

# Systemudvikling, Jan Pries-Heje

## 10 opgaver til objekt-orienteret analyse m.m.

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### Multiple Choice

**1. It is recommended to define solution concepts in the conceptual model or early in the class diagram construction**

- a) True
- b) False

**2. What style is the following requirement?**

Requirement 101: Scrolling one page up or down in a 200 page document shall that at most 1 second. Jumping to any of the 200 pages shall take at most 5 seconds.

**(Circle the correct one)**

- a) Feature style
- b) Design style
- c) Event or Function list style
- d) Standards style
- e) Efficiency style
- f) Usability style
- g) Functionality style

**3. Below you find a number of statements. Circle all the correct statements**

- a) Associations describe fluid, short-term, dynamic relationships
- b) It is important to introduce design and implementation consideration into the analysis phase
- c) An instance is a specific collection of assigned values for a class that represents a specific class member
- d) A class diagram can be derived from the conceptual model, but a class diagram is not a conceptual model
- e) One should define solution concepts in the conceptual model
- f) Associations describe persistent, long-term, static, structural relationships

**4. When considering non-functional (non-behavioral) requirements you can use the ISO 9126 standard as inspiration. Which of the following is part of that standard? (Circle all that apply)**

- a) Efficiency
- b) Interfaces
- c) Usability
- d) Requirements
- e) Maintainability
- f) Object Orientation
- g) Reliability
- h) Portability

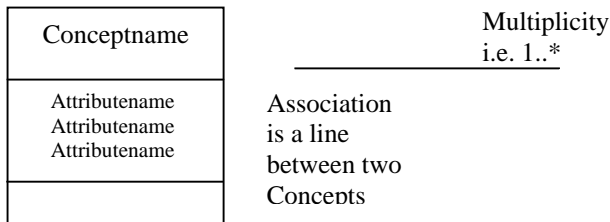
5. Write the name of the Usability characteristics that is described to the left. As an example the first one has been filled out (Ease of Learning)

Description	Name
How fast can a user who has never seen the user interface before learn it sufficiently well to accomplish basic tasks?	<i>Ease of Learning</i>
Once an experienced user has learned to use the system, how fast can he or she accomplish tasks?	
If a user has used the system at some earlier date, can he or she remember enough to use it more effectively next time (or does the user have to start over again learning everything every time)?	
How often do users make errors while using the system, how serious are these errors (burning down a cement plant is worse than getting the wrong player's score on a golf site), and how easy is it to recover from a user error?	
How much does the user <i>like</i> using the system?	

**6. In an interview with a user the statements below were recorded. You are now asked to illustrate (draw) the statements as a Conceptual Model**

- A Student is identified by a Social Security Number, and has a name and a phone number
- A Teacher is identified by a Social Security Number, and has a name and a phone number
- A Student may be assigned to one or more Schools
- A Teacher is always assigned to exactly one School
- A School may have many Students and Teachers assigned, but need not have any
- A School is identified by a unique name (like “Sope Creek Elementary”), and has a phone and a fax number
- A Teacher has an Education (at least one – maybe more)
- An Education is identified by a Title – such as M.Sc. - and has a name

**Use the following notation in your Conceptual Model:**



**Your Conceptual Model here:**

**The following description of a FINGERPRINT FOOD SYSTEM is needed for the rest of the questions in this Exam**

### FINGERPRINT FOOD SYSTEM

Elementary Schools in a County in the Metro Atlanta area have found that teachers use up to 20 minutes of class time to collect and register money from the children as payment for lunch. To save time the County is considering a system where the children pay for food with their fingerprint. They have written the following "specification" of their idea:

We need a system for use in the cafeteria to register payment for food by using a fingerprint as ID. It should be so easy to use the system that even 1st graders can use it. The system should keep track of an account for each child in the school. Parents should be able to transfer money to the account from a home bank, or they should be able to pay cash into a child's account. Parents should also be able to check the status of an account via the school website.

One should not be able to misuse the FINGERPRINT FOOD SYSTEM for criminal ID investigations or other big-brother-watching-you activity. Neither should the parents be able to see what kind of food a child has paid for. Only the amount-deducted daily should be visible to a parent. For accounting purposes the school should be able to print out a complete list of what was bought on an account.

7. Write three REQUIREMENTS for the RATIONALE above. Use three different styles. At least one of the three requirements shall be a non-functional requirement. Indicate in a parenthesis after the requirement what style you have used for each of the requirements.

1.

2.

3.

8. Write a USE CASE for a PARENT using the FINGERPRINT FOOD SYSTEM (see page 4).  
Use the template below.

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Use Case:

Actors:

Type:

Purpose:

Description:

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**Actor Action**

**System Response**

*1. This Use Case begins*

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Alternate courses:

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9. Draw a **SEQUENCE DIAGRAM** for the **FINGERPRINT FOOD SYSTEM** (see page 4) including both events and operations
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**Your Sequence Diagram here:**

**10. Draw the minimal CONCEPTUAL MODEL required by the SEQUENCE DIAGRAM above.**

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**Your Conceptual Model here:**