Congratulations! You passed!

Grade received 100%

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Go to next item

1. Which of these terms are used to describe coupling? **Choose the 3 correct answers.** **1 / 1 point**

- [x] degree

  Correct
  Correct! Degree is how much two components are connected

- [ ] frequency
- [x] ease

  Correct
  Correct! Ease is how easily a component can be switched for a different one.

- [ ] exposed
- [x] flexibility

  Correct
  Correct! Flexibility is how easily a component can be used for another purpose.

2. Which is the most desirable? **1 / 1 point**

- ( ) low cohesion, tight coupling

- ○ low cohesion, loose coupling
- ○ high cohesion, tight coupling
- ◉ high cohesion, loose coupling

Correct
Correct!

3. What are some keywords you might use for information hiding in Java? **Select the three correct answers.** **1 / 1 point**

- ☑ [none]

Correct
Correct! Having no keyword will make the variable or method default to only being accessible by the class and its subclasses.

- ☑ private

Correct
Correct! This will hide variables or methods from all other classes.

- ☑ protected

Correct
Correct! This will hide information from all classes except those in the same package or those that extend.

- ☐ abstract

4. What are the best ways to promote Conceptual Integrity in your software? **Choose the two correct answers.** **1 / 1 point**

- ☑ Regular code reviews

Correct

Correct! Regular code reviews will get everyone to think together about the best conventions to use in your software, and allow the team to correct missteps.

- [ ] Delegating development of different components to different teams
- [ ] Good commenting
- [x] Planning the architecture of the system

Correct
Correct! Planning ahead will allow your team to discuss issues relating to conceptual integrity ahead of time.

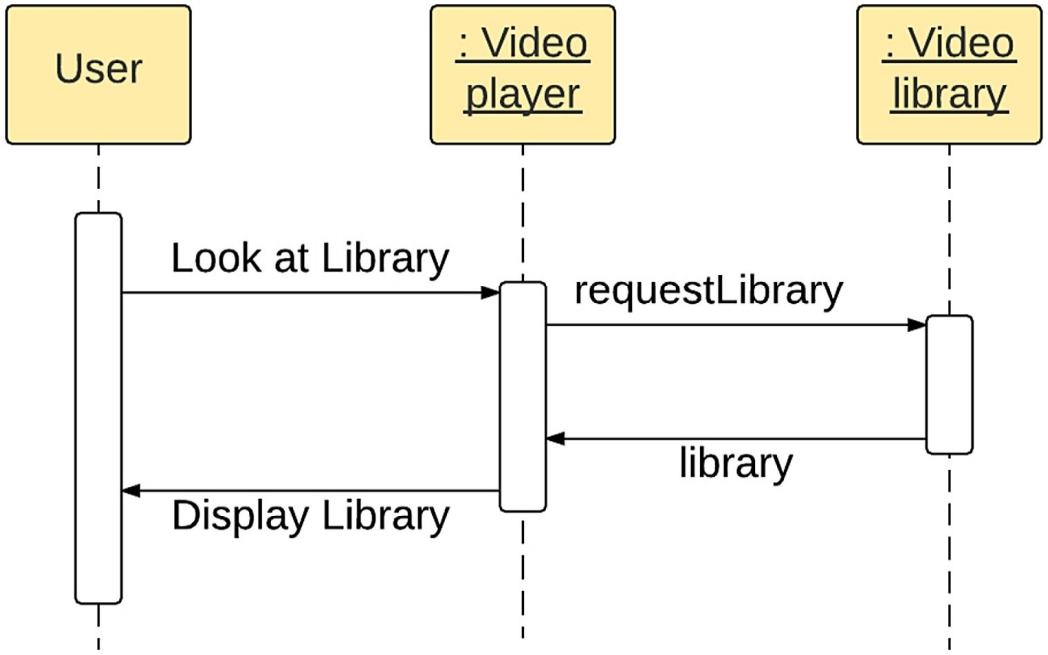
5. **Information Hiding** is closely related to one of the core design principles of object-oriented design. Which one? **1 / 1 point**

- ( ) generalization
- (•) encapsulation
- ( ) decomposition
- ( ) abstraction

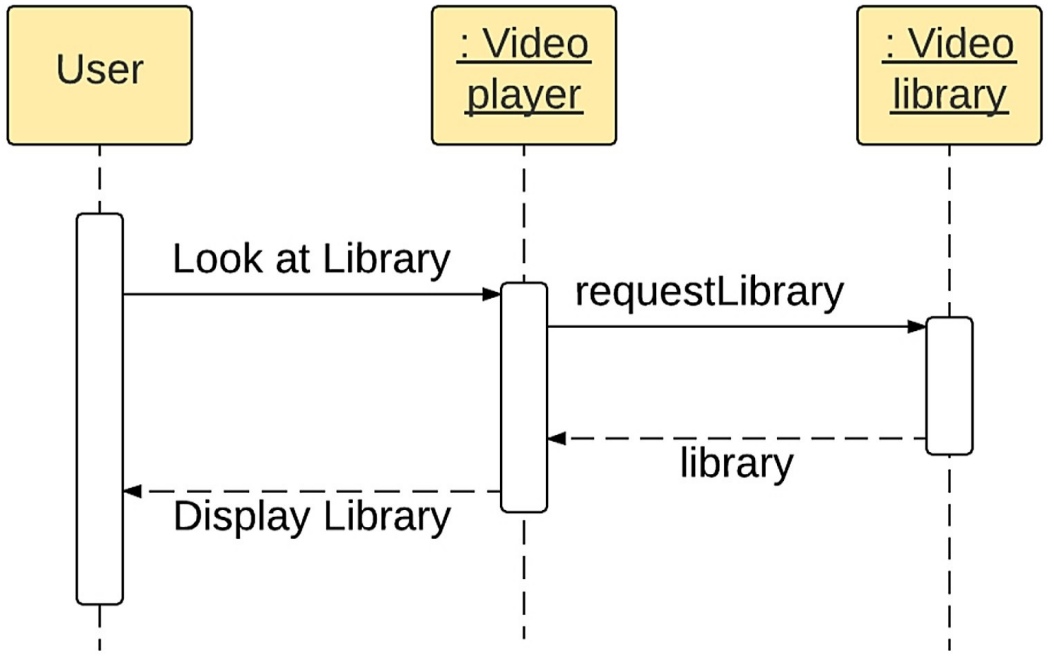
Correct
Correct! Information hiding involves hiding away those details that are not important to outside classes. This is closely related to encapsulation.

6. Which of these sequence diagrams is correct? **1 / 1 point**

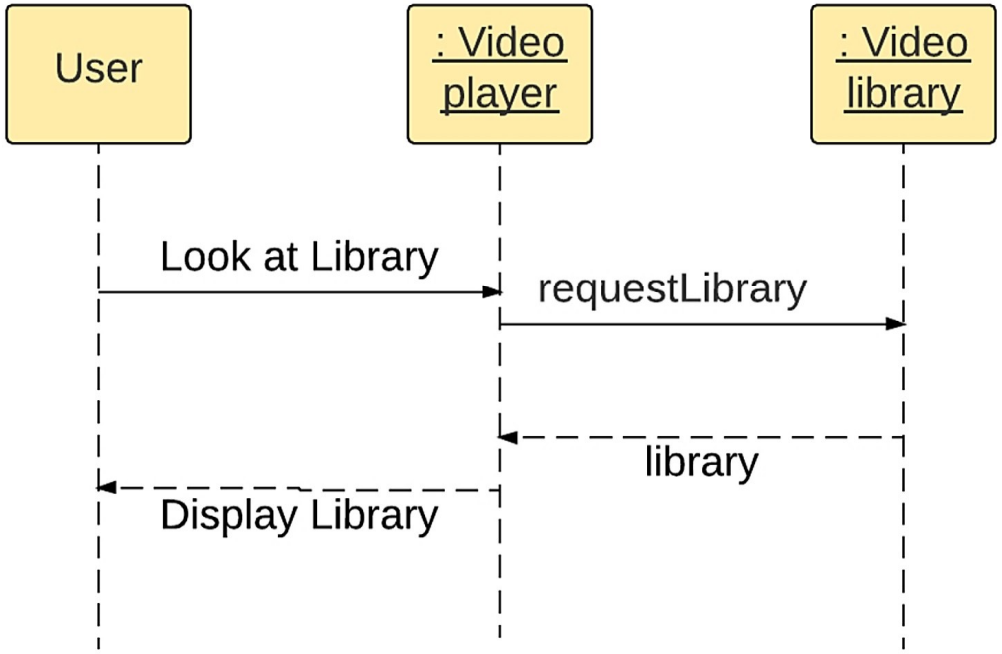
a)



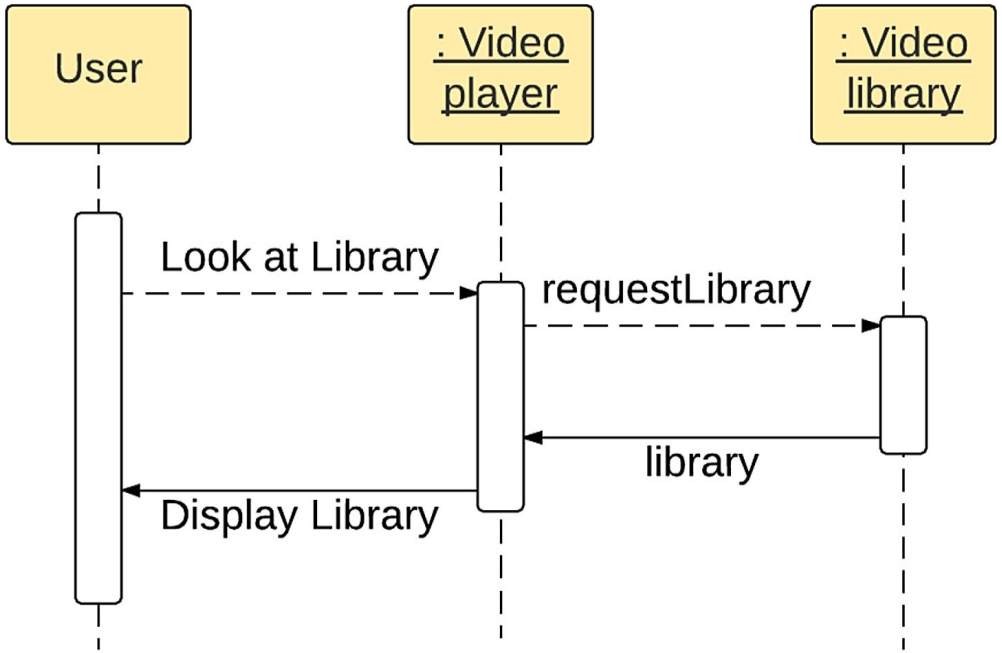
b)



c)



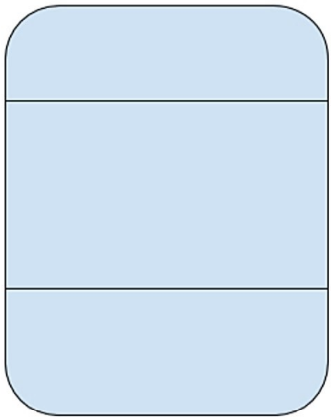
d)



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

Correct
Correct! This is a complete sequence diagram.

7. What are elements of a state in a State diagram (see diagram)? **Choose the three correct answers.** **1 / 1 point**



- [ ] events
- [x] activities

Correct
Correct! The activities that are specific to this state are listed, sometimes including those that occur when entering or exiting the state.

- [x] state name

Correct
Correct! The name of the state is at the top section of a state.

- [ ] responsibilities
- [x] state variables

Correct
Correct! State variables are manipulated depending on the state.

8. When is **Model Checking** conducted? **1 / 1 point**

- ( ) During development
- (•) After development
- ( ) After deployment
- ( ) During planning

Correct
Correct! Model Checking is done after the bulk of the development is finished.

9. What are the phases of Model Checking? **Choose the 3 correct answers.** **1 / 1 point**

- [ ] Model Simulation
- [x] Running Phase

Correct
Correct! The model checking software identifies counterexamples if there are any.

- [ ] Counterexample Phase
- [x] Modeling Phase.

Correct
Correct! First the team creates a model for testing the software in all of its different states.

- [x] Analysis Phase

Correct
Correct! The counterexamples that were identified in the running phase are analysed to find the causes of the issues and the solution to each.

10. During model checking, what is the name for a violation of the desired properties of the model? **1 / 1 point**

- ( ) Redevelopment
- ( ) Error
- ( ) Model Gap
- (•) Counterexample

Correct
Correct! This is called a counterexample.

11. When two processes cannot run because they are waiting on the same resource, it's called… **1 / 1 point**

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- ○ State lock
- ◉ Deadlock
- ○ Transition lock
- ○ Mutual lock

Correct
Correct! This is called a deadlock.

12. Choose the **three** examples of inheritance used **poorly**: 1 / 1 point

- ☑ Inheritance is used to share behaviour without specializing

Correct
Correct! If inheritance is merely used to share behaviour and not much more, consider skipping it altogether and just using the superclass.

- ☐ The subclasses inherit methods from the superclass and have their own specific, related methods.
- ☑ A subclass inherits methods from the superclass and adds extra, new, unrelated functionality

Correct
Correct! If your subclass inherits some behaviour and adds unrelated functionality, it is not very coherent. You should consider decomposing these responsibilities into different interfaces.

- ☑ A method in the superclass is overwritten with different behaviour by a subclass.

Correct
Correct! This violates Liskov's Substitution Principle, which states that a superclass should be able to be substituted by a subclass without error.