

## ACS-2913 ASSIGNMENT 2

Due October 30, 2013

Total points: 50

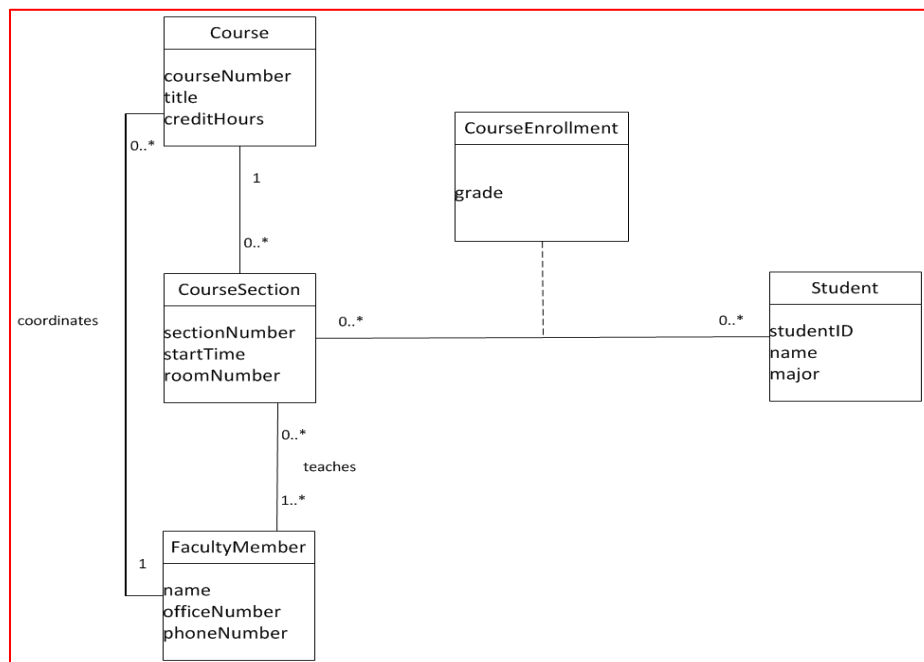
1. (10 Points) Draw a class diagram using UML notation, which includes multiplicities for their associations, and any generalization/specialization relationships that are pertinent. Use the following guidelines for your diagram:

A University course enrollment system involves courses, course sections, and students, and faculty members. Each course can have no sections, or many sections. Course sections can have many students, or no students enrolled in it, and students can be enrolled in as many sections as they want. Faculty members usually teach many course sections, but some semesters, a faculty member may not teach any. Each course section must have at least one faculty member teaching it, but sometimes, faculty teams teach course sections.

Furthermore, to make sure that all course sections are similar, one faculty member is assigned as course coordinator to oversee the course, and each faculty member can be the coordinator of many courses.

In addition, students are subdivided into International, out-of-province, or local students.

As the association between students and course sections records the grade that each student receives in each course they take.



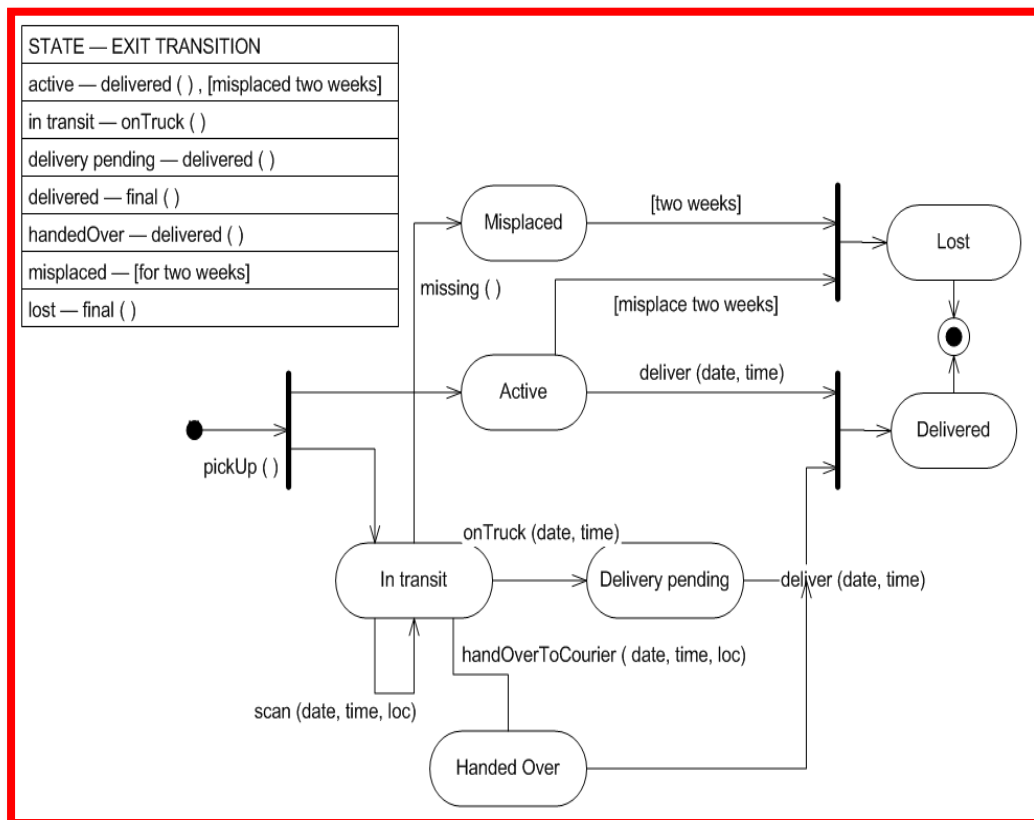
Also include International, out-of-province, and local student associations

2. (10 Points) Based on the following description of a shipment made by the a parcel shipment company, identify all the states and exit transitions and then develop a state machine diagram

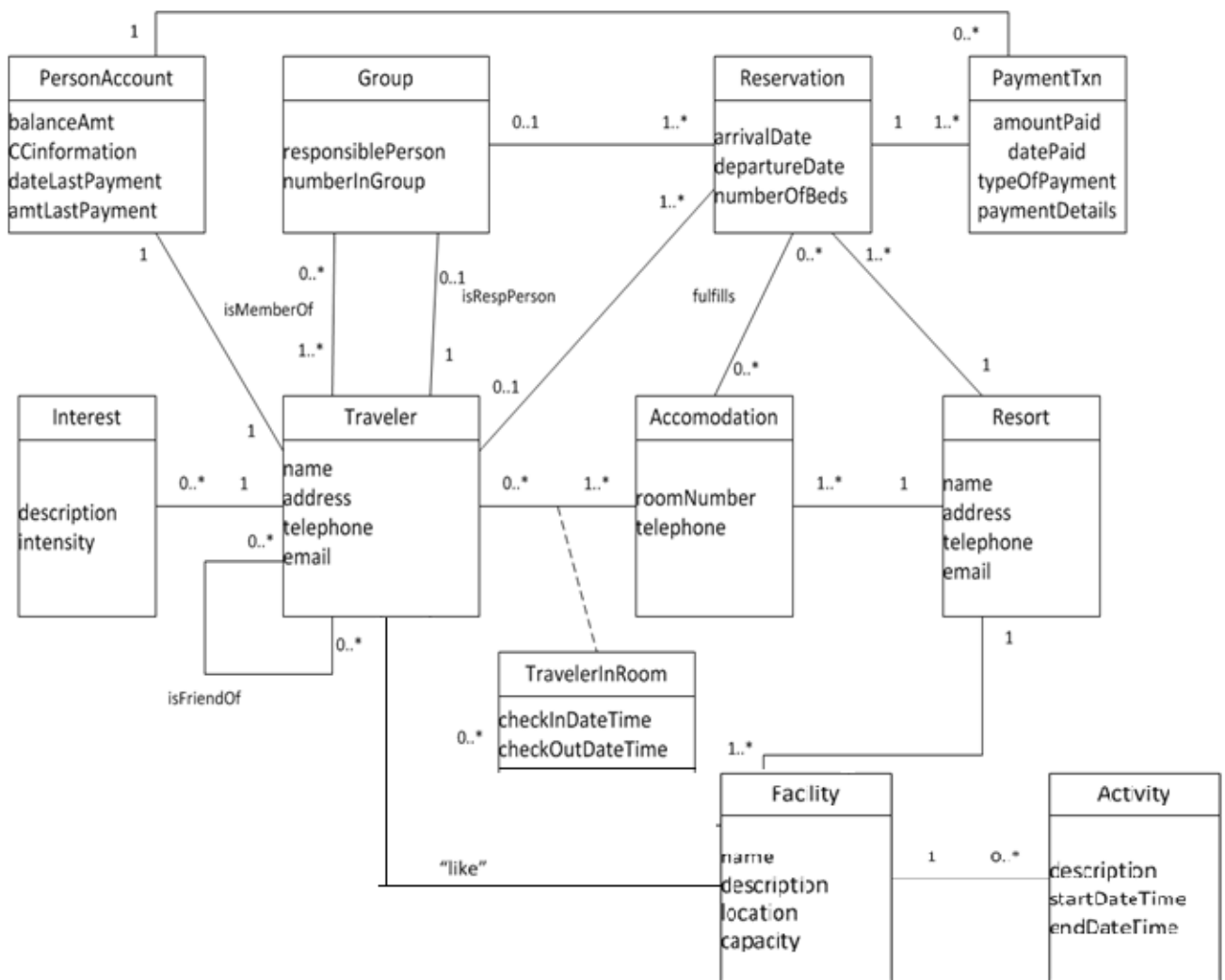
*A shipment is first recognized after it has been picked up from a customer. Once in the system, it is considered active and in transit. Every time it goes through a checkpoint, such as arrival at an intermediate destination, it is scanned and a record is created indicating the time and place of the checkpoint scan. The status changes when it is placed on the delivery truck. It is still active, but now it is also considered to have a status of 'delivery pending'. After it is delivered, the status changes again.*

*From time to time, a shipment has a destination that is outside of the area served by the company. In those cases, the company has a working relationship with other courier services. After a package is handed off to another courier, it is noted as being handed over. In those instances, a tracking number for the new courier is recorded (if it is provided). The company also asks the new courier to provide a status change notice after the package has been delivered.*

*Unfortunately from time to time, a package gets lost. In that case, it remains in an active state for two weeks, but it is also marked as misplaced. If after two weeks the package hasn't been found, it is considered lost. At that point the customer can initiate lost-package procedures to recover any damages.*



3. Examine the following partial class diagram for a web-based travel booking system, and answer questions a, b, and c below:



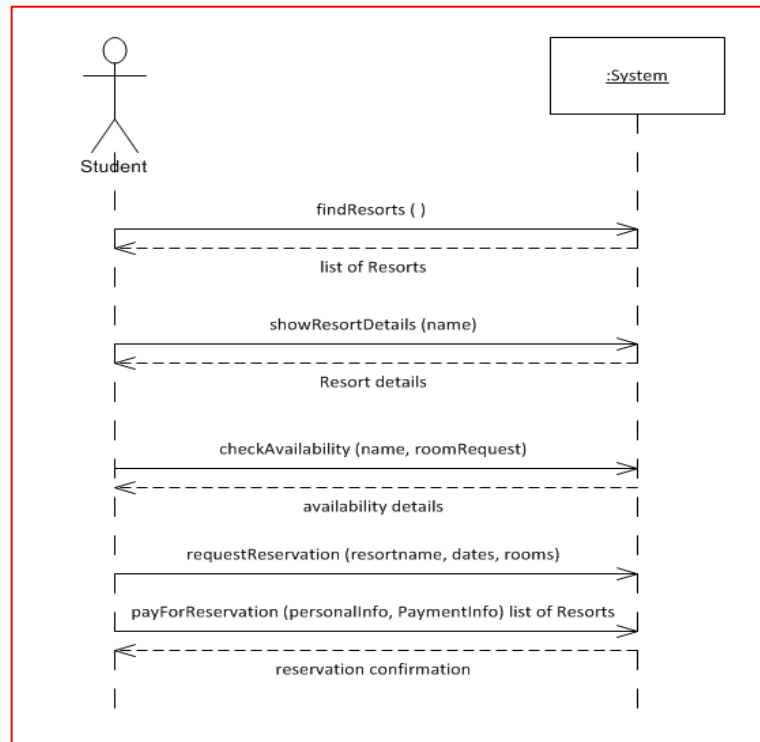
For questions a. and b. Review classes that are associated with a reservation in the domain model to understand the flow of activities and repetition involved.

- (10 Points) There is a "Book a Reservation" use case. Write a **fully developed** use case description, for this, and draw a SSD.
- (10 Points) Another use case is "Add new resort". Write a **fully developed** use case description, and draw an activity diagram for this use case.
- (10 Points) A Reservation might be Open, Fulfilled, or Cancelled. Draw a state machine diagram showing the state and transitions for a reservation object.

a.

<b>Use case name:</b>	Book a reservation	
<b>Scenario:</b>	Book a reservation online	
<b>Triggering event:</b>	Student wants to make a reservation and initiates booking	
<b>Brief description:</b>	Student searches or browses the resorts. He/she checks accommodations and availability. Then he/she makes a reservation for either a single person or a group. (Allow both individual and group reservations.)	
<b>Actors:</b>	Student	
<b>Related use cases:</b>	Create individual account (includes Traveler) Create group account Add person to group (new use case previously undefined)	
<b>Stakeholders:</b>	Student, Resort	
<b>Preconditions:</b>	Traveler and Individual account must exist Group must exist (for group reservation) Resort must exist	
<b>Postconditions:</b>	Reservation must be created and associated with Resort and Group/Traveler Payment must be created and associated with IndividualAccount	
<b>Flow of activities</b>	<b>Actor</b>	<b>System</b>
	1. Find a resort (search or browse)  2. Check availability of accommodations  3. Choose reservation type 4. Enter reservation details 5. Enter reservation payment information	1.1 Display resort and accommodation information 2.1 Display accommodation availability information  4.1 Make reservation 5.1 Verify individualInfo and paymentInfo Create PaymentTransaction for Reservation Display confirmation Send email confirmation
<b>Exception conditions:</b>	5.1 Payment transaction fails	

## System Sequence Diagram

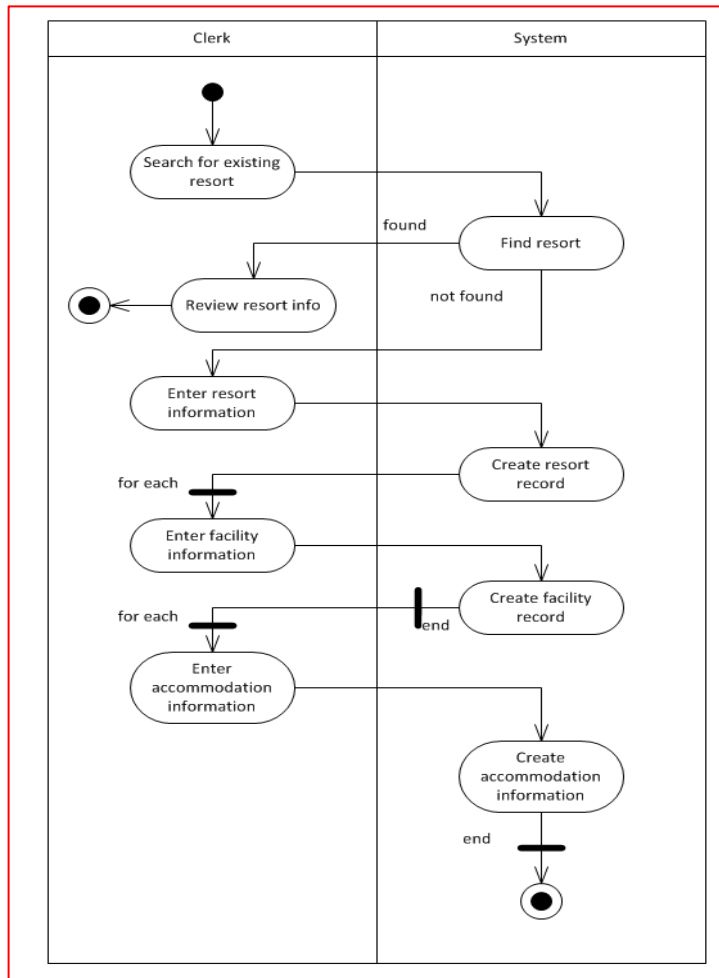


b.

<b>Use case name:</b>	Add a new resort	
<b>Scenario:</b>	Add a new resort	
<b>Triggering event:</b>	A new resort contracts with SBRU to participate in the vacation program	
<b>Brief description:</b>	A new resort is added with descriptive information. Information about the accommodations available to this program are entered. Information about the facilities available for activities in this program are entered	
<b>Actors:</b>	SBRU clerk, Resort employee	
<b>Related use cases:</b>		
<b>Stakeholders:</b>	SBRU management, Resort management	
<b>Preconditions:</b>	Resort must not already exist	
<b>Postconditions:</b>	Resort is created Facilities are created and associated with the resort Accommodations are created for this resort	
<b>Flow of activities</b>	<b>Actor</b>	<b>System</b>
	1. Verify that the resort does not exist 2. Enter resort description 3. (loop) Enter facilities information	1.1 Check database for resort information 2.1 Create resort record 3.1 Create facilities record

	4. (loop) Enter accommodations information	4.1. Create accommodations record
<b>Exception conditions:</b>	1.1 Resort already exists	

Activity Diagram:



C.

