Chapter 4: Use Case Analysis

Answer to Your Turn 4-1: Campus Housing

Student responses will vary. One example of a set of use cases:

Use Case Name: Apt. Owner adds or deletes apartment		ID: _1_	Importance Level: High

Primary Actor: Apt. Owner

Short Description: This use case describes how an apt. owner adds or deletes an apartment from the database of available apartments.

Trigger: Apt. owner has an apartment available or an apartment becomes unavailable

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Apartment owner name	Apt. Owner	Apartment owner name	Apt.DataStore
Apartment address	Apt. Owner	Apartment address	Apt.DataStore
Number of bedrooms	Apt. Owner	Number of bedrooms	Apt.DataStore
Number of bathrooms	Apt. Owner	Number of bathrooms	Apt.DataStore
Monthly rent	Apt. Owner	Monthly rent	Apt.DataStore
Restrictions	Apt. Owner	Restrictions	Apt.DataStore

Major Steps Performed	Information for Steps
1. Apartment owner contacts service	Apartment information
1.1. When apartment become available,	
1.1.1. Apt. Owner fills out form with appropriate information.	Completed Form
1.1.2. Apartment Information is entered into database.	Apt info (datastore)
1.2. When apartment becomes unavailable:	Request to delete apartment
1.2.1. Service deletes apartment	

Use Case Name: Student Database Search		ID: _2_	Importance Level: High
Primary Actor: Student			
Short Description: This use case describes how a student searches the database for an apartment			
Trigger: Student decides to search for an apartment			
Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Number of bedrooms	Student	Apartment Found	Student
Number of bathrooms	Student	Apartment address	Student
Monthly rent	Student	Number of bedrooms	Student
Restrictions	Student	Number of bathrooms	Student
		Monthly rent	Student
		Restrictions	Student
		Address	Student
		Owner Contact Info	Student

Major Steps Performed	Information for Steps
1. Student browses to Apartment Search website.	Website address
2. Student enters search criteria.	Student search criteria (bedrooms, bathrooms, rent, restrictions) Search results
3. Student contacts Apartment Owner(s) for selected apartments.	Search results Apartment Owner contact information

Answer to Your Turn 4-2: Tune Source Digital Music Download

Student responses will vary. The steps for 'Search and Browse Tunes', and 'Purchase Tunes' are provided in the text. No steps were provided for the 'Promote Tunes', so students will have to fill out the steps and the information for the steps.

Use Case Name: Promote Tunes		ID: _2_	Importance Level: Medium
Primary Actor: Marketing Department Staff			
Short Description: This use case handles the periodic creation of targeted promotions.			
Trigger: Time for marketing department to update current promotion/specials Type: <u>External</u> / **Temporal**			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Customer Favorites	Favorites File	New Web Promotions	Targeted Promotions File
Customer Purchases	Sales File	Promotional Emails	Customer

Major Steps Performed	Information for Steps
1. Review files of recent additions to customer favorites list.	Favorites File
2. Review records of recent customer purchases.	Sales File
3. Create New Web Promotions.	Results of review of Favorites & Sales File New Web Promotions
4. Create email message to promote to promote sales and specials; send email to customers.	Web Promotions Promotional Email message

Answer to Concepts in Action 4-A: Building a Bad System?

1. One reason the problems were missed is that customers were not considered as a source of inputs to the system. The agents were certainly documented, but no one realized that the customers might bypass the agents and directly use the system.

2. The analysts or agents might have researched similar sites to determine that customers could indeed use the system directly. The team might have conducted a walk-though with personnel other than agents and analysts, which may have brought the activity to light.

3. Instead of abandoning a system that worked fairly well, the company might have optimized it instead. Recognizing that customers use these types of sites, they might have made this so useful to the customer that the site, and the company name, became known as the best of place to go when searching for a home.

Solutions to End of Chapter Questions

1. *What is the purpose of developing use cases during systems analysis?*

    The purpose of a use case is to illustrate the activities that are performed by the users of the system, and is often thought of as an external or functional view of a business process. Use cases are developed during systems analysis activities to help the analysts better understand the situation and simplify later modeling steps in the analysis phase.

2. *How do use cases relate to the requirements stated in the requirements determination?*

    A use case describes in more detail the key elements of the requirements definition. Use cases will provide more detail on the processes by which the system is to meet those requirements and the data the system needs to capture and store.

3. *Describe the elements of the use case's basic information section.*

    The basic information section includes use case name, number, a brief description, and the trigger for the use case.

4. *What is the purpose of the input and outputs section of the use case?*

    The purpose of the inputs and outputs section is to list all inputs and associated sources, and outputs and associated destinations for the proposed system.

5. *What is the purpose of stating the primary actor for the use case?*

    The purpose of stating the primary actor is to identify the external entity that initiates the event to which the system responds. The primary actor may be a user, or a system event, or another system.

6. *Why is it important to state the importance level for a use case?*

    The importance level of a use case identifies the relative significance of the use case in the overall system. Use cases are classified as high, medium, or low. This classification allows for immediate identification of essential use cases.

7. *What is the distinction between a temporal trigger and an external trigger? Give two examples for each.*

   A temporal trigger is based upon the passage of time. Examples are time to pay a bill; library book is due. External triggers are things outside the system to which the system must respond. Examples are a customer placing an order; customer payment is received.

8. *Why do we outline the major steps performed in the use case?*

   Steps are outlined in order to determine the sequence of events that must occur to complete the use case. An outline of the sequence of events aids in ensuring that all steps are included.

9. *What is the purpose of an event-response list in the process of developing use cases?*

   The purpose of an event-response list is to provide an intermediate step between the requirements definition and use cases. Building an event-response list allows for a review of the requirements definition and associated actions.

10. *Should a use case be prepared for every item on the event-action list? Why or why not?*

    Initially, every event on the event-list should be translated into a use case. This results in a tentative set of use cases. Use case development can be viewed as an iterative process, and further analysis may allow the developer to discard or add use cases to the set.

11. *Describe two ways to handle a situation in which there are a large number of use cases.*

    One possibility for the large number is that the use cases are not defined at the right level of detail. If the use cases are too 'small' we do not need to bother to create a use case, but simply use the information in the requirements definition itself to build the process and data models. If there really are more than eight or nine major use cases, the use cases are grouped together into packages of related use cases. These packages are then treated as the major processes for the top level of the process model with the use cases appearing on lower levels. The packages could also be treated as separate systems and modeled as separate systems.

12. *What role does iteration play in developing use cases?*

    It is best to develop the major use cases and their basic information first so that no major events are forgotten. Then, the inputs and outputs are added and the detailed steps are outlined. As the inputs and outputs associated with each step are identified,

more details may be identified. It is not practical to try and get every detail right the first time through the use case, so we cycle through the steps iteratively until the use case is complete.

13. Describe the best way to validate the content of use cases.

Role-playing can be useful in confirming the validity of the use case. If the users execute the steps of the use cases using the written steps of the use cases as a "script" for actions to take, they will be able to find errors or confirm the correctness of the use cases.

Solutions to End of Chapter Exercises

A. Create a set of use cases for the process of buying glasses from the viewpoint of the patient.

Use Case Description

Use Case Name: See eye doctor	ID: _1_	Importance Level: High
Primary Actor: Patient		

Short Description: This describes how a patient obtains a prescription for new eyeglasses.

Trigger: Patient requires new eyeglasses.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
_____ _____		_____ _____	
_____ _____		_____ _____	
_____ _____		_____ _____	
_____ _____		_____ _____	
_____ _____			
_____ _____			

Major Steps Performed	Information for Steps

Use Case Description

Use Case Name: Select and order eyeglasses		ID: _2_	Importance Level: High
Primary Actor: Patient			
Short Description: This describes how a patient chooses and orders new eyeglasses.			
Trigger: Patient has new eyeglass prescription and visits eyeglass store.			
Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
_____ _____		_____ _____	

Major Steps Performed	Information for Steps

Use Case Description

Use Case Name: Purchase glasses		ID: _3_	Importance Level: High
Primary Actor: Patient			
Short Description: This describes how a patient purchases new eyeglasses.			
Trigger: New eyeglasses are ready and patient picks them up and pays for them. Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____		_____ _____ _____ _____ _____ _____ _____ _____ _____ _____	

Major Steps Performed	Information for Steps

B. Create a set of use cases for the following dentist office system…

Use Case Description

Use Case Name: Patient makes or changes an appointment	ID: _1_	Importance Level: High

Primary Actor: Patient

Short Description: This describes how a new appointment is made or an existing appointment is changed.

Trigger: Patient calls to schedule new appointment or change an existing appointment.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____		
_____	_____		

Major Steps Performed	Information for Steps

Use Case Description

Use Case Name: Collect new patient information		ID: _2_	Importance Level: High
Primary Actor: Patient			
Short Description: This describes how new patient information is collected when a new patient arrives for appointment.			
Trigger: New Patient arrives for appointment. Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____		

Major Steps Performed	Information for Steps

Use Case Description

Use Case Name: Send appointment reminder card	ID: _3_	Importance Level: Medium

Primary Actor: System

Short Description: This describes how reminder cards are sent to patients two weeks prior to appointment.

Trigger: Time to send reminders two weeks before scheduled appointments.

Type: External / **Temporal**

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
_____ _____		_____ _____	
_____ _____		_____ _____	
_____ _____		_____ _____	
_____ _____		_____ _____	
_____ _____		_____ _____	
_____ _____			

Major Steps Performed	Information for Steps

C. Complete the use cases for the dentist office system in exercise B by identifying the steps and the data flows within the use cases.

Use Case Description

Use Case Name: Patient makes or changes an appointment	ID: _1_	Importance Level: High

Primary Actor: Patient

Short Description: This describes how a new appointment is made or an existing appointment is changed.

Trigger: Patient calls to schedule new appointment or change an existing appointment.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Patient name	Patient	Scheduled appointment	Patient
Desired appointment	Patient	Scheduled appt	Appt file
Appointment to change	Patient	Available appts	Patient
Available appointments	Appointment file	Check Patient name	Patient file
Existing Patients____	Patient file	_____	_____
_____	_____	_____	_____

Major Steps Performed	Information for Steps
1. Get patient's name. Check patient name with Patient file.	Patient name Patient File
2. If new patient, get address and phone number and enter in new patient file entry.	Address Phone number New Patient information
3. If this is an appointment change, find current appointment in appointment file, and cancel it.	Appointment to change Existing Appointments
4. Get desired appointment time and match with available appointments in Appointment file. When a suitable time is found, enter scheduled appointment in Appointment file and confirm with patient.	Desired appointment Available appointments Scheduled appointments

Use Case Description

Use Case Name: Collect new patient information		ID: _2_	Importance Level: High
Primary Actor: New Patient			
Short Description: This describes how new patient information is collected when a new patient arrives for appointment.			
Trigger: New Patient arrives for appointment. Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
New Patient information (Includes name, address, Phone number and medical History)	Patient	Patient Information	Patient file
_____	_____	_____	_____

Major Steps Performed	Information for Steps
1. When the patient arrives, determine if he/she has been seen before in this office. If they have not, have them fill out a patient information form. 2. Use the information on the patient information form to update and complete the patient's entry in the patient file.	Patient status Patient name Address Phone number Medical history

Use Case Description

Use Case Name: Send appointment reminder card		ID: _3_	Importance Level: Medium

Primary Actor: System

Short Description: This describes how reminder cards are sent to patients two weeks prior to appointment.

Trigger: Time to send reminders two weeks before scheduled appointments.
Type: External / **Temporal**

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Current date	Calendar	Appt notification card	Patient
Scheduled appts	Appt file	_____	_____
Patient Contact Info___	Patient file_	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____		

Major Steps Performed	Information for Steps
1. Each day, find the appointments in the Appointment file for the day two weeks ahead.	Current date Scheduled appointments
2. Prepare and mail appointment notification card to all patients having appointments.	Name Address Appointment Appt notification card

D. Create a set of use cases for an online university registration system…

Use Case Description

Use Case Name: Maintain department course offerings		ID: _1_	Importance Level: High

Primary Actor: Department/Staff

Short Description: This describes how department staff reviews course offerings, adds new courses, deletes existing courses or changes existing course information.

Trigger: Departments must prepare upcoming course offerings.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Course offering changes	Department Staff	Updated course offerings	Course offering file
Course offerings	Course offering file		
_____	_____	Course offering list	Dept staff
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____		

Major Steps Performed	Information for Steps
1. Department staff requests course offering list for the department. List of course offerings is generated.	Course offering list request Department identifier Course offering list
2. New course information is entered.	New course information Course offering update
3. Courses to delete are entered.	Course number to delete Course offering update
4. Course modifications are entered.	Course number to modify Course changes Course offering update

Use Case Description

Use Case Name: Maintain student enrollments	ID: _2_	Importance Level: High
Primary Actor: Student		

Short Description: This describes how students review the listing of courses available for enrollment, add and remove courses from their schedules, and review their schedules.

Trigger: Student needs to enroll in courses.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Available course request	Student	Avail course list	Student
Available courses	Available course file	Stdt enrlmt	Enrlmt file
Course enrollment request	Student	Student schedule	Student
Fee payment status	Fees file	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
		_____	_____

Major Steps Performed	Information for Steps
1. Student requests list of available courses. List of available courses is generated.	Available course request Available course list
2. Student adds course to current schedule. Fee payment status is checked and "total hours enrolled" is checked. If OK, course is added to student schedule.	Course ID, Enrollment request Stdt enrlmt Fee payment history Available courses Student Schedule
3. Student removes course from schedule.	Course ID Enrollment request
4. Student reviews current scheduled courses.	Student ID Student schedule

Use Case Description

Use Case Name: Course enrollment reports		ID: _3_	Importance Level: High
Primary Actor: Staff			
Short Description: This describes how department staff prints various reports on courses and enrollments.			
Trigger: Department staff needs information on courses and course enrollments. Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Report request_____	Staff	Report requested	Staff
Course information_____	Course offerings File	_____	_____
Enrollment information_	Enrollment File	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Major Steps Performed	Information for Steps
1. Staff enters report request. 2. Requested report is generated.	Report request Course offerings information Enrollment information Report requested

E. Create a set of use cases for A Real Estate Inc….

Use Case Description

Use Case Name: Maintain house seller information		ID: _1_	Importance Level: High

Primary Actor: Seller

Short Description: This describes how house sellers enter into a contract to sell and provide information on a house to sell.

Trigger: House seller wishes to sell house.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Sales Contract	Seller	NewSales Contract	Contract file
House information	Seller	New_House	Offered Houses file
_____ _____		New_House_MLS	Multiple listings file
_____ _____		_____ _____	
_____ _____		_____ _____	
_____ _____		_____ _____	

Major Steps Performed	Information for Steps
1. Seller signs contract and provides house information.	Sales contract House information (seller)
2. Offered House database is updated with new listing information.	House information (seller) House information (new AREI listing)
3. Data on new listing is transmitted to Multiple Listings file.	House information (AREI Offered Houses) House information (new MLS listing)

Use Case Description

Use Case Name: Generate Buyer's Request	ID: _2_	Importance Level: High
Primary Actor: Buyer		
Short Description: This describes how buyers request and receive information on offered houses.		
Trigger: Buyers request information on available houses. Type: **External** / Temporal		

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Buyer information form	Buyer	AvailableHouse info	Buyer
House information request	Buyer	Buyer info	Buyer file
CurrentHouse information	Offered houses file	_____	_____
MLS_House information	Multiple listings file	_____	_____
_____	_____	_____	_____
_____	_____		

Major Steps Performed	Information for Steps
1. If buyer requests information on a specific house, retrieve that information from the offered house file.	Buyer specific house search request House request search results
2. If buyer wants to search for several prospective houses, obtain a buyer information form from buyer. Search offered houses file and Multiple Listing file for houses matching buyers specifications and provide house information to buyer.	Buyer information form Buyer multiple house search request House information search results

F. Create a set of use cases for a Video Store…

Use Case Description

Use Case Name: Maintain Video inventory		ID: _1_	Importance Level: High
Primary Actor: Video Supplier			
Short Description: This describes how to add and remove videos from video database.			
Trigger: New video arrives or damaged videos are returned by customer. Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Video descriptive information Damaged video information _____ _____ _____	Video Supplier Manager _____ _____ _____	Video removed from stock New video to rent _____ _____ _____	Video file Video file _____ _____ _____

Major Steps Performed	Information for Steps
1. When new videos are received, enter video descriptive information into video file. 2. When damaged videos are returned, the video entry should be removed from the video file.	New video descriptive information AVS video code & descriptive info Damaged video information AVS video code and delete request

Use Case Description

Use Case Name: Maintain customer data		ID: _2_	Importance Level: High

Primary Actor: Customer

Short Description: This describes how customer information is established and overdue fine status is eliminated.

Trigger: Customer wants to rent a video.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Customer information	Customer	Customer record	Customers file
Overdue/damaged video fee	Customers file	AVS Customer card	Customer
Overdue/damaged fee payment	Customer	Fee payment	Customers file
_____	_____	_____	_____
_____	_____	_____	_____

Major Steps Performed	Information for Steps
1. When a new customer wants to rent a video, he/she provides customer information. A record is entered into the customer file and the customer is given an AVS customer card.	Customer information AVS Customer card
2. Customer removes overdue/damaged video fee by paying overdue fine.	Customer information Overdue video fee Overdue fee payment

Use Case Description

Use Case Name: Maintain video rental data	ID: _3_	Importance Level: High

Primary Actor: Customer

Short Description: This describes how video rentals are entered and returns and overdue videos are recorded.

Trigger: Videos are rented and returned and become overdue.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Video to rent	Customer	Rented video	Rentals file
AVS card	Customer	Overdue fee assessment	Customer file
Video to return	Customer	Returned video	Rentals file
Overdue video	Customer file	Overdue video notice	Customers
Video information	Video file	_____	_____
Customer data	Customer file		

Major Steps Performed	Information for Steps
1. Customer selects video to rent and provides AVS customer card. If there are no overdue videos and no unpaid overdue fees, the rental is entered in the rental file.	AVS Customer Card Video to rent Rented video Overdue video fee
2. Customer returns rented video.	Returned video Current Video rentals
3. Video becomes overdue. An overdue fee is assessed and added to customer file.	Current date Video due date Overdue fee assessment Overdue video notice
4. Manager produces report and contacts customers with videos that are two or more days overdue.	Current Date Rented and overdue videos Customer information for overdue rentals

G. Create a set of use cases for the following health club membership system…

Use Case Description

Use Case Name: Maintain members		ID: _1_	Importance Level: High

Primary Actor: Member

Short Description: This describes how club records new member information, makes member changes to member information, and removes members.

Trigger: Need to add, modify, or delete members.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Member information	Member	New member record	Members file
Member information updates	Member	Member updates	Members file
Member to delete	Management	Member to delete	Members file
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____		

Major Steps Performed	Information for Steps
1. New member joins club and provides descriptive member information.	New member information Current membership information
2. Existing member provides updates to member information.	Member information changes Member information updates Current membership information
3. Members whose memberships have expired and who will not renew plus members who have died or moved away are removed from member file.	Member to delete Current membership information

Use Case Description

Use Case Name: Maintain memberships		ID: _2_	Importance Level: High
Primary Actor: Manager			
Short Description: This describes how to record new memberships and process membership renewals.			
Trigger: Need to record memberships and renewals.			
Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
New membership details	Manager	Updated Membership record	Membership file
Renewal request	Manager	Renewal offer	Member
Member record	Members file	Renewal details	Manager
Current Membership record	Membership file	_____	_____
Member renewal	Member	_____	_____

Major Steps Performed	Information for Steps
1. When new membership is established, manager provides details of agreement (length and fee).	Membership details Membership record
2. Contact members one month prior to membership expiration and offer renewal terms.	Current Date Current membership details Renewal details Renewal offer
3. Current member renews membership.	Member information Renewal information Membership details

Use Case Description

Use Case Name: Maintain club usage records	ID: _3_	Importance Level: High

Primary Actor: Member

Short Description: This describes how to record and report on member usage of the club.

Trigger: Need to record member visit to club and produce manager's reports.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Member ID	Member	Member visit	Club usage file
Current date	Calendar	Usage report	Manager
Current time	Calendar	_____	_____
Membership record	Membership file	_____	_____
Usage detail update	Club Usage File	_____	_____

Major Steps Performed	Information for Steps
1. Member checks in when using club. Member ID, time, and date of visit are recorded.	Current Date Current Time Member ID Visit date Visit time
2. Manager wants report of heavy users and report of inactive members.	Report request Member visit records Member information

H. Create a set of use cases for the Picnics-R-Us catering system…

Use Case Description

Use Case Name: Establish picnic contracts		ID: _1_	Importance Level: High
Primary Actor: Customer			
Short Description: This describes how customers receive information and book picnics.			
Trigger: Customer needs to establish picnic contract. Type: **External** / Temporal			

Major Inputs:

Description	Source
Picnic request	Customer
Standard Menu	Menu file
Special Requests	Customer
Special pricing details	Owner
Customer Details	Customer

Major Outputs:

Description	Destination
Standard menus	Customer
Special requests	Owner
Special pricing info	Customer
Initial picnic contract	Contract file
Customer information	Customer file

Major Steps Performed

1. Customer calls with picnic request and receives standard menu.

2. Customer has special request and received owner's cost estimate.

3. Customer decides to book picnic and an unconfirmed picnic contract is recorded in contract file.

Information for Steps

Picnic request
Standard menus

Special request
Special pricing

Customer details
Unconfirmed picnic contract

Use Case Description

Use Case Name: Maintain picnic contracts		ID: _2_	Importance Level: High
Primary Actor: Contracts			
Short Description: This describes how customer receives contract information and may confirm contract.			
Trigger: Picnic contracts must be communicated to and confirmed by customers. Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Potential contract	Contract file	Confirmed/Unconfirmed contracts	Contract file
Signed contract	Customer	Deposit details	Contract file
Contract deposit	Customer	Contracts/customer report	Owner
Report request	Owner	_____	_____
Customer information	Customer file	_____	_____

Major Steps Performed	Information for Steps
1. Customer is sent contract details.	Unconfirmed picnic contract
2. Customer returns signed contract with deposit information.	Signed contract Contract deposit information Confirmed picnic contract
3. Owner requests reports for marketing purposes	Report request Picnic Contracts information Customer information Requested reports

Use Case Description

Use Case Name: Order supplies		ID: _3_	Importance Level: Medium
Primary Actor: System			
Short Description: This describes how owner reviews upcoming picnics and orders required supplies.			
Trigger: Time to prepare for next weekend's picnics (weekly). Type: External / **Temporal**			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Scheduled picnics	Contracts file	Food/supply requirements	Owner
Menu food/supply needs	Standard menu file	_____	_____
_____	_____	_____	_____
		_____	_____

Major Steps Performed	Information for Steps
1. Identify picnics for upcoming weekend.	Current Date Scheduled Picnics Weekend Picnics
2. Determine food and supply requirements by reviewing upcoming weekend's picnics, picnic menus, and food/supply inventory.	Weekend Picnics Standard menus Standard menu food and supply needs Food qty-on-hand Supply qty-on-hand

I.   Create a set of use cases for the Of-the-Month-Club…

Use Case Description

Use Case Name: Maintain club memberships		ID: _1_	Importance Level: High

Primary Actor: Customer

Short Description: This describes how to create, change, and delete members.

Trigger: Customer wants to enroll in one or more club memberships.   Type: **External** / Temporal

Major Inputs:

Description	Source
Member information	Member
Member updates	Member
Member to delete	Management

Major Outputs:

Description	Destination
Member details	Members file
Updated member	Members file
Deleted member	Members file

Major Steps Performed	Information for Steps
1. Customer calls and wishes to establish club membership. Member details are recorded.	New member request Member details
2. Customer needs to change member details (such as address).	Member information changes Member updates
3. Remove expired member from the club records.	Member to delete

Use Case Description

Use Case Name: Maintain memberships		ID: _2_	Importance Level: High
Primary Actor: Member			

Short Description: This describes how to add, renew, or delete memberships.

Trigger: Customer enrolls in one or more clubs.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Club request	Member	Membership record	Membership file
Club details	Club file	Renewal notice	Member
Club renewal	Member	Renewal membership	Membership file
Club term expiration	Calendar	Membership to delete	Membership file
Club cancellation	Member	Inactive status___	Membership file_
Membership details	Membership file	_____	_____

Major Steps Performed	Information for Steps
1. Member selects one or more clubs to join and membership in the club(s) is established.	Club request Club details Membership record
2. Member is sent renewal notice when end of club term nears.	Current Date Membership details Club term expiration Renewal notice
3. Member renews or cancels membership.	Club renewal or cancellation Club details Membership details Renewal membership Membership to delete
4. Membership expires without being renewed.	Membership details Current Date Inactive membership status

Use Case Description

Use Case Name: Maintain club		ID: _3_	Importance Level: Medium
Primary Actor: Management			
Short Description: This describes how clubs are added, changed. or deleted.			
Trigger: Management wants to establish, change, or eliminate clubs. Type: **External** / Temporal			

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Club details	Management	New club details	Clubs file
Club changes	Management	Updated club details	Clubs file
Club to delete	Management	Deleted club details	Clubs file
_____	_____	_____	_____
_____	_____	_____	_____

Major Steps Performed	Information for Steps
1. Management establishes new club.	Club details
2. Management wishes to change features of a club.	Club updates
3. Management wishes to eliminate a club.	Club to delete

J. Create a set of use cases for a university library borrowing system…

Use Case Description

Use Case Name: Maintain books			ID: _1_	Importance Level: Medium

Primary Actor: Management

Short Description: This describes how to record owned books and books that are lost or removed due to damage.

Trigger: Books are to be added or removed from holdings. Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Book details	Manager	New book entry	Book holdings
Books to remove	Manager	Book to delete	Book holdings
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Major Steps Performed	Information for Steps
1. New books are added to book holdings.	Book details New book entry
2. Lost or damaged books are removed from book holdings.	Book(s) to remove Book to delete

Use Case Description

Use Case Name: Process borrowed book	ID: _2_	Importance Level: High
Primary Actor: Borrower		

Short Description: This describes how to check out and return books.

Trigger: Borrower wishes to check out or return book.

Type: **External** / Temporal

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Book to check out	Borrower	Borrowed book info change	Borrowed book file
Borrower ID	Borrower	Returned book info change	Book holdings
Validation information	Valid Borrower file	Overdue status	Overdue file
Overdue book info	Overdue file	_____	_____
Fine due info	Fines file	_____	_____
Returned book	Borrower	_____	_____
Borrowed book info	Borrowed book file	_____	_____

Major Steps Performed	Information for Steps
1. Borrower presents book(s) to check out. ID is checked for validity against valid borrower file. Overdue books and fines are checked. If OK book is lent to borrower.	Book to check out Borrower ID Validation information Overdue books info Fines due info Borrowed book info
2. Borrower returns book. Book is removed from borrowed file and returned to holdings. If overdue, book is removed from overdue file.	Returned book Borrowed book info Borrowed book info change Returned book info change Overdue file status

Use Case Description

Use Case Name: Process overdue books.	ID: _3_	Importance Level: High

Primary Actor: System

Short Description: This describes how to identify overdue books, notify borrower, assess fines.

Trigger: Book lending term expires.
Type: External / **Temporal**

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Lending term	Borrowed book file	Overdue entry	Overdue file
Borrowing details	Borrowed book file	Overdue notice	Borrower
Fine assessment	Manager	Fine entry	Fines file
_____	_____	_____	_____
_____	_____	_____	_____

Major Steps Performed	Information for Steps
1. Borrowed book lending term expires. Entry is made in overdue file.	Current date Book lending term Overdue status change
2. Borrowed book is more than two weeks overdue. Fine is assessed.	Borrowing details Fine entry
3. Every week, overdue book notices are sent to borrowers.	Borrowing details Overdue book notice
4. Manager specifies fine for lost or damaged book.	Book damage entry Fine entry
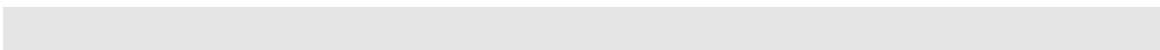
Answers to Textbook Minicases

1. a.   The Analysis phase of systems development has three primary goals: (1) to understand the current system (called the As-Is system); (2) to identify ways to improve the situation; and (3) to develop a conceptual design for the new system (called the To-Be system). To achieve these goals, we will be spending time talking to each of you to learn about how the current system works, the problems you experience, the improvements you'd like to see in the new system, and your ideas for what the new system should be like.

b.   To help us understand your business processes, we utilize a tool called a use case. The use case represents the activities that are performed by users of your system and the information needed to accomplish these activities. The use case is prepared from the perspective of the client, and we will be working closely with you and your staff to understand the essential activities of your system. We will meet with you and your staff several times to refine our use cases and to add appropriate details as our understanding of necessary activities and information grows richer. Our use cases will form the foundation of our next steps in analyzing your current system and designing the new system.

Use cases are used to assist the users to represent the business processes in an informal, verbal way rather than with the formality of data flow diagrams. This technique can be used to help develop process models of both the As-Is and the To-Be systems. Use cases use a three-stage process that develops the information needed to create data flow diagrams. First, the users identify the major activities that the users perform (referred to as use cases). Then the team works through several steps to develop a more detailed outline of the activities performed within each use case and the inputs and outputs needed to perform each step