



# Exam in ID1212, Network Programming

2019-01-07, 8:00-12:00

## Allowed Resources

Only dictionaries.

## Instructions

- *You are not allowed to take this exam unless you have completed the project.* This is because both project and written exam are included in the TEN1 sub course, and the written exam is based on your project work.
- Always give complete answers, motivate your answers thoroughly. Make sure your answers show all your knowledge about the question.
- You may answer in either Swedish or English.

## Grading

This written exam is graded with the grades P/F. The entire subcourse TEN1 is graded with the grades A-F, based on the project work you have submitted.

## Examiner

Leif Lindbäck

## Task

Your task is to prove that you, yourself, have written and fully understood the project solution you have submitted, and its pros and cons. You shall also show which of the project requirements your solution meets. You do this by carefully answering the questions below.

### Question 1, With who did you work?

Did you work alone or in a team (which is allowed)? If you worked together with one or more students, who was that?

### Question 2, The application

Explain your application by answering all of the following questions.

- Show that your solution is well designed and has an appropriate layered architecture, by explaining the responsibility and work performed by each layer. Note that the project solution will not be accepted unless this requirement is met, it is therefore important to clearly show that you have an appropriate layered architecture.
- Explain the responsibility and work performed by the most important classes and packages. You do not have to explain all classes in your program, but you must cover enough classes to give an understanding of how the entire application works.

### Question 3, Communication

Explain network communication in your application by answering the following question.

- Explain your communication protocol, that is which messages are sent and what they mean. This question is about messages in your application (for example a *deposit* message in order to deposit money to a bank account). It is not about the underlying communication paradigm (TCP, RMI, etc).

### Question 4, Higher grade tasks

If you want points for one or more higher grade tasks, you have to show that you met the requirements on those task(s) by answering relevant question(s) below. *You will not get any higher grade points without appropriate answers here, even if the higher grade task is solved in your application.*

**Complete error handling** *Answer this question only if you want the higher grade point for the task on complete error handling of communication related errors.* Explain which communication related exceptions that are caught, in which layer they are caught, how program execution continues after an exception is caught, and what information is presented to the user about the exception.

**Communication paradigm** *Answer this question only if you want the higher grade points for a communication paradigm not covered in any homework.* Explain which communication paradigm you use, which frameworks/servers/other products were required to use it, and why the paradigm is appropriate in your application. Also, explain exactly how and for what you use the communication paradigm. You do not have to repeat anything written in answer to another question, but refer to other answers if you think they help understand how the communication paradigm is used in your application. Finally, evaluate pros and cons of the communication paradigm.

**New difficulty** *Answer this question only if you want the point for a difficulty not encountered in any homework.* Explain in detail which difficulty you have solved, what you did to solve it and how this work is beneficial to your application.