**BookStore System**

Team ID: Team 2

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**PHASE 1:**

**Problem Statement:**

The purpose of the database is to store the data of all the BookStores affiliated with Follet company.It includes information such as Follet Bookstores associated to which Universities in Texas,Details of the textbooks available and their author , Cost Saving textbook options and Inventory Management.

**Description:**

* This is a BookStore database meant to be accessed by student's of the Universities that are associated with Follet company to search textbooks,update their student information and either can buy or rent books.
* Since Follet has many BookStores,the database stores all the individual BookStore information and the University to which each of the BookStore belongs to.
* Student information is segregated based on the University they are studying at.
* Information related to the types of textbooks available are at each BookStore is also saved.There are 2 types of textbooks available at BookStores-Standard and Customized.
* Standard textbooks for any particular course is available in all BookStores.
* Customized textbooks are available only for the students of a particular University.So only that University BookStore will have the customized books.It wont be available in any other BookStore associated with any other University.
* Student's name,University name,Institution ID,contact number,Institution email address and the Major of the student will be stored.
* Student BokStore account information is saved such as their Instituion Name,Institution ID,Books bought in past,Books rented and returned in past,books currently rented to the student,Due date to return the rented book,extend the return date of the rented book or buy the rented book options available for the student.
* The details of buying or renting a book from Bookstore of a student are saved based on the University BookStore.
* Each University BookStore derives the count of each textbooks to be kept in Inventory following the below procedure:
* Gets the list of all the courses offered in a particular semester by the University
* Number of students enrolled in each course
* Textbooks required for each of the courses.
* BookStores calculates 40% of the enrolled students fro each course and keeps only that many textbooks in Inventory for a particular course.
* Buying a book includes Institution Name,Institution Id of the student,ISBN Number of the book,Name of the book,Course name for which the book is needed,Major of the student,type of textbook(Standard or Customized),Price of the book.
* Renting of a book includes Institution Name,Institution Id of the student,ISBN Number of the book,Name of the book,Course name for which the book is needed,Major of the student,only Standard type of textbooks can be rented,Price of the book,return date of the book.
* Based on the type of option selected i.e. either point number 8 or point number 9, the purchase of a textbook can be classified as Sell Books or Rented Books.
* If BookStore is out of the textbooks requested by student, Students are notified about the same.

**Queries:**

1. Display all the University info and Student info studying in respective University.
2. Display University info and Students info of Student named “muffa”
3. Display Student\_Info,Standard\_book info and date when bought and quantity info related to students who have bought Standard Books from BookStore with BookStore ID = 1
4. Display University Name and ID and Count of Standard Books only when more than 1 Standard Book is available.
5. Display Student name and no of books bought by student only if student bought more than 1 book .
6. Display all the Standard textbooks info of a particular author available at BookStore.
7. Display Customized Textbooks info with code “121” and University name to which it belongs.
8. Display all Standard Textbooks available at a BookStore.
9. Show all the books name rented by a student whose student ID is 1004 and BookStore ID is 1.
10. Display all the Textbooks name available for Fall Semester for specific Major at a particular University.

**Assumptions:**

There are 10 tables in total in this database and the description of each table with its attributes and keys are as follows:

Table 1: BookStores

This table stores all details of the BookStores in Texas.

|  |  |
| --- | --- |
| BookStores | |
| **Bookstore\_ID** | B\_University\_name |

Table 2: University

This table stores all the details about the University associated with Follet BookStore.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| University | | | | |
| **University\_ID** | University\_Name | U\_BookStore\_ID | City | State |

**Other keys**: U\_BookStore\_ID is the foreign keys for this table which refers to BookStores table

Table 3: Students

This table stores all the Student details studying in Universities associated with Follet Bookstore.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Students | | | | | |
| **Student\_ID** | Password | S\_University\_ID | Stud\_Name | Email\_Address | S\_Major |

Table 4:Semesters

This table stores all the semesters information of each University

|  |  |  |
| --- | --- | --- |
| Semesters | | |
| **Semester\_ID** | Semester\_Name | Sem\_University\_ID |

**Other keys**: Sem\_University\_ID is the foreign keys for this table which refers to University table

Table 5: Courses(Inventory Management)

This table stores all the details of the customers who are account holders with the bank.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Courses | | | | | | |
| **Course\_ID** | **C\_Semester\_**  **ID** | **C\_University\_ID** | C\_Textbook\_Name | Major | C\_Type\_  Textbook | Student’s\_enrolled |

**Other keys**: C\_University\_ID, C\_Semester\_ID would be the foreign key in this table, referring to University and Semester tables.Course\_ID, C\_University\_ID, C\_Semester\_ID together form a composite key.

Table 6: Standard\_Books

This table stores all the Standard type of books available in each BookStore

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Standard\_Books | | | | | |
| **ISBN** | Textbook\_Name | Author | Std\_Price | No\_of\_books\_available | **Bookstore\_ID** |

**Other keys**: Bookstore\_ID would be the foreign key referencing the BookStores table.

Table 7: Customized\_Books

This table stores all the Customized type of books available in each BookStore available only for specific University.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Customized\_Books | | | | | |
| **SKU\_Code** | Textbook\_name | Author | Cust\_Price | **BookStore\_ID** | No\_of\_Books\_available |

**Other keys**: University\_ID would be the foreign key referencing the University table.

Table 8: TextBooks

This table is used to store the count of each textbooks available in a Bookstore alongwith its type saved.

|  |  |
| --- | --- |
| TextBooks | |
| **Book\_Code** | **Bookstore\_ID** |

**Other keys**: Bookstore\_ID would be the foreign key referencing the BookStores table. Together they form a composite key.

Table 9: Buy

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Buy | | | | | | |
| **Student\_ID** | **Book\_**  **Code** | **Bookstore\_ID** | Buy\_Price | Date\_sold | Qty\_  bought | Type\_  textbook |

This table is used to store details of textbooks sold at a BookStore

**Other keys**: Student\_ID, Bookstore\_ID would be the foreign key referencing the Students and BookStores tables. Together they form a composite key.

Table 10: Rent

This table is used to store details of textbooks rented at a BookStore

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rent | | | | | | |
| **Student\_ID** | **ISBN** | **BookStore\_ID** | Rent\_Price | Date\_rented | Qty\_  bought | Renewal | |

**Other keys**: Student\_ID,ISBN and Bookstore\_ID would be the foreign key referencing the Students ,Standard\_Books and BookStores tables. Together they form a composite key.

**Relationship types:**

1:1 - Any Bookstore can be associated with only one University

1:N – A University can have many students.

A University can have multiple semesters.

A University can have multiple course in a semester.

A BookStore can have multiple Customized Books

N:M – Many Bookstores have many Standard Books

Many Students can buy many textbooks

Many Students can rent many textbooks

Conclusion:

In Phase 1,learned the following:

Gathering requirement and documenting it clearly.

Coming up with core queries for the system.

Making Database Schema and defining key attributes.

Assuming Cardinality Ratio for the relationships.

The requirements and table structure should be flexible to accommodate changes without affecting the system is the improvement everybody should focus on.