Comprehensive Exam for Requirements Engineering
Fall 2008

Student ID_____

The first question is mandatory and is worth 50 points. The remaining 4 questions are worth 25 points each. Answer the first question and then any 2 of the remaining 4 questions. Please mark below which optional questions you want graded. Use only the space provided. *Do not attach additional sheets.*

Questions to grade (circle the appropriate number): 2 3 4 5 (If you leave this blank, questions 2-3 will be graded.)

1.   (50 points)

A Statement of Work for a web-based system for grocery ordering.

Assume that we are developing the requirements for a web-based system that will allow customers to order groceries to be delivered at a certain time to a specified address or to be picked up from a specified store location at a specified time.

On the following pages, follow the directions to write 5 requirements for the Grocery Ordering System described above. Remember,

- A statement of a requirement shall be expressed with a "shall".
- Rationale refers to the reason that the requirement has been included.
- Fit Criterion refers to how you plan to determine whether or not the final system meets the stated requirement, i.e., how you will you demonstrate to the client's satisfaction that the requirement has been met?

1-1.   (10 of 50 points)
Write a functional requirement that ensures that each user's identity is authenticated prior to placing an order.

- State the requirement

- Explain the rationale

- State the Fit Criterion

1-2. (10 of 50 points)
Write a functional requirement that ensures that the order is sent to the correct physical store for fulfillment.

- State the requirement

- Explain the rationale

- State the Fit Criterion

1-3. (10 of 50 points)
Write a functional requirement that ensures that the customer is notified immediately upon placing the order that an item is not available if it is out-of-stock at the specified store.

- State the requirement

- Explain the rationale

- State the Fit Criterion

1-4. (10 of 50 points)
Write an availability requirement that will ensure that the online system will be available for the customer to use *most of the time.*

- State the requirement

- Explain the rationale

- State the Fit Criterion

1-5. (10 of 50 points)
Write a usability requirement that will ensure that the web interface will be *easy for the customer to use.*

- State the requirement

- Explain the rationale

- State the Fit Criterion

2. (25 points)

There are many techniques for eliciting (trawling for) requirements. Identify and describe 2 of them. For each technique, specify the conditions or circumstances under which the technique would be a valuable one to use.

Grading: (a) 4 points for each identification (8 points); (b) 4 points for each description (8 points); (c) 4 points for identification of conditions (8 points); (d) 1 point for grammar (1 point).

3. (25 points)

What are Use Cases and Domain Models? In using these approaches to capture and analyze requirements, what characteristics of the proposed system are represented by Use Cases and what characteristics are represented by Domain Models?

Grading: (a) 6 points for each definition (12 points); (b) 6 points for each set of characteristics (12 points); (c) 1 point for grammar (1 point).

4. (25 points)

   Indicate to the left of each statement whether the statement is True (T) or False (F).

   _____1. Studies have shown that incomplete requirements and lack of user involvement in the requirements process have little effect on software project success or failure.

   _____2. There is sometimes a need for a requirement to state what a system will *not* do.

   _____3. It is only necessary to be able to trace a requirement to a component of the software, but it is not necessary to trace a software component back to its requirements.

   _____4. It is permissible to move into the next lifecycle phase if there are still TBDs in the requirements after the Requirements Review so long as there is a plan to resolve the issues.

   _____5. Requirements Reviews are generally considered to be a requirements validation technique.

   _____6. Business events are triggers that happen outside the scope of the system in question.

   _____7. Business events require a specific action and cannot be triggered simply by the passage of time.

   _____8. Selecting a button in a GUI window is a good example of a business event.

   _____9. Use Cases should be named with verb-phrases.

   _____10. Apprenticing with the user tends to bias your view of the work and should not be used as a trawling technique.

   _____11. The term essence of the system means the fundamental reason that the system exists.

   _____12. When conducting a brainstorming session, all suggestions are to be recorded, even if some appear to be nonsense.

Grading: 1 point for each correct answer plus 1 free point.

5. (25 points)

What is a requirements baseline? What is the purpose of placing requirements under configuration control? Describe a typical requirements configuration control procedure, i.e., what are the steps in modifying a set of requirements that are under configuration management?

Grading: (a) 6 points for definition of requirements baseline; (b) 6 points for identifying its purpose; (c) 12 points for explaining configuration control procedures; (d) 1 point for grammar (1 point).