

# CSCI 150

## INTRODUCTION TO SOFTWARE ENGINEERING

**SAMPLE** MIDTERM (1) EXAM (Same as Midterm 1 of Fall 2013)

October 2, 2014

Name: \_\_\_\_\_

This closed-book, **90** minutes exam is worth **100** points (each question is worth 20 pts except Q1 – worth 40 pts). **For each question, correctness and preciseness count. Each question is associated to your term project. If your answer does not relate to your project, you will get low score.** Choose 4 questions to answer: **Question 1 is MANDATORY.**

### Essay Answers (Suggest no more than 20 sentences for each question)

1. [CH5+Lab Exercise, 40pts] (a) Use Figure 1 to introduce a use case diagram. (b) Use Figure 1 to introduce a class diagram (c) Explain Figure 2 (Sequence diagram). (d) Convert Figure 2 into C++ (or any object oriented language) source code.
2. [CH1+Term Project, 20pts] (a) Maintainability, Dependability and security, Efficiency, and acceptability are five good software attributes. Please (a) choose three to explain the meaning of them and how they can be applied to your project (b) Explain why maintainability is related to software cost. (c) Explain why requirements are the most important phase in entire software process.
3. [CH 2+Term Project, 20pts] (a) What is moving target problem? (b) How do ALL of the following software process models address such a problem: waterfall, rapid prototyping, incremental, spiral (c) In addition to (b)'s answer, for EACH of these software process models **list 2 PROS**.
4. [Design and Testing] (a) Explain Figure 3 with *sufficient* details (b) Explain Figure 4 with *sufficient* details.
5. [Misc. + Term Project] (a) What's the difference between centralized and distributed version control? (b) Explain Figure 5 with *sufficient* details (when will you use "trunk", "branch", "merge", "commit", "update" (svn commands) and "fetch" and "push" (git and svn commands).

Fresno State would like you to computerize their registration system (portal).

1. The Registrar sets up the curriculum for a semester.
  - a. One course may have multiple course sections
2. Students select 4 primary courses and 2 alternate courses
  - a. Students may also declare minor.
3. Once a student registers for a semester, the billing system is notified so the student may be billed for the semester
  - a. The billing system by default notifies students via emails. It also has an option to notify students via physical mails.
4. Students may use the system to add/drop courses for a period of time after registration
5. Professors use the system to receive their course section rosters
6. Users of the registration system are assigned passwords which are used at logon validation



