CS 480 – Software Engineering, Homework 3

1) Types of Requirements.
- (a) What are user requirements and system requirements? (5 pts)
- (b) What is the distinction between functional and non-functional requirements? (5 pts)
- (c) List 3 types of non-functional requirement? (5 pts)

2) Requirement Engineering Process.
- (a) What are the principal stages of the requirements engineering process? (5 pts)
- (b) Give 4 reasons why eliciting requirements is difficult? (5 pts)
- (c) List 3 types of non-functional requirement? (5 pts)

3) Requirement Gathering.
- (a) What is ethnography and how is it used in requirements elicitation? (5 pts)
- (b) What is a Persona and how it is related to Scenario and user goals? (5 pts)
- (c) List the main principles of a Contextual Inquiry. (5 pts)

4) System Modeling.
- (a) What perspectives should be used for developing models of a software system? (5 pts)
- (b) What is described in a context model? (5 pts)
- (c) How are activity diagrams used in describing the context of use of a system? (5 pts)

5) UML Diagrams.
- (a) What are the principal components of a use-case description? (5 pts)
- (b) What is illustrated in a UML sequence diagram? (5 pts)
- (c) How is generalization used to simplify the models of a system with many similar objects? (5 pts)

(6) Suppose that you have to develop software for cash dispenser. You should develop software for both cash dispenser, i.e. the part for communication with the customers (delivering money and report the account state), the software for communication and software needed in banks for communicate with the bank transaction systems.

You have a team of 10 people – all of them can play a role of designers, developers, testers and document writers. You have got a contract to implement the first version in 6 months. All hardware and development tools are available.

In the project 5 banks are included that use 2 different transaction systems. The customer wants that you incrementally implement the system – first the cash dispenser software, then the interface to the bank account system, finally the communication. The total system should be delivered after 6 months.

- (a) Create a use case diagram capturing the above requirements. (10 pts)
- (b) Create a sequence diagram for the scenario "withdraw money". (15 pts)