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

April 10, 2003

Test type:	Closed-book examination
Number of questions:	7
Total points:	40
Test weight in course grade:	14%

- 1** Briefly describe your team's project in CS426 (six to ten lines description) and give 4 examples of functional requirements and 2 examples of non-functional requirements from your team's project. [7 points]

- 2** Explain why UML is considered to be a *unified* modeling language for software systems. [4 points]

- 3** Explain what is meant by *use case* and what is meant by *scenario*. Give an example of a use case, using the template used in the textbook for use case specification. The flow of events in the use case should include at least 5 steps. The use case can be either related to your project or can be taken from any other application. [7 points]

- 4** Outline the CRC (Class-Responsibilities-Collaborators) analysis technique for finding analysis classes in object-oriented modeling. [5 points]

- 5** Explain the meaning of the *relationship* UML building block and indicate what is meant by the *navigability* of a relationship. Give an example of relationship between two classes and indicate whether this relationship is navigable or not. Explain why it is or it is not navigable. [4 points]

- 6** 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. [7 points]

- 7** CHOICE: Answer either (a) or (b) below but not both.
 - (a) 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.
 - (b) Explain what is a *statechart diagram*, show the UML syntax for statecharts (detailed syntax for states and detailed syntax for transitions) and enumerate the four types of event that trigger transitions. You need not explain each type of event. [6 points]