Exercise Sheet 3

Term Project

Rules for the term project:

- Pairs of students (two people ;-) work together in the term project!
- Each team must report regularly about the project's progress in form of a report! (Prerequisite for admission to the final exam!)
- Teams must make decision about process model!
- Project estimation and risk management is a must!
- Documentation is also subject to SCM!
- The project work has to be documented. One possibility besides the SCM is a Wiki, e.g., under the Moodle platform, or a Moodle online database. Discuss the documentation with your supervisor.
- An Object-oriented language must be used to implement the game (if you choose neiter C++ nor Java you need to talk to your tutor and/or me first!).

Problem Statement:

As an example to practice all the tools and techniques learned in SWE Analysis and what will come up in Design is a simple lottery game is to be implemented.

First you will find the technical requirements. Due to the small size of the project, there is no need for a special business process engineering or business modeling.

Technical requirements "Lottery"

Please develop a software lottery game, which:

- supports multiple players
- every player gets one lottery ticket
  - with 49 numbers (values from 1–49),
  - where the player can choose 6 numbers from and
  - enters his/her name.
- after entering all tickets, 6 random numbers are drawn and
- the result is shown.

To interact with the user, please use the following simple menu:

```
=== Lottery Menu ===
1 Enter ticket
2 Lottery drawing
3 Show result
0 Quit
Please enter (0-3): _
```

Explanation of the options:

- Enter ticket: One after another all players are asked to enter their name and 6 numbers between 1 and 49. Each number can only entered once.
- Lottery drawing: randomly 6 different numbers are drawn (between 1 and 49 again) and displayed on the screen.
- Show result: the drawn numbers and all player's tickets are printed on the screen. For every player the number of correct hits are shown as well.

The main dialog of the application needs to be robust, i.e., no input must lead to an abnormal exit, an infinite loop or other undesirable effects. In addition the correct order must ensured: lottery drawing and printing of results is only allowed, if all users have entered their tickets.

First Tasks

1. If not done already, install and get acquainted with MagicDraw.
2. Write down use cases to evaluate the requirements.
3. Please publish your organizational structure and name the selected process model!
4. Setup tools you plan to use during the development, e.g., SCM, programming language, etc., and give an explanation, why you made the selection!
5. Prepare a documentation structure within your chosen SCM tool!
6. Prepare a first project estimation:
    - Revisit the principles of metrics!
    - Define suitable metrics for your project, application and development team!
    - Perform a first estimation!

- Determine a preliminary project schedule and visualize it!

7. Please write a report about the tasks and put the source file (like TEX or docx) into your version control system and submit a pdf version in moodle!

8. Be prepared to present the current project status!

During the next weeks there will be new tasks with respect to the project!