**C.U. TEXTBOOK INVENTORY SYSTEM**

The purpose of the Textbook Inventory System at the Computer University (CU) bookstore is to track and monitor textbook orders for classes at the university. Each university academic department submits initial data about courses, instructors, textbooks and projected enrollments to the bookstore on a Department Requisition.

When the bookstore personnel receive a requisition, they sort the requested textbooks by ISBN, then generate Purchase Orders and send them to each appropriate publisher. The bookstore then files the requisition and a copy of the purchase orders in two separate files before sending the original copy of the purchase orders to each publisher.

The textbooks arrive at the bookstore, accompanied by a Packing Slip. This packing slip is checked and verified against the purchase order by the bookstore. The verified packing slip is then stamped “verified” and sent to the Accounting department for payment.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**EXERCISE – MOGULS‘N STUFF SKI SCHOOL SCHEDULING SYSTEM**

All student requests for lessons are placed into the Request file folder. The Request folder is checked daily to see if any lessons have a sufficient number of students to warrant a class. If the number of students is greater than the minimum number needed to hold a class for a particular lesson, the clerk checks the list of available instructors. The clerk contacts the instructor, providing the lesson information and number of students. The instructor either accepts or rejects the teaching assignment. If the instructor refuses, the clerk will contact the next available instructor.

When an instructor accepts, the clerk prepares the class list using the Instructor, Request, and Lesson files. The original class list is filed in the file cabinet.

First thing the next day the clerk sends a copy of the class list to the instructor. The class list contains the date, time, location, type of lesson, number of students and their names. The clerk also sends a class confirmation letter to each student.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**Golden Links Member System**

At the end of every April, the Golden links Golf club finishes their recruitment drive for new members. Before filing the member application forms, the Recruitment Officer checks the member file to make sure they have not been a member before. Occasionally an old member re-applies, and the old member’s record is simply updated. For most of the new member applications, the Recruitment Officer then creates membership cards to be sent out the new members. When the membership card has been made, the card is mailed to the member and the new Member application is filed.

Once the members have their membership cards, they can participate in the many facilities that Golden Links has to offer. Members can request lessons from the Golf Pro to improve their game. All lessons are given in half hour blocks. The member asks the Shop clerk to book a lesson with the Golf Pro for particular date and start time. The Shop clerk fills out a brief description of what the member wishes to learn or improve. The Shop clerk then checks to make sure that they are a member in good standing. The clerk also checks the Lesson Folder to see if the requested date and time are available. If the requested time is booked, then the Shop clerk offers the next available date and time to the member. The member can accept this date and time or request a new preferred date and time. When everything is agreed to, the Shop clerk files the lesson request in the lesson folder and confirms with the member the agreed Lesson date and time.

Every morning when the Shop Clerk arrives, all the lessons for that day are collected and the member’s name, skill level and lesson description as well as the time and location are used to prepare the current day’s Lesson Schedule. The Lesson Schedule is used by the Golf Pro to find each member and deliver the lesson.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**CSAW TV BROADCAST SCHEDULING SYSTEM**

At CSAW T.V., June MacDonald, the scheduler, is responsible for the daily timing of all broadcasts. This includes programs, advertisements and station identification slides. Three weeks in advance, the Program Manager sends a list of programs to be shown to the scheduler **AFTER** the Purchasing Department has collected the program length and content information from the distributor into the Program file. This information is provided to the schedule clerk.

Upon receipt of the program listing, June uses this information and the information from the Program file to schedule the programs. At the same time, she selects the appropriate Station Identification for that time of the year. She then enters all this information into the Schedule file. Each workday, June uses the Schedule file to calculate and update the available time for advertisements. She then informs the Sales Department of the available times she has for advertising.

Later, the Sales Department sends the scheduler a list of the advertising they have sold. She then schedules the sold advertising into the available time slots. When the schedule deadline has been reached there are instances when all the available advertising space is not sold. In these situations, June chooses the appropriate number of National Film Board Vignettes from the Vignette library to fill in the gaps and updates the Schedule file accordingly. She then prints out the completed schedule and sends it to the Broadcast Operator.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**EXERCISE – INVOICE PROCESSING SYSTEM**

Invoices arrive from various vendors daily. This triggers the following events that take place within the Accounts Payable Department. The information on the invoice is checked against the original purchase order and original packing slip. The purchase order contains the packing slip number from which the original packing slip can be retrieved. Both of these documents are retrieved from separate file folders in the file cabinet in the Purchasing Department. If the information matches, the invoice is then authorized for payment and a cheque issued to the vendor. The Vendor’s account balance is updated with the amount paid on the invoice. The invoice is then stamped “paid” and filed within the Accounts Payable Department.

If the invoice is rejected, it is sent to the Purchasing Department to be reprocessed at a later date. The Accounts Payable clerk is responsible for producing a listing of all invoices paid. This Audit Trail report is then sent to the Finance Managers at the end of every month for reconciliation purposes.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**PEEK MAGAZINE INC. SUBSCRIPTION HANDLING SYSTEM-easy**

Peek Magazine Inc. has a department dedicated to handling subscriptions. When a subscriber mails a subscription request, the subscription clerk verifies the subscription request to ensure that all the necessary information has been included and that the correct payment amount has been enclosed.

If the subscription request is verified as correct and complete, the subscription clerk: [1] forwards the payment to the Finance department, [2] checks the Special Offer file to check that any special offers associated with the subscription request [i.e., free tube of wax for subscribing to Ski Week], and [3] files the original subscription request. Any subscription requests with special offers are flagged for later processing.

Once this is completed, the subscription clerk then inputs the subscriber information that appears on the subscription request form, into the Subscriber file. If the subscriber is a repeat subscriber, the clerk verifies and updates the subscriber information. At the end of each day, the subscription clerk prepares mailing labels for that day’s processed subscription requests and sends these labels to the Production department.

Each day, the subscription clerk prepares a three-part Special Offer Requisition form for any subscription request with special offer item[s] to be sent to the subscriber. The subscription clerk sends this form to the Shipping department for processing.

If the subscription request is incomplete or incorrect, the subscription clerk contacts the subscriber. If the subscriber cannot be contacted immediately, the subscription clerk files these incomplete requests with a status of “Incomplete”. When the subscriber provides the needed information, the subscription clerk enters this information onto the original subscription request form, and then processes the subscription request using existing procedures.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**EIDER-WON ORDER PROCESSING SYSTEM - easy**

The Sales Department clerk opens the mail and checks the customer orders for completeness. The customer information in the order is updated in the Customer records. Incomplete orders are sent to the Customer Relations Department clerk, who flags them as “Incomplete” and returns the order to the customer with an explanation of the problem.

The orders with a “complete” status are sent to the Accounting Department, who accesses the Customer file to check on their credit rating. For the orders that do not pass the credit rating process, the Accounting Department creates a refusal letter and sends this letter and the “rejected” customer order to the customer.

The Accounting Department forwards the “Approved” orders to the Purchasing Department, who check the Inventory file to ensure that there is enough inventory to fill the order. If there is not enough inventory to completely fill the order, the Purchasing Department issues a Purchase Order to get the necessary inventory. This is done by accessing the Supplier file to determine which suppliers carry the product. The Purchasing Department sends the Purchase Order to the appropriate supplier. The “unfilled” order with their copy of the Purchase Order is filed and the customer is sent a backorder notice.

If there is sufficient inventory available, the Shipping Department receives the order and prepares a four-part packing slip. One copy is returned to the Sales Department. A two-part invoice is created; one part is sent to the Accounting Department with a copy of the packing slip.

The Shipping Department pulls the inventory items from the warehouse, adjusts the inventory levels and ships the order to the customer with a copy of the packing slip and the top copy of the two-part invoice. The fourth copy of the packing slip is filed within the Shipping Department. The customer order is stamped "Finished" and filed.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**Umbra's VEHICLE MAINTENANCE SYSTEM**

Umbra's Auto Sales Inc. is the leading West Coast dealership of Phantom Motors. Although Umbra's Auto Sales gives relatively good prices for both new and used cars, it has always had a reputation for over aggressive salespeople. One of the dealership strengths is its repair shop, which is recognized for both high quality service and fair prices.

When a customer brings their vehicle in for repair, the Service Manager completes a work order form with the customer and obtains the customer's signature. Later, the Service Manager then checks the customer file for credit history and vehicle file to obtain the history of the vehicle, marking anything of importance on the work order form. The Service Manager then accesses the mechanic file, which contains information about the specialty of each mechanic, to determine which mechanic[s] should be assigned to the vehicle. The mechanic number is recorded on the work order form. The Service Manager then hands the “Assigned” work order to the designated mechanic.

The assigned mechanic will verify the problem diagnosed by the Service Manager and call the customer with the estimate to fix the vehicle. The mechanic will note the customer response on the work order form for information purposes. The mechanic will go to the Parts Department to obtain the needed parts to fix the vehicle. The mechanic then records the part number, the quantity, and the unit price for each part onto the work order form and the Inventory Sheet. Once the repairs are completed, the mechanic records the time spent on each activity and totals both the parts and labor columns.

The mechanic then gives the completed work order form to the Service Manager, who reviews the repairs, provides additional comments as needed and verifies the totals. The Service Manager then files the completed service order until the customer arrives to pick up their vehicle.

When the customer returns to pick up their vehicle, the Service Manager reviews the repairs and total with the customer. The customer pays for the repairs. The Service Manager records the payment on the Work Order then gives a receipt along with a copy of the work order form. The customer obtains their keys and drives off.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**Muther Truckers Ltd. - Maintenance System**

Truck drivers for Muther Truckers Ltd. are expected to keep their trucks in good repair. Due to the distance of the hauls, two drivers are assigned to each load. Only one driver is assigned a truck, the other driver 'floats' from truck to truck as the relief driver and is not assigned to any specific truck. When drivers quit or retire, trucks become available, and drivers complete a request to be assigned to a truck. Usually the driver with the most seniority and best safety record is awarded a new truck when the company purchases one.

The Office Manager assigns a truck and updates the driver information for that vehicle into the truck log file. The assigned driver is responsible for his/her truck log. The Office Manager also gives each assigned driver a paper copy of this truck log which is to be kept with each vehicle at all times.

If a driver detects a malfunction with his/her assigned vehicle, he/she will complete Repair Request form and send this completed form to the company repair shop so an appointment time and day can be established. This Repair Request is filed within the repair shop. When an appointment time for the truck has been set, the repair supervisor will notify the driver.

When the driver brings the truck to the repair shop, the repair shop supervisor checks the paper truck log with the contents of the truck log file, pulls the Repair Request, and obtains any additional information necessary to prepare the work order. The Repair Request is stapled to the paper copy of the work order.

The repair supervisor assigns a mechanic to the job and updates the work order to reflect this. The assigned mechanic diagnoses the trouble, obtains the necessary parts from the Parts department, updates the parts inventory by cross-referencing the work order number against the part number, and performs the repairs.

When the repairs are completed, repair supervisor enters the labor cost and part cost information onto the work order, updates the truck log file, and prints a paper copy of the truck log for the driver. The repair supervisor then files the top copy of the completed work order and sends the remaining copy to the Accounting department.

Monthly, the Office Manager accesses the truck log file to prepare the necessary reports for the Regional Manager in Toronto.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**Happy Dragon Electronics – Order Processing System**

Happy Dragon Electronics has a department dedicated to handling Orders. When a customer sends an Order, the Order clerk verifies the Order to ensure that all the necessary information has been entered.

If the Order is verified as correct and complete, the Order clerk then inputs the Customer information that appears on the Order form, into the Customer file. If the Customer is a repeat Customer, the clerk updates the Customer information. If the Order request is incomplete or incorrect, the Order clerk files the incomplete Order with a status of “Incomplete”.

The Order clerk enters the new Order and then checks the Discount file for each electronic item on the order for any Discounts associated with the electronic item, and files the original Order request. Any Order with Discounts is flagged as “Discounted”.

Once a week the Order clerk contacts all Customers that have order with an “Incomplete” status. An Incomplete Order notification is sent to each customer with a copy of the incomplete Order. When the Customer provides the needed information, the Order clerk enters this information onto the original Order request form, and then processes the Order request using existing procedures.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram

**Hotel Reservation System**

The guest arrives and heads to your reception/front desk. The guest is identified and has their details checked through a search of reservation by code or customer name. The clerk will verify if the check-in is early or late by verifying with the hotel info file and the appropriate response is followed. Once found the staff will confirm details such as pre-payment or payment upon arrival. A credit card will be used to secure a damage deposit. Once all payment needs are satisfied, the clerk will create a magnetic key card for customer. Front desk staff will give the guest an introduction to the hotel. The guest will take note of amenities and regulations etc. and ask any questions. The clerk updates the room status to occupied, and the reservation to checked in.

Late check in (after 11pm) for payment on arrival guest can be arranged by contacting the hotel and paying for room. All unpaid reserved rooms are released after 11pm on the day of check in.

Early check in is managed by availability – check in is 2pm, but if a guest arrives after 10am on day of reservation and housekeeping has done a complete turnaround on the room and released it for service, they can check in early. For non-plus members there is a $25 charge. Free for plus members. If wanting to check in early than 10 am the guest must pay for another full day rental fee at the rate of their existing reservation.

A reservation cancellation informs the hotel that a previously reserved room is once again available, and helps the front desk more effectively manage its room inventory. Reservation Cancellation, like any guest service, require the hotel staff to be polite, courteous, and effective as possible. Cancellation policy is full refund if requested 24 hours prior to reservation day. No refund will be granted after that period, but a 15% rate reduction coupon can be requested by guest for future use.

Guest requests checkout. Desk clerk makes inquiries about quality of products and services. Guest returns key to desk clerk. Room is put into a status of ready for cleaning. Credit card fee is released after housekeeping confirms satisfactory condition of the room.

**Required:**

**SDLC**

1. Apply the ADEPT Analysis Framework to this case
2. Draw the CONTEXT LEVEL Data Flow Diagram for this case
3. Draw the LOGICAL SYSTEM LEVEL Data Flow Diagram for this case
4. Write the System Level DFD Narratives
5. Draw the Entity Relationship Diagram