1-ECTS Software Configuration Management – Exercise session II

In the solutions you discuss, you might want to refer to *concepts and principles* from the second lecture (either from the lecture slides or from the lecture note). Some of the exercises are elaborations of exercises from session I where you were not supposed to be able to give a complete answer.

Each group is required to produce **a short summary** of the main results of their discussions. **A few (1-4) lines** for each exercise are sufficient. The summary must be mailed to bendix@cs.lth.se (in a reasonable format) **at the end of the exercise session**. Do **not** spend time on things like "nice formatting or spelling". If you have figures/drawings you want to include, then remember the 4P-principle (pen, paper, photo, paste). You can answer in English– or Danish/Italian/Norwegian ;-)

Since there are 10 questions to discuss, **you have an average of 9 min. per question**. It is OK (in fact wise) to spend a lot less time on some questions (maybe with a one-sentence summary) in order to have more time for other questions.

1. List three situations from your past experience where you have had problems that might have been caused by bad or missing SCM. Pick one situation and discuss the root causes for the problem and possible SCM solutions.

2. Discuss how the analysis of problems in *handling changes* from the lecture (and lecture notes) relates to your own personal experience from working in group (or alone).

3. Brainstorm the following questions (in the context of a specific project you have been on):
    a. What are the goals regarding configuration management?
    b. What do you need to do to accomplish them (tools, money, time, people)?
    c. What do you need to do first? Next? If you are a manager? If you are a developer?
    d. How will you know when you have met your goals?

4. At Noksson we want to become better at SCM – that is why we have hired you ;-) You are the only SCM expert in the company and we have given you the task to look at SCM in our company. Currently we use version control – mainly for our source code – and have a paper-based system for handling bug reports:
    - give examples of what should be configuration items (CIs) (digital or otherwise)
    - give examples of what should not be CIs (leaving the rest in a grey zone;-)
    - suggest a structure for organizing the chosen CIs

    - which CIs would you like to be able to trace between and in which direction?
    - how could that be implemented?

    - what other information could be useful to record?
    - how could people access (query) that information?

5. Discuss what are the objectives of change management procedures (the configuration change control activity). What is the role of the change control board (CCB)? Should there be a CCB and change procedures on any type of project or only on "big, important" projects? Motivate your answers.

6. Using a data-flow type of diagram, describe a change management process which might be used in a large organization concerned with developing software for external clients. Changes may be suggested from either external or internal sources. Design the data fields of a change request form for your company.

7. Discuss what kind of coordination problems there may occur between the different groups of people on a project – programmers, testers, designers, requirements engineers, QA, …. Discuss to what degree the concepts of baseline and traceability could be (partial) solutions to (some of these) problems – and how it should be handled.

8. Your company sells software to the medical company to control their production line for diabetes medicine. Write down what the Software Bill-of-Materials (SBoM) should contain for releases of that software – and discuss why. The software is critical, so your company does not trust the developers to be able to do all the testing. Therefore the software under development is sent to a group of testers from time to time for a thorough and formal testing. Discuss how a BOM can be used in this context – and what it should contain.

9. The Italian fiscal code (codice fiscale) is a way to create unique identification for all people in Italy. What is wrong with the way that the fiscal code is constructed? How could it be improved?
   If you don't know how the Italian fiscal code is constructed, then read here:
   https://en.wikipedia.org/wiki/Italian_fiscal_code_card

Compulsory exercise for all groups: Do a quick brainstorm of what improvements could be made to the lectures, slides, lecture note, and exercises. List at least three things and pick the most important/pressing improvement for a further short discussion. Write a Change Request (CR) for it and email that CR – together with the list – to Lars Bendix (bendix@cs.lth.se). When you write your CR, you might want to discuss what information is needed on the CR form – and on a CR form in a programming context. What would you think of a colleague that sends you a problem report saying: "there is a problem"? I will think the same about you if you send me a CR that says: "it sucks"! I want to know where it sucks, what it is that sucks, why you think it sucks, and – if you know it – an idea for how to correct it. What information would you like to have on the CR form as a developer if you have to implement a feature or fix a bug? What information would you like to have on the CR form if you are a product owner or a project manager who has to decide whether or not to implement a feature or fix a bug?

After the exercise session you might want to return to the lecture note and re-read and comment the parts that you now find particularly relevant and interesting to you.