

# Lab 12

## Project preparation

Students will work on their projects and ask the instructor for help and feedback.

### 12.1 Final Project

The following requirements must be tackled for the final project. The mid-term project has to be presented before this project can be presented. If you have not presented your mid-term project so far, you will need to recontract the subject.

Starting points	0
Maximum points	13

1. **(2p)** Presentation skills. The project is not graded if not presented in class.
2. **(2p)** Create at least one test case (unit test) for each constructor and at least 3 test cases that check functionality.
3. **(1p)\*** Use threads to accelerate processing and/or to handle multiple clients.
4. **1p** Use sockets for the communication between the client side and server side of the application
5. **(0p)\*** Install a database management software and create the entities related to the model of your project (classes, relations). This part is related to the DB course, therefore no points are awarded. Yet, this task is **mandatory** if you want to tackle other database connection tasks below.
6. **(1p)\*** Create a connection with the database, query data and show it on screen (or UI).
7. **(1p)\*** Insert or update data into the DB tables.
8. **(1p)\*** Manage users or roles for different access levels to the DB.

9. **(1p)\*** Validate input data before using it in your program (especially when interacting with the DB). All inputs must be validated. This does not mean you need to create a GUI, command-line-interfaces works also. By user interface we mean that a user can input data into the application.
10. **(1p per Scene)\*** Create Scenes for your project. Each Scene must provide a different behaviour for your project. Example: one scene for an admin that manages users, one scene for a user managing the stock, one scene for a client trying to buy from the stock. The stock can be any entities present in a database.  
**Note:** max 3 points
11. **(1p per endpoint)\*** Create REST endpoints for consuming your backend data using REST. One point is awarded for each CRUD (Create, Read, Update, Delete) endpoint. This requirement makes sense if you plan to build your UI in another technology (e.g. JS frameworks).  
**Note:** max 3 points
12. **(1p per endpoint)\*** Create view endpoints using thymeleaf for your user interface. One point is awarded for each view that allows for changing the entities in your application. This requirement makes sense if you don't want to use additional technologies.  
**Note:** max 3 points
13. **Note:** A student must tackle only one of the requirements [10](#), [11](#), [12](#)