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Department of Computer Science
College of Engineering, University of Nevada, Reno
CS 426 Senior Projects
Midterm Test

March 31, 2004

Test type: Closed-book examination

Number of questions: 7

Total points: 42

Test weight in course grade: 16%

- 1** Briefly describe your team's project in CS426 (10 to 15 lines description) and give 5 examples of functional requirements and 2 examples of non-functional requirements from your team's project. In the description, indicate the goals of project and its most distinguishing characteristics (basically, indicate why you think yours is an interesting and worthwhile project). [8 points]
- 2** Explain what is meant by the "4+1 views" architecture in UML. Briefly describe the five views of this architecture. [5 points]
- 3** Explain what is meant by a *use case* and what is meant by a *scenario*. Indicate what is a *primary scenario* and what are *secondary scenarios*. Give an example of a use case using the template used in the textbook for use case specification. The use case should be related to your project and should have at least 5 steps. [7 points]
- 4** Indicate what is a *project glossary* and why is it this useful. Give four examples of terms that are (or could be) included in your team project glossary. Explain the meaning of the terms. [5 points]
- 5** Explain what is the difference between an *analysis class* and a *design class*. [4 points]
- 6** CHOICE: Answer either (a) or (b) but not both:
 - (a) Indicate the UML notations for *activity diagrams* (start and stop states, action states, sub-activity states, transitions, decisions, forks, joins, and swimlanes). Give an example of an activity diagram that includes at least 6 action states, a fork, a join and two swimlanes. Provide some additional (textual) description to your activity diagram to explain its meaning.
 - (b) Indicate the UML syntax for *statechart diagrams*, (detailed syntax for states and detailed syntax for transitions) and enumerate the four types of event that trigger transitions (note that you need not explain each type of event). Give an example of statechart diagram that has at least 6 states (not counting start and stop states). Provide some additional (textual) description to your activity diagram to explain its meaning. [7 points]
- 7** Explain what is meant by an *interface*, show the UML syntax for interfaces, and indicate the advantages and disadvantages of using interfaces in object-oriented modeling. Give an example of an interface with at least two operations. [6 points]