Software Eng, Midterm Exam, 2017, İstanbul University, Computer Eng. Dept.

1. What is software in essence?
    a. Quality programs and their outputs
    b. Programs and associated document
    c. Software tests and associated documents
    d. Programs and their outputs
2. Which one is not a fundamental software activity
    a. Specification
    b. Development
    c. Validation
    d. Evolution
    e. Documentation
3. Which one is not an essential attribute of a good software
    a. Maintainability
    b. Efficiency
    c. Acceptability
    d. Dependability & Security
    e. Testability
4. Which one is not a software process model
    a. Waterfall
    b. Incremental development
    c. Plan-driven
    d. Reuse-oriented software eng.
5. Which one is not an activity in the waterfall model
    a. Requirements specification
    b. Design
    c. İmplementation
    d. Documentation
    e. Maintenance
6. Which one best describes incremental development
    a. Software is developed as versions
    b. Documentation revised in 3 steps
    c. Specification is performed only once
    d. Testing is not as important as maintanence
7. Which one is not an Expreme programming practice?
    a. Incremantal planning
    b. Detailed specification
    c. Simple design
    d. Test-first development
    e. Refactoring
8. Which one is not an Expreme programming practice?
    a. Pair testing
    b. Collective ownership
    c. Continous integration
    d. Sustainabe pace
    e. On-site customer
9. Which one is not a phase in Scrum?
    a. Initial phase
    b. Verification phase
    c. Sprint cycles
    d. Project closure
10. In essence softare engineering is a process of establishing the following
    a. Services & constrains
    b. Contrainst & non-functional requirements
    c. Services & functional requirements
    d. Services & operations & constrains
    e. Functional constrainst & non-functional services
11. Which one is not a metric for specifiying nonfunctional requirements?
    a. Speed
    b. Size
    c. Validity
    d. Ease of use
    e. Reliability
12. Which one is not part of requirements document?
    a. preface
    b. introduction
    c. development
    d. glossary
    e. User requirements definition
13. Which one is not an important system characteristics from architectural point of view
    a. Performance
    b. Flexibility
    c. Safety
    d. Availability
    e. Maintainability
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15. Which one is not part of 4+1 view model
    a. architectural view
    b. process view
    c. development view
    d. network view
    e. Related use cases or scenarios
16. Which one is not correct about MVC pattern
    a. Seperates presentation, interaction and data
    b. Model manages data and associated operations
    c. Creates associations between data and interactions
    d. View defines how data is presented to user
    e. Controller manages user interactions and communicates with model and view
17. Whic one is not a static (structural) system model
    a. Class diagram
    b. Component diagram
    c. Object diagrams
    d. Deployement diagrams
    e. Sequence diagrams
18. Which one is not a dynamic(behavioral) system model
    a. class diagram
    b. Sequence diagram
    c. Collaboration diagram
    d. State diagram
    e. Activity diagram
19. Which one is not a benefit of software reuse
    a. Increase software productivity.
    b. Shorten development time.
    c. Improve system interoperability.
    d. Develop with fewer people.
    e. Increase maintenance costs.
20. Which one is not a reason for software evolution
    a. New requirements
    b. Business environment changes
    c. Errors
    d. Budget limitations
    e. New computers and equipment

QUESTIONS:

1 (10 points) Design class diagram for owners to tv channels (tv kanalları), programs (tv programları), producers (yapımcılar), actors (aktör ve artistler). Represent the following relationships: Actors play in programs. Producers make programs. Channels buy programs and play programs. There are two kinds of programs: (i) programs made using cameras (ii) programs made by copying-and-pasting pieces of existing programs. Create at least one meaningful association, one meaningful generalization, one meaningful aggregation between classes.

2 (10 points) Design a use case diagram for video editors who cut, copy, paste, delete pieces of videos (scenes). Producers produce videos (scenes) using cameras and actor. Actors play in a video(scene). Create appropriate associations between actors and use cases. Create at least one meaningful <<include>> and at least one <<extend>> relationship. You can define extra actors or use cases (tasks) if needed.

3 (10 points) Design a state diagram computer programs. A program can be in one of these states:

- development (programcı tarafından geliştirme aşamasında)
- test (test aşamasında)
- use (kullanıcı tarafından kullanımda)

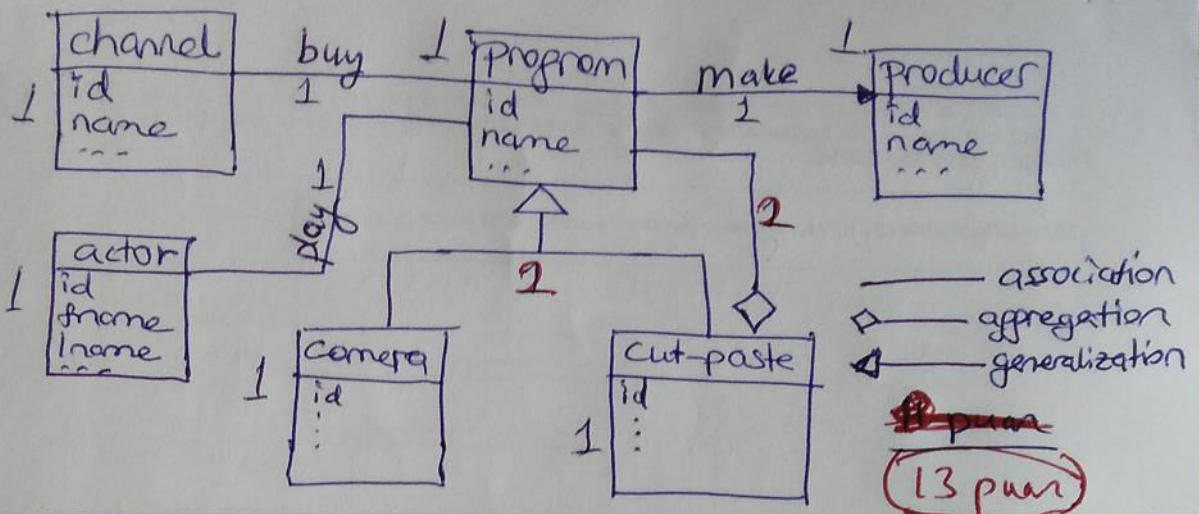
Events

- compilation with success leads to use
- compilation with syntax errors requires leads back to development
- run-time error during test or use leads to development for fixing error
- successful execution in test leads to use

4 (10 points) Draw an activity diagram for the problem in question 3. Starting with development, continuing with test and finishing with use. Show the flow of work for each event.

5 (10 points) Design a sequece diagram a customer to withdraw some money from his bank account; which basically consists of (i) logging into accounts and (ii) reducing the balance by the amount withdrawn. You can define any objects or methods you think appropriate. Consider the followings as well: wrong password, insufficient funds.

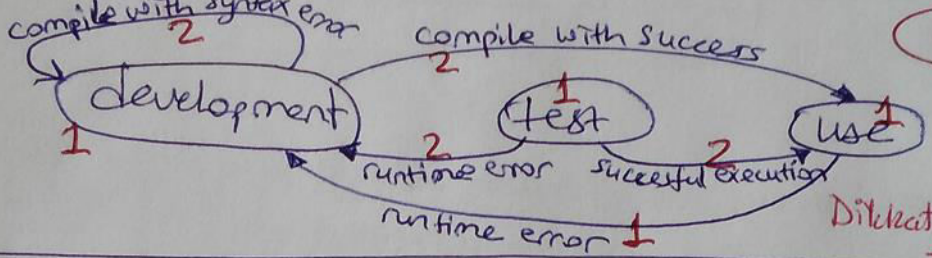
(1)



~~11 puan~~

13 puan

(3)

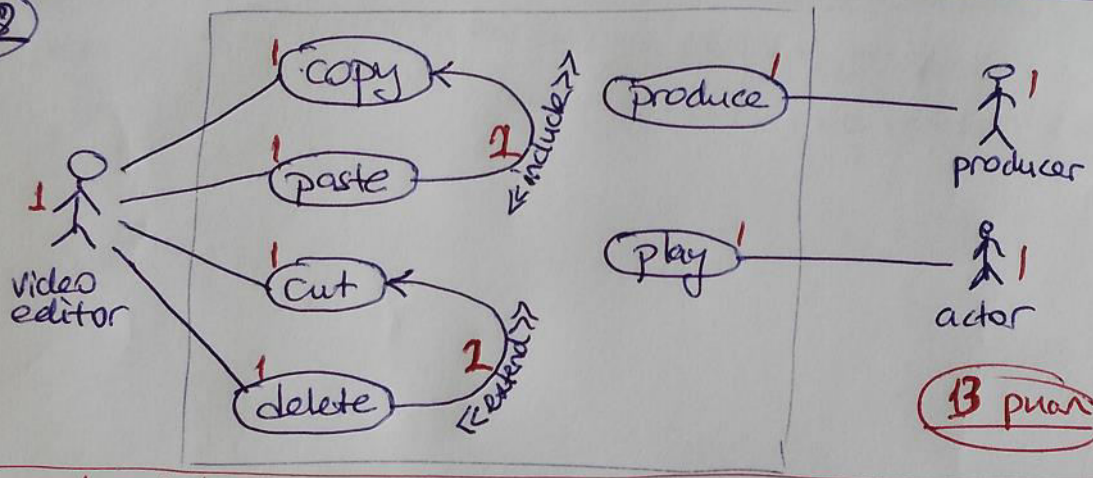


12 puan

~~Error~~
event: 2 puan
state: 1 puan

Dikkat: Development'ten test'e ok yok.

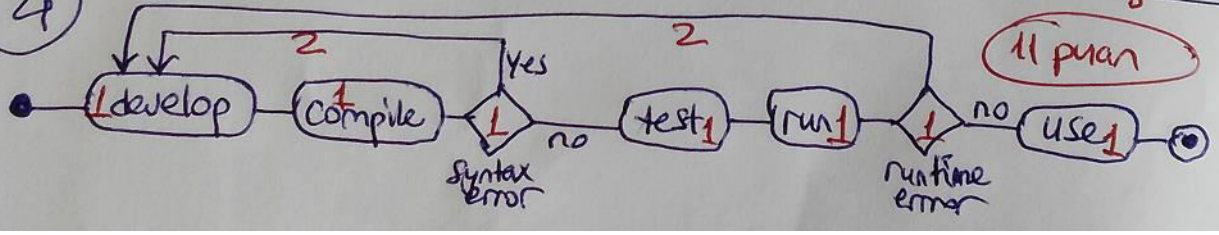
(2)



13 puan (actor: 1 puan)
(task: 1 puan)

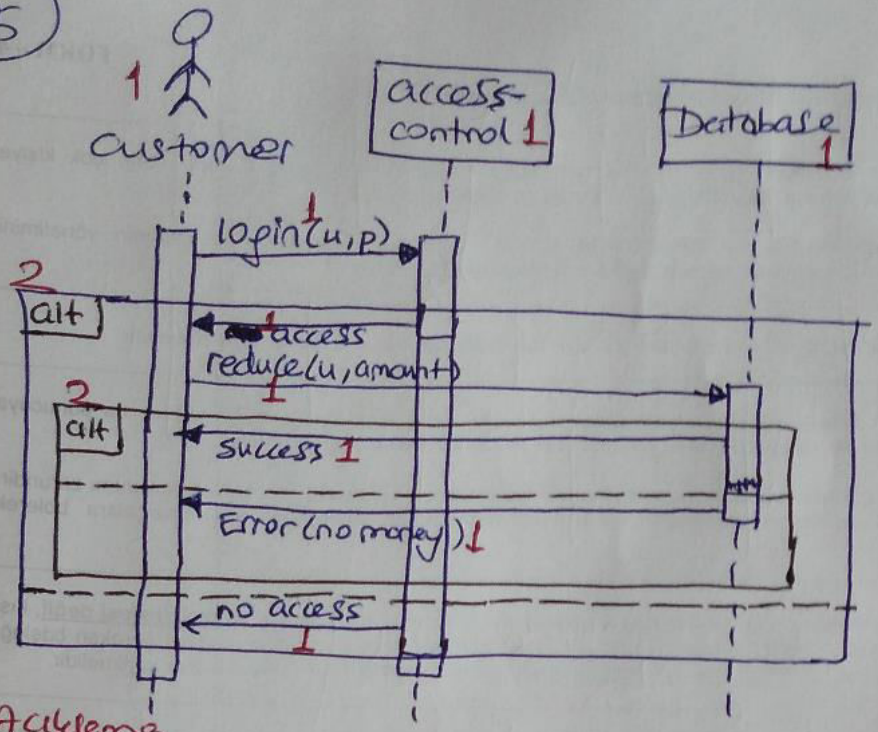
'paste' task depends on (includes) 'copy' (copy olmadan paste yapılamaz)
cut is more general than delete (delete silmenin kalıcı olduğu bir cut işlemidir)

(4)



11 puan

5



13 puan

Açıklama

1. ~~Açıklama~~ (reduce) Kullanıcı login'de başarılı (access) yada başarısız (no access) olabilir
2. Para çekme işlemi başarılı (success) yada başarısız (hesapta yeterli para yokse) olabilir.
3. Login olurken kullanıcı adı (u) ve şifre (p) gerekir
4. Para çekerken (reduce) kullanıcı adı (u) ve miktar (amount) gerekir.

⇄