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| Subject: | TDAT1006 Software Engineering 1 with Database Project Assignment | | |
| Class: | ITHINGDA 2018H | Work category: | Project |
| Teachers: | Grethe Sandstrak<br>Nils Tesdal | | |
| Date of issue: | 13.02.2019 | | |
| Deadline: | 14.04.2019 | | |
| Presentation: | 29.04.2019 - 30.04.2019 | | |

# Project Assignment

Your task is to create a multiplayer game where each player uses their own laptop to play. Each player should have a personal account and should log on with a username and password.

The game shall not have any animated graphics, but you can use static graphics in the form of images, icons, charts and drawn objects like maps and so on.

There are no other functional requirements regarding the actual game, but there are some technical requirements and some requirements regarding the process.

## *Technical requirements*

1. The game must be made as a standalone Java application.
2. Use the MySQL database at the university to store game state and game history/statistics.
3. User passwords should be hashed and salted. Find theory and examples of this online.
4. Use PreparedStatement when making database calls to prevent SQL injection.
5. Use a connection pool with one connection (or more if you have multiple threads). This is to improve performance and avoid using too many database connections. Find theory and examples of this online.
6. Test all the classes that define the game logic with JUnit (be sure to isolate the game logic in dedicated classes instead of spreading this around).

## *Process*

The project should be carried out in three iterations. The result of the two first iterations are presented in the first two team meetings, while the result of the third is presented in the project presentation. Iteration overview:

1. In the 1st iteration you should focus on the vision and requirements. Make an early game prototype using BalsamiQ and perform a usability test using the prototype with users outside of the team. Test both the user interaction and if the game is engaging. You should present this prototype at the first team meeting along with the vision document. You should also present the first version of the domain model, which is essential in explaining the game concepts.
2. In the 2nd iteration you should focus on making an MVP (Minimum Viable Product) using Java. This is a prototype, with just enough functionality to make the game playable. This prototype should also be (usability) tested. You should present this prototype at the second team meeting along with the first version of the requirements documentation WIKI.
3. In the 3rd iteration you should focus on finishing the game and all the documentation.

## *Game ideas and the time aspect*

You are free to create the game that you want to. But be sure to limit the possibilities in the game, both in order to complete the game in time and to make the game easier to play. If you think it is difficult to create a completely new game concept it is ok to use existing games as a starting point. Do however include some elements to make it your own game. A possible starting point could be the game RISK, or maybe a game involving trade of different kinds of resources.

The time aspect is important. You could use a standard board-game model where every user makes their moves in turns. Another model is to have the users make their moves simultaneously. Yet

another is to have the users make moves whenever they want. The first is probably the simplest while the last model introduces much more complexity.

In the first two models, the time given per move could be fixed, or it could have a minimum and maximum. This choice will impact both the gameplay and the technical solution. With a fixed time per move you don't have to poll the database so often and it will be easier for each player to see when their next move is up.

# Basic project elements

- Your team is employed by a computer consulting company that has been commissioned to develop the new information system.
- Notice that the team must create its own full-fledged system. As a student, you will mainly play the role of a systems consultant designing and implementing the system. Teachers play the role as a client in addition to expert advisors.
- As a systems consultant, you have an hourly salary rate of NOK 1300.
- You must consider any costs in terms of personnel and software.
- Each team member has approx. 150 hours for her/his disposal + / - 10 %.
- In the milestone plan, you will find deadlines for compulsory deliveries.
- To ensure the quality of the application, the team must continuously undertake unit testing using JUnit.

# Resources

You will find the project resources, including document templates, in the project-folder on Blackboard.

# Usages of collaboration tools

The team must use collaboration tools as a part of the project. E.g. tools like Gitlab, GitLab WIKI, Slack, Gitlab Pages, Balsamiq, Google Drive etc. Experiences in using these tools must be summarized in the main report.

Slack invite: https://join.slack.com/t/su1-2019/shared_invite/enQtNTQ5NzMzOTQ2Njc5LWZlOTRlZTk2YTU5MWYzOWNkYzhhZjNjMDhiODZlYjZmNGMyMjgzOTBiZjNjMzU3ODQ1Yjc5Y2E3OGFhNjUwNGQ

Balsamiq licence:

> Product: Mockups 3 for Desktop
> License Name: Software Engineering 2 with web applications 2019
> License Key:
> eJzzzU/OLi0odswsqgnOTyspTyxKVXDNS8/MS00tysxLVzBSKM8syVAoT01SSCwoyMlMTizJzM8rVjAyMLSsMTQ1tzA1NDYzAIGakBpDAG/xGn0=
> License End Date: Feb 07, 2020

# Submission of reports

Each team must deliver a separate main report as well as attachments (see below). The main report should include an evaluation of the teamwork. Here, the team must summarize experiences dealing with the project-work and cooperation within the team. Each team member must also document and evaluate his/her own performance.

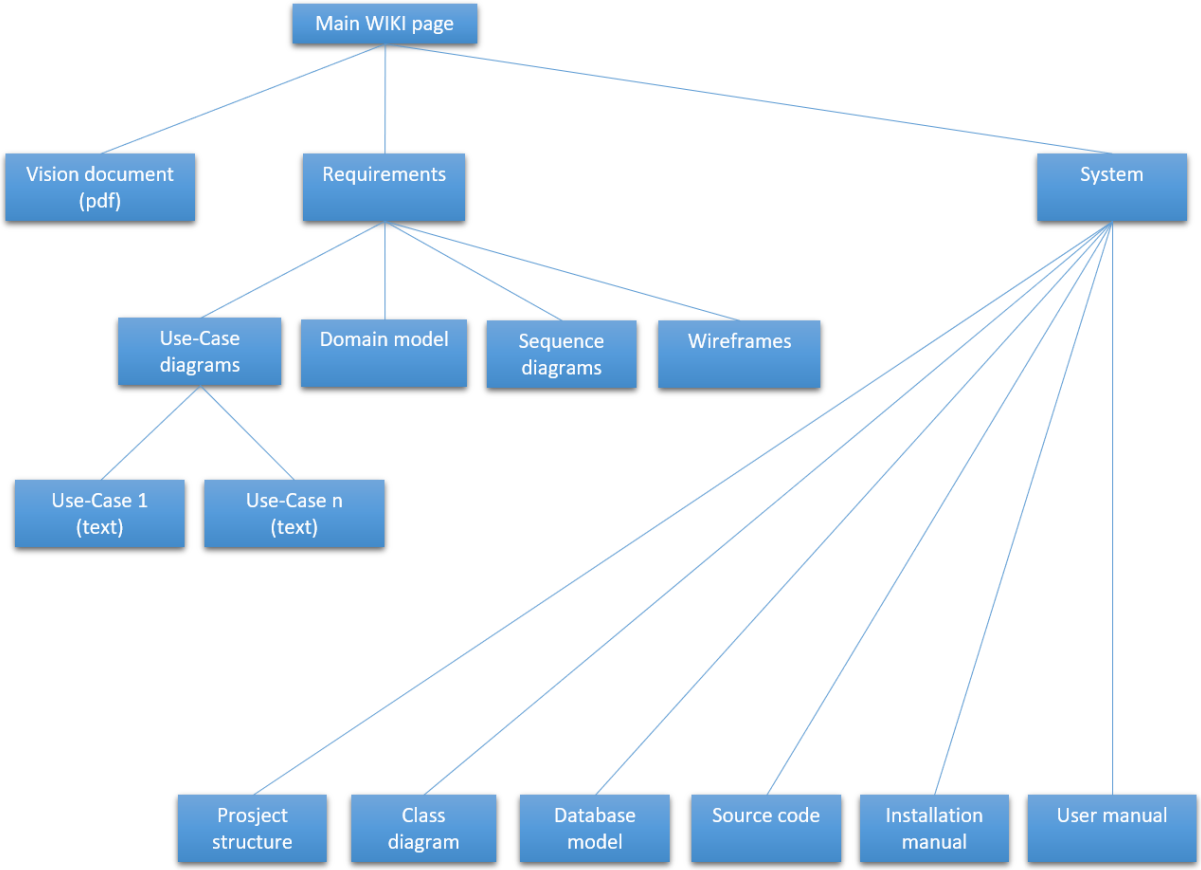
Keywords are:

- This is how the teamwork progressed
- How was effort and result in accordance to what was planned

- This is what we are most pleased with
- We would have done this differently
- Source code or technical solutions the team is particularly satisfied with. Explain why
- Describe the choices and experiences (positive / negative) about the use of collaborative tools

Attachments to the Main report:

1. Collaboration agreement
2. Project plan with the schedule in the form of a Gantt chart
3. Timesheets with status reports for each team member
4. Meeting invitations and minutes
5. Vision document
6. Link to GitLab WIKI pages with the following content (NB! See lecture on documentation for a more specific description of each content element):




7. Link to JavaDoc on GitLab Pages

# Final deliverable

All text documents should be merged into one pdf-file named *tdat1006_2019_teamname.pdf* and submitted on Blackboard.