UNI:

Computer Science COMS W4156 Advanced Software Engineering Fall 2016 - Midterm Exam

October 25, 2016

Do not open the exam until the proctor tells you to do so. You may not use any books or notes. You may not use a calculator or any other device beyond a pen, pencil and eraser. Please write each answer in the corresponding space, continuing on the blank backs of pages if needed. Read through the entire exam before beginning to answer questions. Question 3 is long, with some intermediate pages to provide plenty of space for answers. It is not necessary to use all the space. The exam consists of 13 pages, with the last page saying only "(this page intentionally left blank)".

Name:

UNI (also put your UNI at the top of every page, since the pages will be separated during grading):

Problem No.	**Max Points**	**Points Scored**
1	20	
2	30	
3	50	
Total	100	

Problem 1 – Multiple Choice (2 points for each correct answer; -1 point for each wrong answer or if multiple answers are selected; 0 if blank)

Circle the letter that represents the **best** answer to each of the following questions.

1. Which term(s) should be grounds for concern in a **user story**?
    a. Process
    b. Often
    c. Nice
    d. All of the above
    e. None of the above

2. Which of the following is specified in **every** use case?
    a. How users will perform a task
    b. The application's behavior as it responds to a request
    c. A sequence of simple steps
    d. All of the above
    e. None of the above

3. What does **CRC** stand for?
    a. Customer wRitten Card
    b. Class, Responsibility, Collaborators
    c. Concise, Readable, Clear
    d. All of the above
    e. None of the above

4. Which component(s) of a user story should **never** be specified by the customer?
    a. Estimate
    b. Priority
    c. Title
    d. All of the above
    e. None of the above

5. Which of the following should **never** occur during a standup meeting?
    a. A separate meeting is scheduled to discuss a specific problem
    b. A user story is moved to the "Overflow" section of the Task Board
    c. The Burn Down Chart is updated
    d. All of the above
    e. None of the above

6. What should you do when the Customer requests an **unexpected** demo?
    a. Remind the customer that demos can only be scheduled for the end of an iteration
    b. Add a new group of tasks to the "To Do" section of the Task Board for the demo preparation and presentation
    c. Add two days to the iteration, one for preparation and the other for giving the demo
    d. All of the above
    e. None of the above

7. Which term **best** describes a Class Diagram?
    a. A solid line with a closed, unfilled arrowhead
    b. How objects interact at runtime
    c. Static structure
    d. All of the above
    e. None of the above

8. Which of the following **best** defines "quality"?
    a. Planning poker
    b. Using version control
    c. Meeting the customer's needs
    d. All of the above
    e. None of the above

9. Which of the following is part of the **View** in the MVC architecture?
    a. User interface
    b. Database schema
    c. Business logic
    d. All of the above
    e. None of the above

10. Which of the following does **every** Customer want to know?
    a. What does AJAX stand for
    b. How much will it cost and How long will it take
    c. Which developers are assigned to which tasks
    d. All of the above
    e. None of the above

Problem 2 – Vocabulary (3 points each x 10 = 30 points)

Explain the following terms in one or two sentences and/or small drawings.

a. Pair Programming

b. Static Analysis

c. Burn Down Chart

d. Design Sprint

e. Association (in a class diagram)

f. Aggregation (in a class diagram)

g. Non-Functional Requirements

h. Time Box (in agile processes)

i. Single Responsibility Principle (SRP)

j. Don’t Repeat Yourself (DRY)

Problem 3 – Mini-Project (50 points)

Imagine that you are developing software to manage team projects for a variant of this course, where instead of using trello, github projects, etc. the course will use its own task board system. The primary features that the system needs to provide are:

- The teaching staff needs to be able to specify who are the members of each team and provide each team with a private workspace.
- The teaching staff needs to be able to read the contents of every team's workspace, while the team members need to be able to read and write only in their own workspace.
- Team members need to be able to create, read, update and delete task boards in their workspace.
- Task boards include items.

Ignore any designation of specific teaching staff members as team mentors and any relationships with external materials such as a code repository.

The actual questions to answer are on the following pages, parts A, B and C.

Part A – Requirements (15 points)

This specification of the project is incomplete. In particular, it does not say anything about what is a task board "item", where an "item" comes from and how it gets included in a task board, what team members can do with an "item" and/or what the system can do with an "item". Write a set of user stories that together specify the *baseline* (highest priority) functionality of team members working with task board items. Do not be concerned with the system's UI or user story time estimates for part A.

Continue your answer for part A on this page if necessary (you can also use the backs of pages).

Part B – Design (15 points)

Draw a set of class diagrams to implement your user stories. Explain each of your diagrams in prose. You do not need to cover the other functionality specified as part of the problem setup, only your own user stories that elaborate “task boards include items”. Do not be concerned with the system’s UI or user story time estimates for part B.

Continue your answer for part B on this page if necessary (you can also use the backs of pages).

Part C – Project Planning (10 points)

Assume the requirements described in the project setup have all been completed as part of the first iteration, except for the last requirement “task boards include items”, which you have expanded in parts A and B. Describe how you would plan your second iteration, and later iterations if necessary, so that your team (of 4 members) can demonstrate “task boards include items” to your customer. Now you **do** need to be concerned with the system’s UI and user story time estimates, since you want to show the system to the customer and it will take your team some period of time to do the work. Make sure you explain **how** you would plan, i.e., what your team needs to do during the project planning process. You do **not** need to present the results of that process.

Continue your answer for part C on this page if necessary (you can also use the backs of pages).

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