IT3180 - Introduction to Software Engineering

Exercises: Use Case Diagram Quiz

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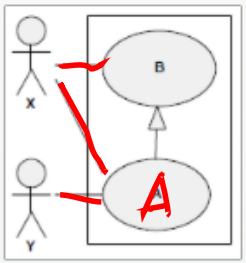
Question 1

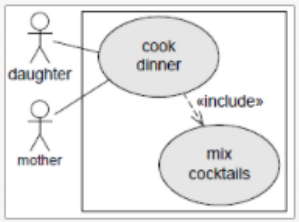
Question 1: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case A?



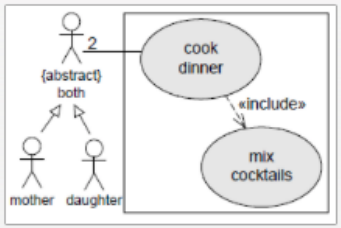
- ☐ ☐ Y ∧ Y
- ☐ ☐ X ∧ Y
- ☐ ☐ X ∧ Y ∧ Y
- ☐ ☐ Y
- ☐ ☐ X ∧ X ∧ Y
- ☐ ☐ X
- ☐ ☐ X ∧ X ∧ X
- ☐ ☐ X ∧ X
- ☐ ☐ Y ∧ Y ∧ Y

Question 2

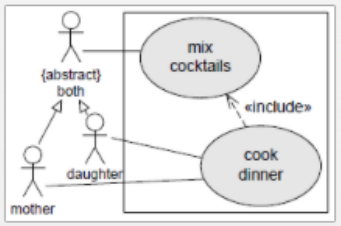
Question 2: How do you model the following situation with a UML2 use case diagram:
A mother cooks dinner together with her daughter. In the course of that, the mother also always has to mix the cocktails.



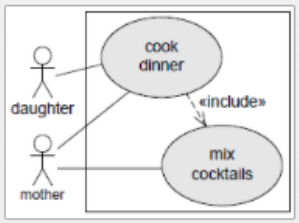
Sai



Sai

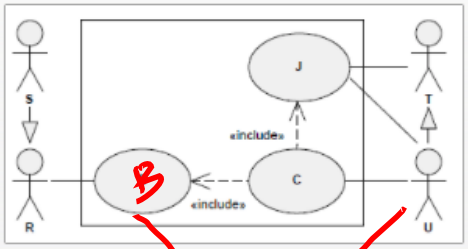


Sai



Question 3

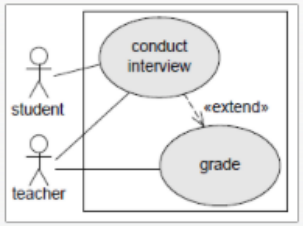
Question 3: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case B?

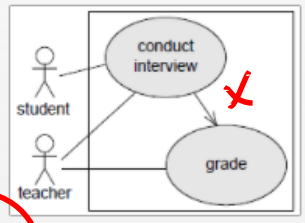


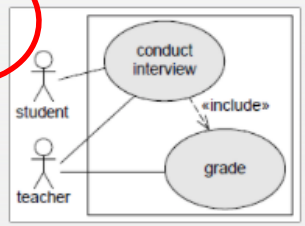
- [ ] S ∧ S
- [ ] U
- [x] R
- [ ] U ∧ R
- [ ] S ∧ S ∧ S
- [ ] S ∧ U
- [ ] U ∧ R ∧ S
- [ ] R ∧ S
- [x] S

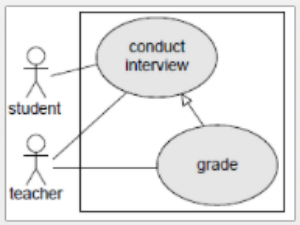
Question 4

Question 4: How do you model the following situation with a UML2 use case diagram:
A teacher is conducting an interview with a student. In the course of that, the teacher always has to grade the student.



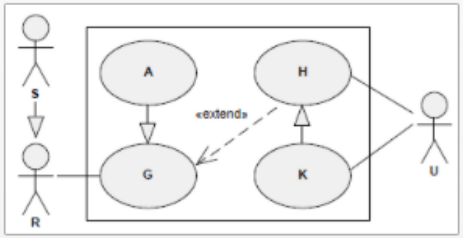






Question 5

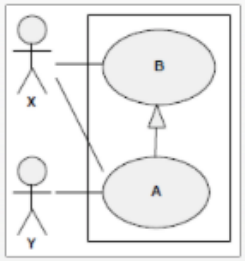
Question 5: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case H?



- ☐ ☐ U ∧ R
- ☐ ☐ R ∧ U ∧ U
- ☐ ☐ S ∧ U ∧ U
- ☐ ☐ U ∧ U
- ☐ ☐ S
- ☐ ☐ U
- ☐ ☐ R
- ☐ ☐ U ∧ S

Question 6

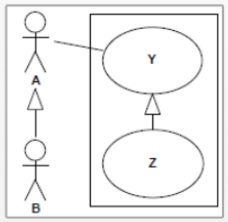
Question 1: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case A?



- ☐ ☐ Y ∧ Y
- ☐ ☐ X ∧ Y
- ☐ ☐ X ∧ Y ∧ Y
- ☐ ☐ Y
- ☐ ☐ X ∧ X ∧ Y
- ☐ ☐ X
- ☐ ☐ X ∧ X ∧ X
- ☐ ☐ X ∧ X
- ☐ ☐ Y ∧ Y ∧ Y

Question 7

Question 7: Which of the following statements about the given diagram clipping are true?



- ✓ ✗ A and B execute Y together.
- ✓ ✗ A and B can execute Z seperately.
- ✓ ✗ A and B execute Z together.
- ✓ ✗ A and B can execute Y separately.

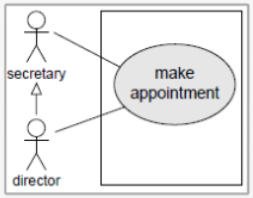
Question 8

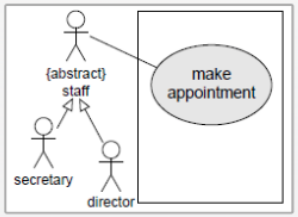
Question 8: Actors in a use case diagram ...

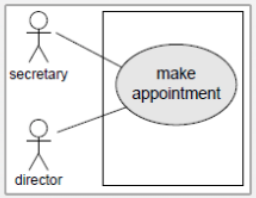
- ✓ ✗ ... might use the described system.
- ✓ ✗ ... interact with the described system.
- ✓ ✗ ... represent roles of the users of the described system.
- ✓ ✗ ... can be linked to abstract and non-abstract use cases via associations.
- ✓ ✗ ... interact with the system in the form of `<<include>>`-relationships.
- ✓ ✗ ... might be used by the described system.
- ✓ ✗ ... are always located within the described system.
- ✓ ✗ ... can be linked to each other by inheritance.
- ✓ ✗ ... communicate with use cases and other actors.

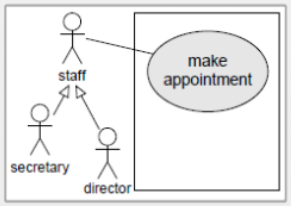
Question 9

Question 9: ***How do you model the following situation with a UML2 use case diagram:***
The directors or his secretary are allowed to make an appointment, but nobody else.



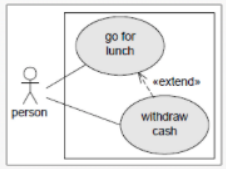


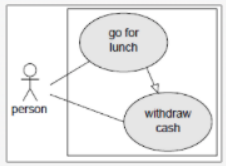


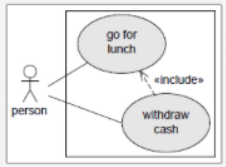


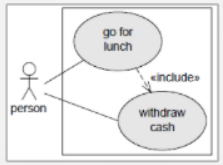
Question 10

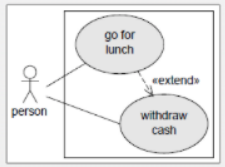
Question 6: How do you model the following situation with a UML2 use case diagram:
A person goes for lunch. In the course of that it might be necessary that the person withdraws cash from an ATM.

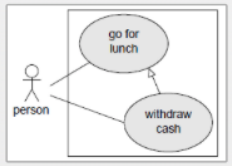






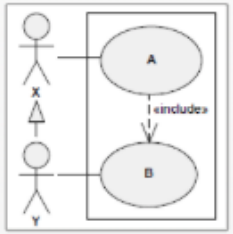






Question 11

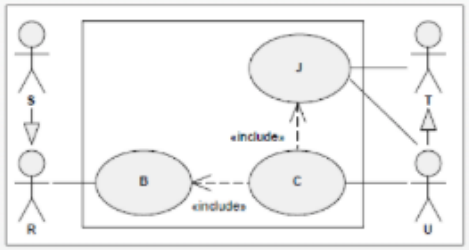
Question 11: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case B?



- ☐ X ∧ X ∧ Y
- ☐ Y ∧ Y
- ☐ X ∧ X ∧ X
- ☐ X
- ☐ X ∧ Y
- ☐ Y
- ☐ X ∧ Y ∧ Y
- ☐ X ∧ X
- ☐ Y ∧ Y ∧ Y

Question 12

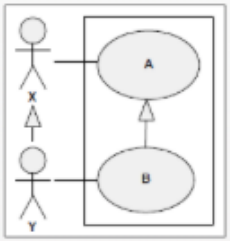
Question 12: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case C?



- ☐ R
- ☐ S
- ☐ U
- ☐ S ∧ U
- ☐ U ∧ T
- ☐ U ∧ R ∧ S
- ☐ T
- ☐ U ∧ R
- ☐ T ∧ T

Question 13

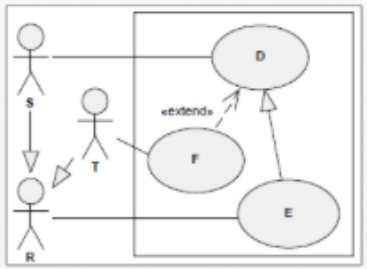
Question 13: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case B?



- ✓ ✗ X
- ✓ ✗ Y ∧ Y ∧ Y
- ✓ ✗ X ∧ X ∧ X
- ✓ ✗ X ∧ Y
- ✓ ✗ Y ∧ Y
- ✓ ✗ X ∨ (Y ∧ Y)
- ✓ ✗ (X ∨ Y) ∧ Y
- ✓ ✗ X ∧ X
- ✓ ✗ X ∧ (X ∨ Y)
- ✓ ✗ Y

Question 14

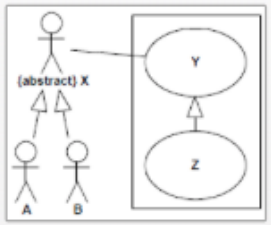
Question 14: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case E?



- ✓ ✗ T ∧ T
- ✓ ✗ S
- ✓ ✗ T ∧ S
- ✓ ✗ S ∧ S
- ✓ ✗ R ∧ T
- ✓ ✗ R
- ✓ ✗ R ∧ R
- ✓ ✗ R ∧ S
- ✓ ✗ T

Question 15

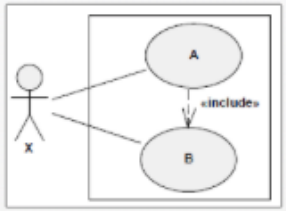
Question 15: Which of the following statements about the given diagram clipping are true?



- ✓ ✗ A and B execute Y together.
- ✓ ✗ A or B can execute Z.
- ✓ ✗ A and B can execute Y seperately.
- ✓ ✗ Z inherits from Y, it is a specialised Y and can be executed by sub actors (descendants) of X. A and B inherit the behavior of X, they are specialised X and can execute Y.

Question 16

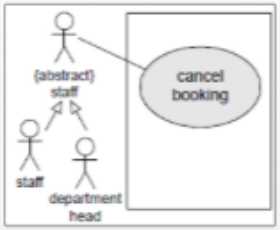
Question 16: The following <<include>>-relationship means, that ...

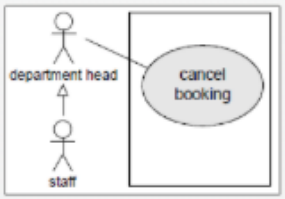


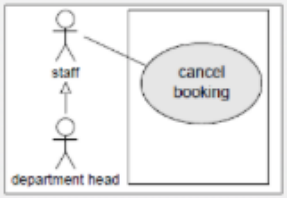
- ... B cannot be executed without A.
- ... the behavior of A might or might not be inserted into the behavior of B.
- ... the behavior of B always has to be inserted into the behavior of A.
- ... the behavior of A always has to be inserted into the behavior of B.
- ... A cannot be executed without B.
- ... A might or might not invoke use case B.
- ... B can be executed instead of A.
- ... the behavior of B might or might not be inserted into the behavior of A.

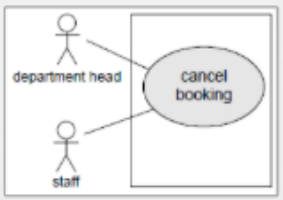
Question 17

Question 17: ***How do you model the following situation with a UML2 use case diagram:***
A travel booking is cancelled by a staff member or by the department head (who also is a staff member).



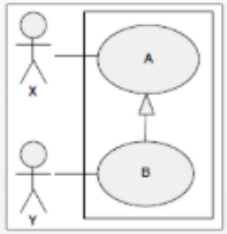






Question 18

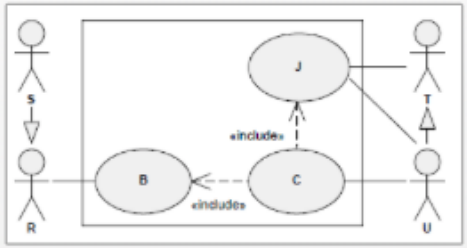
Question 18: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case B?



- ✓ ✗ Y ∧ Y ∧ Y
- ✓ ✗ X ∧ X ∧ Y
- ✓ ✗ X ∧ Y
- ✓ ✗ X
- ✓ ✗ X ∧ X ∧ X
- ✓ ✗ Y ∧ Y
- ✓ ✗ X ∧ X
- ✓ ✗ X ∧ Y ∧ Y
- ✓ ✗ Y

Question 19

Question 19: With which use cases does actor T communicate - no matter if other actors are also involved?



- ✓ ✗ J
- ✓ ✗ C
- ✓ ✗ B

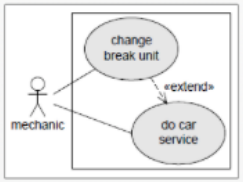
Question 20

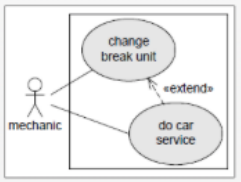
Question 20: Which of the following statements about the given diagram clipping are true?

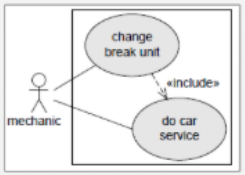
- ✓ ✗ B inherits the behavior of A and can override and expand it.
- ✓ ✗ B should not be abstract.
- ✓ ✗ B is called "sub use case".
- ✓ ✗ A inherits all relationships from B.
- ✓ ✗ B is called "base use case".
- ✓ ✗ A must not be abstract.
- ✓ ✗ B inherits all relationships from A.

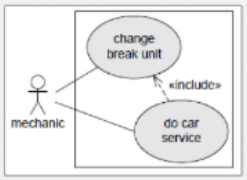
Question 21

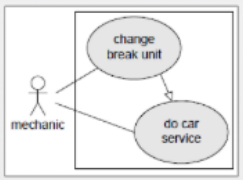
Question 21: ***How do you model the following situation with a UML2 use case diagram:***
A mechanic does a car service. During that service, it might be necessary to change the break unit.





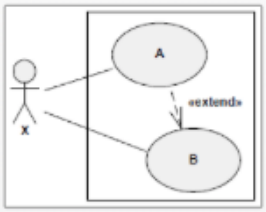






Question 22

Question 22: The following <<extend>>-relationship means, that ...



- ... B can extend A.
- ... A might or might not invoke B.
- ... B might or might not invoke A.
- ... A can extend B.
- ... A cannot be executed without B.
- ... B always has to invoke A.
- ... B can be executed instead of A.

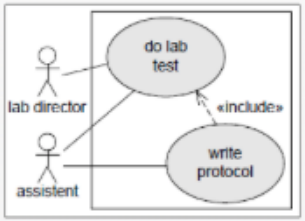
Question 23

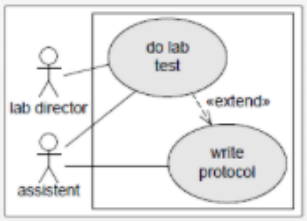
Question 23: Which of the following use cases are correct use cases when you want to design a use case diagram for an online book shop?

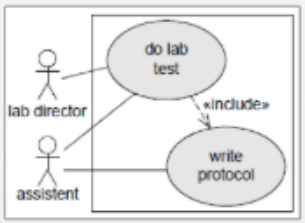
- ✓ ✗ Enter credit card details
- ✓ ✗ Do not order a book
- ✓ ✗ Enter book title
- ✓ ✗ Cancel order
- ✓ ✗ Look for a book
- ✓ ✗ Order a book
- ✓ ✗ Login

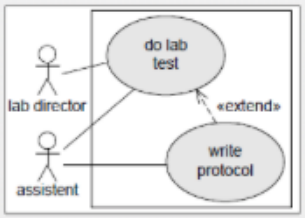
Question 24

Question 24: How do you model the following situation with a UML2 use case diagram:
The lab director does a lab test together with his assistant. The assistant always has to write a protocol during the lab test.



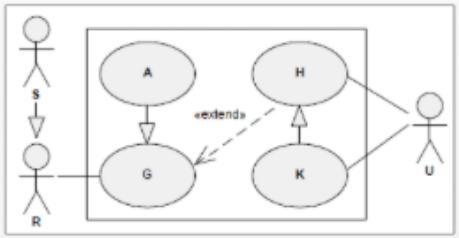






Question 25

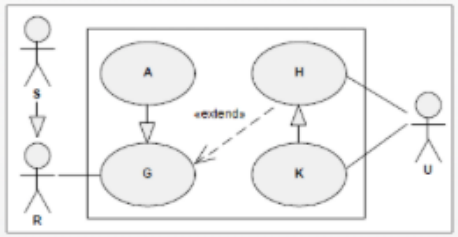
Question 25: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case K?



- ✓ ✗ U ∧ U ∧ U
- ✓ ✗ S ∧ R ∧ U
- ✓ ✗ U
- ✓ ✗ R ∧ U ∧ U
- ✓ ✗ U ∧ U
- ✓ ✗ U ∧ R
- ✓ ✗ R

Question 26

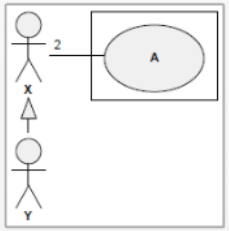
Question 26: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case A?



- ✓ ✗ R ∧ S
- ✓ ✗ R ∧ U
- ✓ ✗ S ∧ S
- ✓ ✗ R ∧ R
- ✓ ✗ R
- ✓ ✗ U
- ✓ ✗ S

Question 27

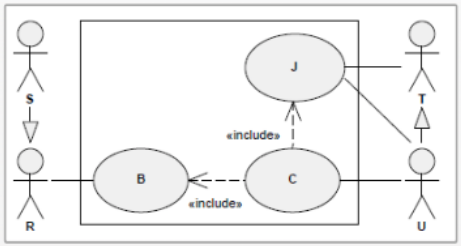
Question 27: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case A?



- ✓ ✗ X ∧ X
- ✓ ✗ X
- ✓ ✗ Y ∧ Y ∧ Y
- ✓ ✗ Y
- ✓ ✗ X ∧ X ∧ Y
- ✓ ✗ X ∧ X ∧ X
- ✓ ✗ X ∧ Y ∧ Y
- ✓ ✗ Y ∧ Y
- ✓ ✗ X ∧ Y

Question 28

Question 28: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case J?



- ✓ ✗ T ∧ U ∧ U
- ✓ ✗ T ∧ T
- ✓ ✗ U ∧ T
- ✓ ✗ T
- ✓ ✗ (T ∨ U) ∧ U
- ✓ ✗ T ∧ T ∧ U
- ✓ ✗ U
- ✓ ✗ U ∧ U

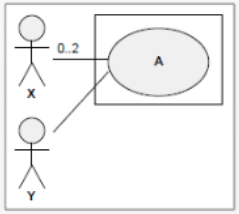
Question 29

Question 29: The association between an actor and a use case...

- ✓ ✗ ...is modeled with a directed edge with the arrowhead pointing to the use case.
- ✓ ✗ ...is modeled with a dashed line.
- ✓ ✗ ...might have multiplicities.
- ✓ ✗ ...is binary.
- ✓ ✗ ...might be ternary.

Question 30

Question 30: The following Use Case Diagram was modeled according to UML2 standard. Which combinations of actors communicate with Use Case A?



- X ∧ Y
- X ∧ Y ∧ Y
- X ∧ X ∧ Y
- X ∧ X
- X ∧ X ∧ X
- Y
- X