Exercise: Stock Portfolio Monitoring (The Observer Pattern)

In this exercise you will design and implement parts of a stock trading system in which stocks values are continuously updated. You are tasked to develop a system that displays the current values of the stocks and show the total value of the users' portfolio. Through this you will get familiar with the use of the GoF Observer pattern.

The situation: You are to design and implement a system which consists of a number of parts:

Stocks, which live a life of their own. Their values are periodically updated, and when this happens, a **Portfolio** must be informed of the changes.

A **Portfolio**, which keeps track of the currently owned stocks (stock name, amount of stocks and value) and the total value of all stocks.

A **Portfolio Display**, which is used to output information on the current portfolio.

The exercise has two phases:

A) Create and upload your solution in small groups (min 3, max 5 persons)
B) Download and evaluate another group's solution (peer review)

Phase A: Your solution

Part 1:

Thinking of the GoF Observer pattern, what is/are the subject(s), and what is/are the observer(s) in this assignment? Which variant of GoF Observer is applicable – or would you rather create your own?

Part 2:

Design a system in which Stocks may be added to a Portfolio, which should then automatically be notified if the value of the Stock changes. When this happens, the Portfolio should make sure that the stocks in the portfolio are printed to screen. Document your design.

Part 3:

Implement (and test) your system. As always, remember that any changes to the design discovered during implementation and/or test must be added to the design documentation (class diagram, state diagram etc.)

Part 4:

Revise your system so that the stocks have a life of their own, i.e. they should update their values (e.g. within the range +/- 5%) at regular intervals.

Deliverables for phase A:

You must upload (blackboard) your solution as ONE zip file containing the following:

1) Your design document, with (at least) a class diagram showing your complete solution and a short description of the design choices.
2) Your complete solution / source code including project files etc. in a zip file (yes, a ZIP file in a ZIP file)

Your uploaded zip file should be named **SWD17-1-observer-groupXX.zip** where XX is your group number. Your design document and comments in the source code should indicate your group number as well.

DEADLINE for the upload is **Sunday 26th of Feb, 2017 at 22.00** – it is very important you meet the deadline as other students need your files to complete their phase B evaluation on time. If you do not upload, the other group cannot complete it's exercise.

Phase B: Peer review

For this phase, imagine that you are the lead software engineer in a team taking over an existing project from another department – you will most likely need to extend this software with more features and be in charge of maintaining it from now on.

Your project manager has asked you to perform an evaluation of the solution based on the problem from phase A.

You will be using a Rubric (handed out and available on blackboard) and you must elaborate on your evaluation through comments.

You must evaluate the solution individually, *not* as a group, and you must evaluate (at least) the topics outlined in the rubric.

Which solution you will individually be evaluating will be announced and available Monday morning through blackboard no later than 10.00 with a download link for the solution. You are of course more than welcome to check out other solutions as well.

Deliverables for phase B:

Use the rubric (available on blackboard with an example) to evaluate the other groups' solution. You must type in your feedback in the online form provided on Blackboard before the deadline.

DEADLINE is **Wednesday 1st of Mar, 2017 at 22.00** – it is very important that you complete this as it will be used during the lecture and another group depends on your feedback.

All feedback will be available before the lecture on **Thursday March 2nd , 2017**. Make sure to check out the feedback for your own group.