

# 1 IS-402 Exam Høst 2016

**Course code:** IS-402

**Course name:** Systems Development Process and Methods I

**Date:** 01. December 2016

**Duration:** 3 hours

**Resources allowed:** none

**Notes:** Please answer all exercises in prose. You may, however, use bullet point lists. Please also feel free to make drawings, diagrams, etc. and refer to them. To support your argumentation and for purposes of illustration, you may also make examples. Please note that some of the exercises require an elaborate answer. Nonetheless, grading will be done based on precision and quality of argumentation and *not* on textual length. As a rough hint as to how much time you should spend on each of the exercises (and how long answers in relation should be), their share on the exam's overall grade is given as a percent value.

-----  
Sometimes professors ask for exam answers that can be used for teaching purposes, but in order for this to take place, the university needs your consent.

**Do you grant the University of Agder permission to use your exam answer for teaching purposes?**

Yes

No

Maximum marks: 0

## 2 Exercise 1

**Exercise 1: Planning (5%)**

For the purpose of development project planning, in the lecture *milestone planning*, *Gantt-charts*, and *precedence diagrams* were proposed. Explain *one* of the three methods!

**Fill in your answer here**

Format - | **B** *I* U  $x_2$   $x^2$  |  $I_x$  | | | |  $\Omega$  | |  $\Sigma$  |

Words: 0

### 3 Exercise 2











#### Exercise 2: Analysis and Definition (25%)

In a development project, you have been appointed requirements engineer and sit together with the customer. It is your job to identify requirements with her, and to communicate them to your colleagues in system design and implementation. Explain to the customer

1. why requirements engineering is a very important activity,
2. what basic kinds of requirements exist,
3. why documents are needed to write down requirements,
4. in which forms they can be written down, and
5. what user stories and use cases are.

Be sure to give examples for the different kinds of requirements, for a user story, and for a user case.

#### Fill in your answer here

Format | **B** | *I* | U |  $x_2$  |  $x^2$  |  $I_x$  |  |  |  |  |  |  |  |  |  |  $\Sigma$  | ABC | 

Words: 0

Maximum marks: 25












### 4 Exercise 3

#### Exercise 3: Design (30%)

You are responsible for developing *Kittender* – the Tinder for cat pictures. You have to work both on the graphical user interface (GUI) and on the module architecture.

1. Even though the app will be relatively simple, the users' capabilities need to be taken into account. Explain, what that means! Describe then why humans as users of software demand particular care in designing a user interface!
2. Since people will swipe through images quickly and most of them will only use the small screen of their smartphones, it would waste bandwidth to load high-quality pictures. However, people particularly interested in a kitten may decide to touch the picture to see a fully detailed version of it. The app should normally only load the low-quality version but on request also fetch the high-quality one. This setting asks for the usage of a design pattern. Which pattern do you propose? Explain your decision! Graphically sketch a possible way of usage of the pattern.

**Fill in your answer here**

Format | **B** | *I* | U |  $x_2$  |  $x^2$  |  $I_x$  |  |  |  |  |  |  |  |  |  |  $\Sigma$  |  | 

Words: 0












Maximum marks: 30

## 5 Exercise 4

### Exercise 4: Implementation (5%)

Three possibilities for saving cost when implementing software have been discussed in the lecture: *software reuse*, *component-based development*, and the *inclusion of third party-libraries*. Explain one of these!

**Fill in your answer here**

Format | **B** | *I* | U |  $x_2$  |  $x^2$  |  $I_x$  |  |  |  |  |  |  |  |  |  |  $\Sigma$  |  | 

Words: 0

Maximum marks: 5

## 6 Exercise 5

### Exercise 5: Testing (10%)

Name and characterize the two general strategies for testing software! Is there also a compromise?

Fill in your answer here

Format | **B** | *I* | U |  $x_2$  |  $x^2$  |  $I_x$  | | | | | | |  $\Omega$  | | |  $\Sigma$  | |

Words: 0

Maximum marks: 10

## 7 Exercise 6

### Exercise 6: Software Development Methodologies (25%)

Consider that you need to develop the *Kittender* app described in the design exercise. Imagine that it only needs to be realized as a smartphone app for either Android or iOS. Briefly describe how implementing it using the Waterfall model could look like! Explain then, how the same task would look like with either SCRUM or Extreme Programming! In both cases, be specific to the development project. Do not just describe the methodologies in general but actual steps, actions etc. for *Kittender*. In case you have too few details, make assumptions for preconditions and propose what should be done.

Considering the characteristics of the app, which approach should be favoured? Explain your decision based on a comparison!

Fill in your answer here

Format | **B** | *I* | U |  $x_2$  |  $x^2$  |  $I_x$  | | | | | | |  $\Omega$  | | |  $\Sigma$  | |

Words: 0

