

IFSM300 - Final Project – Case Study Possibilities

Summary

You will need to create Feasibility Study and System Design documents for the Final Project about a worthy Case Study. It is best to pick a business with processes that are not currently done with Information Technology and consider how its business processing could be improved with an Information System. You will need to develop several graphics to describe the processes using either: ERD, Flowchart, or Data Flow Diagrams.

Case Study 1: Plyco Corp.

You begin your first industrial job and are hired by Plyco Corporation, manufacturers of agricultural building products. You are hired as the business office manager. After your first week you go home with a bad headache after discovering how disorganized and low tech the company is run. All order entry, bookkeeping, shipping, and invoicing are performed with paper and pen. All paper is circulated by passing it between people which usually requires the customary coffee break and smoke outside. The only computer in the whole corporation is sitting on the president's desk. He uses it primarily for afternoon games of solitaire, freecell, and minesweeper.

You decide it is time to promote computers at this "stone age" company and the first project you will attempt will be setting up a database for the order entry, billing, shipping, and inventory department. You ask the president if you can borrow his computer while he is gone playing golf for the afternoon. He offers you his whole office for the afternoon and would like you to install some games that his son gave him while you are at it. You discover he has MS Office on the computer and get to work. Opening PowerPoint you create the ERD for the following business process.

The company has only two major product lines. Barn windows which come in four different sizes (Tiny, Small, Medium, and Large) and hog barn doors with two different sizes (Piglet and Hog).

1. A customer purchases product by submitting purchase orders via U.S. Mail and FAX.
2. The Order Entry Clerk receives a purchase order and creates a sales order.
3. Each sales order contains one or more inventory items.
4. Each sales order represents an addition to accounts receivable.
5. Each sales order generates one shipping invoice.

Case Study 2: Hafa Adai Video Store

Hafa Adai Video is a Guam video store. The store has been moved to a new location and has lots of cash for improvements after the FEMA payout from the last typhoon to hit the island. One of the improvements will be updating their movie rental processing. Transactions have been conducted on a cash basis and customer records have been kept manually using a log book. Hafa Adai Video does not have membership plans nor do they require deposits.

A team of consultants was hired to develop preliminary information requirements based on interviews with Hafa Adai Video store managers and clerks. The preliminary information requirements (i.e., what data is currently captured, what is the current organization of the data, what events need to be supported by the system) have been documented in the textual narrative in the remainder of this document.

Your assignment is to take the next steps in the analysis/design process:

1. Refine the initial information requirements;
2. Develop the conceptual data model;
3. Translate the conceptual data model into the logical design (for a relational model);

Hafa Adai Video Operations

The standard time period for a movie rental is four days after the borrowed movie is issued. However, "new release" movies are due back one day after the borrowed movie is issued. The movie must be returned by

9PM on the due date. Failure to return the movie by 9PM on the due date results in a late charge of \$3.00/day on the customer's account. If the customer fails to return the borrowed movie by 1PM on the second day after it is due, then it is time to contact the customer by telephone and email to request return of the items.

A rental is the borrowing of a movie by a customer in exchange for cash. The rental rate for new releases is \$3.00 and \$2.00 for all other movies. Customers can rent more than one movie at a time.

Movie information:

A movie can be either in videocassette or DVD format. Each movie has an identification number, a title, a release year, a genre (western, action, drama, comedy, science fiction, family, new release), and names of key actors/actresses. There can be more than one copy of each movie in both formats.

A movie copy can be rented, it can be sitting on the shelf waiting to be rented, it can be overdue from rental period, or it can be reserved for a customer.

Customer information:

Customers have an identification number, name, address, telephone, and email. Hafa Adai Video would like to track the renting history of its members. To provide better customer service Hafa Adai Video would also like the following features incorporated in the database: customer reservation of movies for a specific date, customer searching for movies by title, and by actor/actress.

There are a number of standard events that the Video Rental system must accommodate. The following table provides a sample set of events that the Video Rental system must support:

Sample Events for the Video Rental System

Event 1	Customer requests movie for rental from Hafa Adai Video store.
Event 2	Customer makes rental payment.
Event 3	Hafa Adai Video store clerk adds new movie to store inventory.
Event 4	Hafa Adai Video store manager retires old movie copies from store inventory. (Any Type Delete from inventory)
Event 5	Customer pays late charge.
Event 6	Hafa Adai Video store manager submits a rental rate change to a movie. (New Release Usual Type)
Event 7	Customer returns movie to Hafa Adai Video store.
Event 8	Hafa Adai Video store clerk needs to produce a report of current movie rentals from the store.
Event 9	Hafa Adai Video store clerk adds a new customer to the store database.
Event 10	Hafa Adai Video store clerk changes customer's information.
Event 11	Hafa Adai Video store manager needs to view a list of active customers.
Event 12	Customer requests a movie to be reserved from Hafa Adai Video store.

Case Study 3: Casino Cashier Automation

Description

This final program may utilize the casino scenario described below.

The [Saipan Casino](#) would like to consider creating a chip counting program for the cashier. So chip colors are

- Black = \$5
- Blue = \$20
- Red = \$50
- Green = \$100
- Gold = \$500

The USA Internal Revenue Service has modified the tax code such that US Residents will now have tax withheld from all winnings at a rate determined by the residency of the gambler. This will require customers to retain receipts when they buy chips. The customer will need to submit all receipts when they cash out at a cashier. The winnings are calculated by subtracting the receipt total from the chip value total.

The customer will be asked for their residency by showing either a passport or drivers license. If the customer is a USA, Guam, or CNMI resident they will need to provide their social security number. If the customer has lost they are simply paid cash for all chips. If the customer has won, the following information needs to be requested and calculations made to determine withholding tax based on the latest IRS regulations:

1. U.S. & Guam Residents will have 20% withholding tax on winning.
2. CNMI Residents will have 10% withholding tax on winnings.
3. All foreign residents will have no withholding tax on winnings.

The cash out is determined by subtracting the tax from the total chip value.

The program must display a set of formatted results to include all entered data to include receipts total, chip quantity by color, chip total value, winnings, tax withheld, and amount cashed out. The final results will be printed as a well formatted customer receipt.

Design Document Requirements:

The design document needs to include the following explicitly labeled items:

1. Program specifications
2. Algorithm design showing mathematical equations in computer algebra format.
3. Flowchart for main program or functions.
4. Design for text used in input and output displays.
5. Known test data for which you know the results for all possible conditional paths.

Program Implementation:

If you know a programming language feel free to attempt to implement your design using it. If you want to learn a programming language please enroll in CMIS102 which is the first step.

If you understand flowchart principles, consider implementing your design using Scratch an interesting graphical programming language created by MIT. <https://scratch.mit.edu/>