# CS311 Introduction to Software Engineering

## Q1) Multiple Choice Questions

1. Which of the following is not a software quality attribute

- ❏ Usability
- ❏ Fault Tolerance
- ❏ Localization
- ❏ Scalability

2. In software design principles separation of concerns means

- ❏ cohesive functionalities should be implemented by a single component
- ❏ a software component should only focus on delivering a specific function
- ❏ the design should avoid functional overlapping between different components
- ❏ the design should enable both asynchronous and synchronous processing

3. In Kruchten's 4+1 views model the intention of the ..... is to describe how the system structured and organized into components and layers.

- ❏ Scenarios View
- ❏ Development View
- ❏ Logical View
- ❏ Process View

4. A software requirement is

- ❏ a service that a software must provide
- ❏ a system property or behavior that can be implicit or explicit.
- ❏ a system constraint under which the software must operate
- ❏ All of the above

5. Which of the following is not a software design qualities attribute

- ❏ Reusability
- ❏ Conceptual Integrity
- ❏ Supportability
- ❏ Modifiability

6. UML is a ..... method to describe software architecture

- ❏ Informal description
- ❏ Semiformal description
- ❏ Formal description
- ❏ All of the above

7. Which of the following is not an OCL constraint type

- ❏ Invariant
- ❏ Precondition
- ❏ Postcondition
- ❏ Consistency

8. The UML ..... describe all the dynamic aspects of the system architecture

- ❏ Activity Diagrams
- ❏ Communication Diagrams
- ❏ Sequence Diagrams
- ❏ Behavioral Diagrams

9. Which of the following is not an Agile software development methodology

- ❏ Kanban
- ❏ Scrum
- ❏ Crystal
- ❏ None of the above

10. Software system ..... is an indication of the responsiveness of a system to execute specific actions in a given time interval

- ❏ Availability
- ❏ Scalability
- ❏ Performance
- ❏ Reliability

# Short Answer Questions

1. Give an example of a bad user story and explain why it is a bad user story?

2. Briefly explain why using Binary Priority List (BPL) technique for requirements prioritization is difficult?

3. What are the key phases of software process models

4. In your opinion, when should we use an agile methodology to develop a software system.

# Design & Development Problems

Figure 1 shows a use case diagram for an airport boarding system that has six functional requirements and four principal actors (end-users classes). By applying 100-points test, we calculated the importance of the six requirements as shown in Table 1.

(a) Calculate the overall priority of the six requirements

(b) What are the requirements we can implement in the first iteration (sprint). Note the target cost of this sprint is no more than 35 hours and the risk must be less than 10 points.

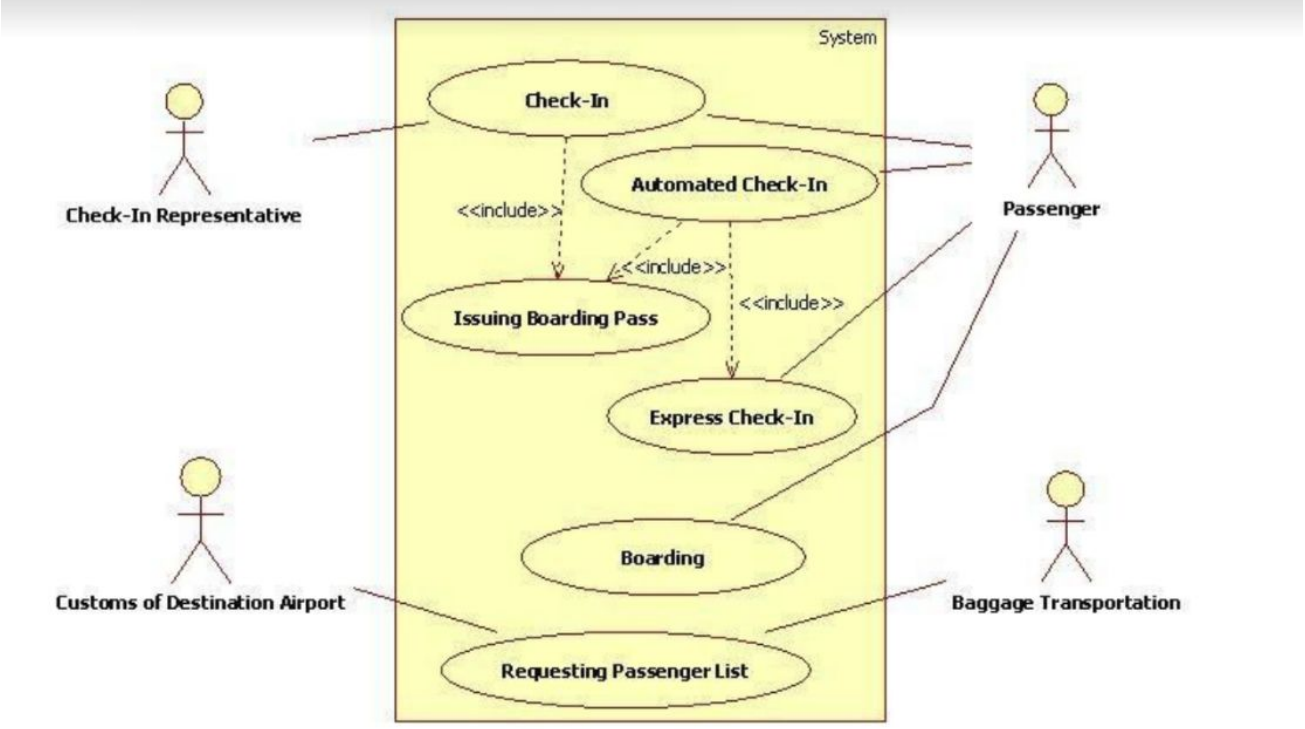


Figure 1: Use case Diagram

| Requirement | Check-In Representative | Passenger | Baggage Transportation | Customs of Destination Airport | Overall Priority | Cost (hours) | Risk |
|---|---|---|---|---|---|---|---|
| Check-In | 0.4 | 0.25 | | | | 30 | 2 |
| Automated Check-In | | 0.25 | | | | 12 | 7 |
| Issuing Boarding Pass | 0.1 | 0.10 | | | | 13 | 0 |
| Express Check-In | | 0.30 | | | | 30 | 2 |
| Boarding | 0.2 | 0.10 | | 0.2 | | 25 | 3 |
| Requesting Passenger List | 0.3 | | 1 | 0.8 | | 10 | 5 |

Table 1: Prioritization Results of Individual Users Classes Using 100-points test