

ISYS 328/ INFO 628

SUMMER 2014

GROUP PROJECT -- BPUB

Due Date: Phase I, Friday, August 1, 2014, Beginning of Class
 Phase II, Friday, August 8, 2014, Beginning of Class

WHAT IS THE PURPOSE OF THIS PROJECT?

The objective of this project is to design a database to support all operations of the application described in this document. Assume that the database you design will be the only data available for running this business. This project requires you to:

- Identify the entities for an application
- Identify the attributes contained in each entity
- Define the relationships between entities
- Create conceptual and logical data models
- Design queries to answer questions

The description in the rest of this document explains the organization, its objectives, and its overall business processes. However, you may need additional information to be able to create a data model for this application. It is up to you to ask questions or research similar systems to gain that additional information. If necessary, consult accounting textbooks to gain greater understanding of the accounting needs of this type of organization.

WHAT IS THE APPLICATION?

A group of students within the College of Business has the opportunity to start a student book exchange at their university. A student book exchange allows students to sell their used textbooks directly to other students without going through a formal bookstore. The book exchange is a consignment center where students drop off books at the end of one semester, and then receive payment (or their books back) after the beginning of the next semester. The name of the book exchange is tentatively "Better Prices for Used Books" or BPUB. Your particular task is to design the database.

General System Requirements

- All books will be sold on a consignment basis. This means that BPUB will not actually buy used books from students to resell; it will simply act as an agent to bring buyers and sellers together. BPUB will make money by charging a consignment fee based on a percentage of the sales price. The seller will receive 80% of the sales price, and BPUB will receive 20% of the sales price.
- BPUB will take possession of books to be sold. It is expected that most students will choose to place their books on consignment at the end of the semester, and BPUB will hold the books until the following semester, when most students buy their books.

- No one is sure how many students will choose to use BPUB versus the formal bookstore, but the book exchange should be able to handle several thousand books each semester. The university has 15,000 full-time students (part-time students have been calculated into the full-time student figure, so you can assume 15,000 total students taking at least 4 classes a semester).
- Sellers of books are responsible for determining the sales price for books they want to sell.
- Sellers will receive a copy of a contract that lists the book, the sales price, consignment fee, and terms for returning the book or their receipt of a check.
- After a specified time (e.g., three weeks after classes start), all sellers of unsold books must be notified that their book was not sold. They then have a period of time in which to pick up their books, after which BPUB may sell the book to a book distributor.
- Sellers may ask for and receive a check for any book that has been sold. That means that each seller may receive multiple checks.
- BPUB will obtain from the university a copy of all book titles that will be required for courses the following semester. This list will include the book title, authors, edition, course title and number, and professor name.

A general description of the “turn-in” and sales process for obtaining books for consignment follows:

- The seller will take his/her books to the book exchange location. There s/he will receive a copy of a blank contract form to be filled out – one for each book. The legal format and content of the contract has not been finalized, but a first draft of a form just showing the required data is shown in Figure 1. Note that the form includes the sales price for the book. The desired sales price will be placed on each book. The seller decides the desired sales price.

Seller Information				
Name				
Address				
City		State		Zip
Telephone				
Email				
Book Information				
Book Name				
Edition		Year		
Author(s) Name				
ISBN				
Desired Price				
Seller Signature				
BPUB Signature				

Figure 1-- Seller Contract Form

- From that point on, each book must be tracked so that BPUB can tell which sellers' books have been sold. It is not clear at this time how this tracking should be done. BPUB is expecting suggestions from you as to how to track individual books to a specific seller.
- Books will be stored until the beginning of the following semester, at which time the book exchange will be open to buyers.
- Buyers will enter the book exchange area and be able to browse the book stacks (it hasn't been decided yet whether the books should be organized by course, book title, or book author last

name) to choose which books they would like to buy. They will then take their chosen books to a checkout area.

- The total sales amount must be totaled. The university intends to have these transactions covered under its non-profit tax status. Since the funds will be used by non-profit organizations, it appears that sales tax will not have to be charged. The university lawyer is investigating this issue to be sure, but at this time you do not have to include data stored for sales tax.
- Once a book is sold, record of the sale and when the sale occurred must be made so that the seller can receive her/his money.
- If the book is not sold three weeks after the start of the semester, the seller must be notified by mail so that s/he can come and pick up her/his book. If the book is not claimed within 30 days after notification, the book may be sold to a distributor.

To allow for adequate business decision-making, controls, and accountability, the following information must be available at a minimum:

- During the "turn-in" (end of semester) period, a report showing how many books were received, and the total sales value of those books must be available at the end of each business day.
- During the sales (beginning of semester) period, total receipts from buyers must be accounted for daily.
- During the sales period, a record of each check made out to a seller and the total amount disbursed each day should be available in a report.
- A current inventory list showing books, seller, and price should be available at all times.
- Checks written to sellers must be linked to the books that were sold. In other words, a record of a check should include reference to a record of the books that were sold.

Information Required by Users

The database should support just the consignment operations of BPUB. Your system represents the complete data available for decision making at BPUB. For example, the data from your system should allow BPUB management to inquire:

- How many books are waiting to be sold to students?
- How many copies of a specific book are in inventory?
- How much is currently owed to sellers?
- How many books have been sold to distributors within the last year vs. how many books have been sold to students?

PROJECT REQUIREMENTS AND DELIVERABLES

You will complete the deliverable for the project in two phases. In the first phase, you will deliver your database design. In the second phase, you will develop queries based on a particular design implementation to answer a set of questions I will provide you.

Conceptual Data Model (90 points) – Phase I

Create a conceptual data. Use EER concepts to reasonably extend the model's documentation value. Your conceptual data model should include all entities, attributes, relationships, and cardinalities (max and min). Be sure to document any assumptions you make regarding your conceptual data model. The conceptual data model is due August 1, 2014.

Logical Data Model (90 points) – Phase I

Create a logical data model in 3NF using relational schema notation. You must include referential integrity arrows in your logical data model. The logical data model should be consistent with your conceptual data model (i.e., all names must be identical). Be sure to document any assumptions you make regarding your logical data model. The logical data model is due August 1, 2014.

Design Repository (20 points) – Phase I

Create a design repository to document the metadata for your database design. The repository must include definitions for each entity and data types for each attribute. You can also document any assumptions for the project in the design repository. The design repository is due August 1, 2014.

Queries (150 points) – Phase II

For this deliverable, you will use MySQL as your DBMS. I will give you the scripts and data to create a populated database. Your team will develop queries to answer the assigned questions. I will provide the detailed requirements for this phase after you submit the conceptual data model, logical data model, and design repository on August 1, 2014. The queries deliverable is due on August 8, 2014.