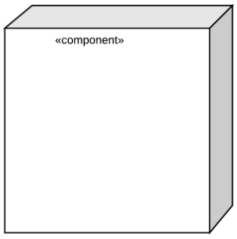
a)



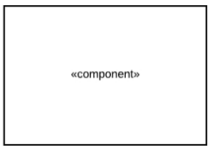
b)



c)



d)

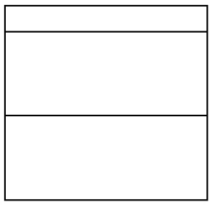


- a)
- b)
- c)
- d)

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

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

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

10. What is an abstract data type? 0 / 1 point

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

Incorrect
Incorrect! This is not an abstract data type.

11. Which of these are advantages of main program and subroutine architectural style? Select **two correct answers.** 1 / 1 point

- [ ] abstract data types are easy to define and extend
- [x] promotes function modularity and reuse

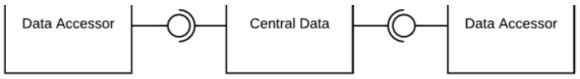
Correct
Correct! Like reusing classes in object-oriented languages, developers try to write functions in a rewriteable way.

- [ ] easily mapped to all kinds of real-world problem spaces
- [x] efficient for computation focused problems

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

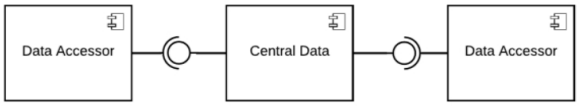
12. Which of these accurately represents basic Database Architecture? 1 / 1 point

a) 

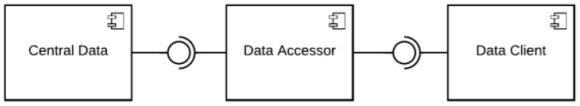


b)

c)



d)



- 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
- Layered architecture is often based on layers of abstraction ✓
- Enforcing communication only between adjacent layers and within a layer is key to good, layered architecture

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? **0 / 1 point**

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

Incorrect
Incorrect, although people might speak this way informally.

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**

- user recorders
- macros ✓
- scripts
- input listeners

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

16. Data Flow Architecture is also called... **1 / 1 point**

- Cascade Architecture
- Data Transformation Architecture

Data Transformation Architecture

- [x] Pipe and Filter Architecture
- [ ] Black Box 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 consumer
- [x] event processor
- [ ] event generator
- [ ] event bus

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**

- [x] MAPE-K
- [ ] Feedforward Control + Feedback Control
- [ ] Machine Learning
- [ ] 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**

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

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**

- [ ] Java Virtual Machine
- [x] The kernel of an operating system
- [ ] Excel formulas
- [ ] Scripting and Macros

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**

- [x] availability
- [ ] performance
- [ ] interoperability
- [ ] usability

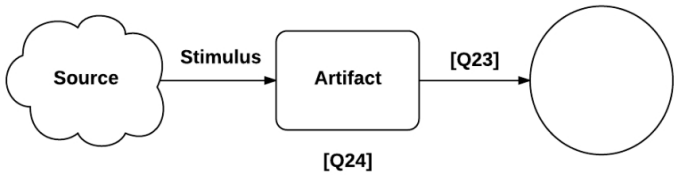
Correct
Correct! This is a description of the system's availability.

22. Which of these quality attributes is most important from the developer's perspective? **1 / 1 point**

- [ ] security
- [x] flexibility
- [ ] usability
- [ ] availability

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

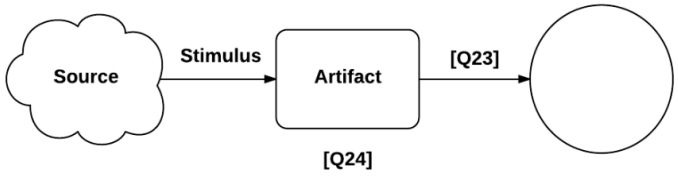
23. **[Q23]** could be described as: "**how the artifact will behave as a result of receiving a stimulus**." What is this called? **1 / 1 point**



- response measure
- output
- environment
- 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**



- approach
- context
- environment
- scenario

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? **0 / 1 point**

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

Incorrect
Incorrect. Sensitivity points are processes in a system that could affect specific quality attributes.

26. Which strategy is **NOT** part of delivering a high-quality system? **1 / 1 point**

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

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**

- [x] 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
- [ ] Maintainability
- [x] Availability
- [ ] Performance

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
- [x] Variation
- [ ] Extension

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**

- [ ] Replacement
- [x] Extension
- [ ] Reference Architecture
- [ ] Adaptation

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