

This take-home final exam is to be completed on your own, without assistance from any other person. If you have questions, contact the instructor. By submitting your work, you are representing that you neither gave nor received assistance and that the work submitted is solely your own. Please return these pages with your submission; affix your signature to indicate your understanding and acceptance of these terms.

Signature: \_\_\_\_\_

1. You may use Rational Rose as appropriate, but please submit in hard-copy form; handwritten submissions will not be accepted. Your submission is due **before 5pm Wednesday November 19<sup>th</sup>, 2003** either in my office CC33 or in my mail box CC26.
2. Make sure that your answers are complete and thorough. Any questions or clarifications must be done by Monday 5pm (11/17/2003) by sending an email to me to [gundelly@msoe.edu](mailto:gundelly@msoe.edu).
3. It is your responsibility to include answers to all questions with your submission. Zero points will be given for missing answer.
4. Do not use examples given in the course text book (Applying UML And Patterns by Craig Larman) or your course project as your example. Come up with your example based on your experience or something you are working on.

**Project:** Final project report must be bounded. Create a CD with all your project rose models, report, executable (release version) and source code (must be in source folder) and include it along with your report. Drop final report and CD in CC33 or in my mail box in CC26.

Problem 1. (30 points) Prepare and submit the following for the Online Insurance system:

- a. A complete design class diagram for the system. Make sure your class diagram shows all classes to cover all given features of the system. (18 points)
- b. A collaboration diagram for the event/operation of a customer filling out the application to accepting the quote (7 points).
- c. A brief discussion of why you assigned responsibilities in the way that you did (If you have used a pattern(s) then explain which pattern(s) you have used and why). (5points)

- Problem 2. (20 points) **a.** Describe about layered architecture using your own example. Include a diagram to show each layer and its purpose. (5 + 5 points).
- b.** Describe about model-view principle. What are its advantages? (5 + 5 points)
- Problem 3. (20 points) Describe **Template pattern** in your own words:
- a.** when this pattern should be applied (what problem it solves), (5 points)
- b.** how the pattern is implemented by using your own example (Include UML diagram(s) for your example) (8 + 7 points).
- Problem 4. (12 points) List at least six best practices of Unified Process. Describe each one in one or two sentences in your own words (12 points).
- Problem 5. (14 points) What is the purpose of PSP? How it helps an engineer and what is its process structure? (4 + 4 + 6 points).
- Problem 6. (4 points) Provide peer review of your project team members. Include his/her name. Describe about his/her strengths, weaknesses, communication skills, leadership skills, time management, programming & design skills, documentation skills, rose skills, project meeting attendance (Excellent, good, bad). Also provide overall rating on a scale of 1 (bad) to 4 (good).

Requirements of **Online Insurance System** for problem 1:

An XYZ company has decided to start an auto insurance division and it plans to offer services across the nation. Company wants to automate the insurance policy handling. It wants its customers to visit their website and handle all their needs like requesting quotes, accepting the auto insurance policy, payment, and submitting claims and getting resolution.

Company wants its customers to visit their web site to fill out an application to request auto insurance quote. A customer must provide policy holder name, date of birth, driver license number, issued state, number of years of driving experience, number of tickets and points received for each policy holder. A customer must also provide vehicle(s) information (including VIN) and details of coverage (comprehensive, collision, uninsured, underinsured, towing, car rental). Customer must also provide an email address where the he/she wants to receive his/her quote. After the request has been submitted a customer will get a confirmation that the application has been received and quote will be sent within 2 business days. System will generate a quote as part of nightly cycle after it connects to other remote systems to verify driving record details and sends a quote to the customer by email. Email will just contain a link to the web page that provides quote details and buttons to accept or decline. If an customer likes the quote he/she can click the accept button to accept the policy or click decline button to decline the policy. When the accept button is clicked, he/she must be asked to create a password for the account (note: user id is email address already given). System must also create a policy number if the quote is accepted. Information about the customer must be maintained for at least 1 month if there is no response from the customer or he/she declines the quote. Otherwise it must be store permanently.

Customer can setup either credit card payment or automatic deduction from a bank by providing details. Customer must also be able to check his/her monthly policy statement. If a customer wants to submit a claim then he/she can login into the account and submit the claim. Customer must provide details of the claim. He/she must provide all details of the claim along with pictures of the vehicle for which claim is submitted. An employee will review the claim and decide on how to proceed.