Project Assignment

Part 1 of 2

Spring 2014

The Task

Working in groups and using Scrum as the process model, you must develop major parts of a multiuser database application.

The project provides the formal basis for the exam on 2nd semester. It is divided into a longer Part 1 and a shorter Part 2.

This document presents Part 1.

The constraints on your work during Part 1 can be summarized in a set of requirements that focuses on what you have to develop (the product), how you have to work (the process) and finally what you must hand in or demonstrate (the documentation).

Product requirements

Starting with the case, which was included in the business compulsory assignment, and the results obtained in this, you must develop and (partly) test the system. Note, that we expect you to focus on quality rather than quantity. This means that a full system is not expected. It is more important that you accomplish what seems reasonable and feasible within the time frame of the project period and the way the process model (Scrum) works.

Please notice that the requirements may be subject to changes and "clarifications" during the project period.

The solution must respect the following set of technical and design related constraints:

1. It must use the Oracle database that is currently in operation at datdb.cphbusiness.dk.
2. It must be built using a logical multilayer architecture where all the layers run on the client written in Java (“fat client”).
3. It must use relevant patterns, as described in Fowler's "Patterns of Enterprise Application Architecture".
4. It must handle concurrency issues i.e. multiple clients connected at the same time that might try to access the same data simultaneously - or put another way: The system must be transaction safe.

Process requirements – in short

Part 1 covers four Scrum sprints. Planning of these sprints must be done according to the guidelines in Scrum. You are the Scrum Team and Palle Bech will act as Product Owner, but you will be responsible for identifying and writing the stories.

At the end of each sprint, there will be a sprint review where you must prepare a demo of the stories implemented by the group during the sprint.

During the project period you can get ad hoc guidance from the teachers. There will be teachers present at school all week days (see semester schedule). It is the responsibility

of the group to seek the teachers' advice whenever a need arises during the project period.

The teachers can be found either in their office or in one of the classrooms (guiding another group). If you can't find a teacher then either put a note on the door, send an email, or text us so we can find you.

Documentation requirements – in short

During the project, there will be a number of scheduled meetings with the teachers where each group must bring a number of artifacts:

- Product Backlog
- Sprint Backlog
- Relevant UML models
- Implemented user stories (for demo)

The final project delivery includes:

- An exam report (text)
- A product (program)

The exam report must document the final product as well as the process leading to it.

It must be explicitly stated which group members are responsible for the specific parts of the final delivery to enable individual assessment. The final delivery of Part 1 will become the major part of the assessment base for the exam. More details about the documentation requirements as well as the assessment criteria and assessment procedures can be found below.

About achieving academic goals while working on a project

Working on a project is considered as a way of learning in line with conducting regular class sessions and exercises. This implies that you are expected to acquire a certain amount of new knowledge and experience regarding central topics of the 2nd semester through your personal commitment and effort during the project.

There is no final solution list for this type of development assignment. Hence, do expect problems to arise to which the teachers don't have a "quick solution". In these situations you are encouraged to work systematically and follow the steps:

- clarify the problem
- identify alternative solutions
- estimate advantages / disadvantages
- choose a solution
- document briefly the process

Sprint Meetings

The project period is divided into four sprints of around 7 week days.

There will be a number of Scrum meetings during the project period, and Palle will participate in many of them, acting as Product Owner. See time table at the back of the document.

Sprint Planning Meeting

At the beginning of each Sprint, the Product Owner (Palle) and team hold a Sprint Planning Meeting to negotiate which Product Backlog Items they will attempt to convert to working product during the Sprint. The Product Owner is responsible for declaring which items are the most important to the business. The team is responsible for selecting the amount of work they feel they can implement without accruing technical debt. The team "pulls" work from the Product Backlog to the Sprint Backlog.[1]

Each group brings an ordered Product Backlog to the meeting.

Only for the first Sprint Planning Meeting, the group must also bring the following from their project establishment:

a) Assessment of project resources
b) Group contract

Objectives of planning meeting:

c) Define sprint goal
d) Find out what can be delivered in the next sprint
e) Consensus about "Done"/"How-to-demo" criteria
f) Break down stories into necessary tasks to reach the sprint goal (without PO participation)
g) Produce Sprint Backlog (without PO participation)

Sprint Review Meeting

After Sprint execution, the team holds a Sprint Review Meeting to demonstrate a working product increment to the Product Owner (Palle).

The meeting should include a live demonstration and present relevant artifacts from the sprint.

Objectives of review meeting:

a) Product Owner identifies what have been "Done" and what have not been "Done" in the sprint.

[1] Scrum Reference Card by Michael James

Daily Scrum Meeting
Teams are expected to do daily scrum meetings (max. 15 minutes) reporting to each other.

Sprint Retrospective Meeting
After the Sprint review meeting with the Product Owner, the team holds its own retrospective meeting in order to find out where to improve for the next sprint.

The team must make a short bullet list after this meeting which highlights the following:

- Any improvements with regards to people, relationships, process, and tools?
- What major items went well and where are the potential improvements
- A plan for implementing improvements to the way the team does its work.

This retrospective bullet list for each sprint should be included in the final process report.

Technical Review
Teams meet with technical expert (teacher) who examines the suitability of the software product.

Final Delivery (Exam Report and Product):

The delivery must as a minimum contain the following artifacts:

Product Report

- Business Case (Activity diagram and Domain Model)
- Product Backlog (User Stories)
- Architecture Model (high level design)
- Design Model
  - Design Class Diagram (DCD)
  - Sequence Diagram (SD) covering min. one core or complex scenario
  - Persistence model (E/R diagram)
  - Relational model
  - Description of the qualities of your design (coupling, cohesion, pattern use etc.)
  - Relational Schema - including statement about the degree of normalization for each relation
- Implementation model
  - Description of the most complex parts of the code
  - Source code
    - All classes copied to one (!) generally readable electronic file (txt-, pdf- or word-doc) enclosed on CD or USB key
  - SQL scripts (appendix)
  - Descriptions of complex or core SQL queries and updates
- Screen dumps (2-4 selected)
- Test Model – complete documentation of an automated test of at least one class in the data source layer (using JUnit)
- Conclusion – including a short overview of which parts of the complete set of requirements that have been implemented.
- Instructions on how to install and run the program

OBS! For each model in the product report, you must provide a description of:

- Context or purpose of the model
- Non-trivial information necessary to interpret the model correctly (if any)
- Key development decisions made on the basis of the model (if any)

Executable software

- A NetBeans project (exported to ZIP) supplemented by all additional files needed for running the program (enclosed on CD or USB key).
- Name the NetBeans project “group_NN_2sem” (replace NN with your group number – ex: “group_01_2sem”).

Process Report

- Group Contract
- Sprint Backlog for each sprint
- Retrospective bullet list from each sprint
- Assessment of group co-operation and use of roles

- Assessment of advantages and disadvantages of methods, tools and techniques applied during the project
- Conclusion

Formalities

The front page must be the “Standard front page” at the back of this document with your data filled in.

It must be clearly stated which members of the group are responsible for which part of the report and program.

The reports must not exceed 60 standard pages (each of 2400 characters). This limit applies to the combined volume of the final delivery from part 1 and part 2 (excluding code and appendices).

Assessment Procedure (exam)

Each group hands in the final delivery including the CD or USB key containing the application in **1 physical copy** (remember to put your name on the CD/USB).

The final delivery (report and code) must also be uploaded in Fronter folder (Fronter location is specified later on in Fronter news).

To the individual exam, each student must bring a PC and be able to connect it to the monitor cable in the classroom.

Each student will be given a mark that reflects the combined assessment of the final deliveries from Part 1 and 2, the group presentation and the individual examination.

Hand-in

CL13dat2a and CL13dat2b : Date: Thursday Mai 1st at 10.00

CL13cos2v: Date: Friday Mai 2nd at 10.00

Where: Study Secretary Annie Blichfeldt in the reception.

Mobile phone numbers and mails for the teachers

Hau 3615 4707 hau@cphbusiness.dk

Lam	?	lam@cphbusiness.dk
Hsty	?	hsty@cphbusiness.dk
Jekm:	3615 4692	jekm@cphbusiness.dk
Pab:	3615 4669	pab@cphbusiness.dk

More about the assessment

A good report – does the following:

- Documents the product in such a way that it enables the reader to understand
  - the business value i.e. the reason for developing the system
  - the implementation of the system in order to be able to finish and maintain it
  - the rationale behind core decisions made during the development
  - how to install and use the system

- Documents the process such that it enables the reader to recall
  - Project settings and scope
  - Plans
  - Course of events
  - Reflections

A good report – has the following qualities:

- Is complete (contains all the artifact required)
- Is easy to read and understand.
- Uses appropriate technical / professional language and diagrams
- Preserve traceability between models (models are mutually consistent and coherent - from detailed requirements to executable code)
- Describes relevant problems and arguments for choices made.

A good system

- implements a considerable part of the functional requirements
- is easy to understand, complete, maintain, expand and reuse.
- uses naming conventions and is properly commented (Java code)
- uses current design guidelines (patterns)
- ensures data consistency in the database
- protects against the concurrency problems – ex: "Lost Updates".

Standard front page

Project report 1st year exam – Computer Science

Hand in deadline: _____

Group no: _____

Group members:

First name(s), Last name	Signature
_____	_____
_____	_____
_____	_____
_____	_____

Received: _____ _____ _____

(name) (date) (time)

Time Schedule for Meetings and guidance

Guidance

Date	Teachers
17.3	Hau, pab
18.3	Pab, jekm
19.3	Hau, jekm
24.3	Hau, jekm
25.3	Hsty, jekm
26.3	Hau, jekm
27.3	Hau, jekm
28.3	Pab, jekm
31.3	Hau, pab
1.4	Hsty, jekm
2.4	Hau
3.4	Hau, jekm
4.4	Jekm
7.4	Hau, jekm
8.4	Jekm
9.4	Hau
10.4	Hau, pab
11.4	Pab, jekm
22.4	Lam, jekm
23.4	Lam, jekm
24.4	Lam, pab
25.4	Lam, jekm

28.4	Hau, jekm
29.4	Lam, jekm
30.4	Lam, jekm

Sprint planning meetings and sprint review meetings with PO (Palle)

On Fronter there will be a document you must use for making appointment for your sprint meetings

Technical review meetings

A plan will come later.