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BOOKSTORE MANAGEMENT SYSTEM

"A man is what he reads" - Joseph Brodsky. Books are an essential part of everyone's life. When it comes to books there are many people who still prefer a real bookstore rather than an online or a virtual one. The business is still thriving and has many complications of it's own which can be dealt with the help of a database management system.

Our aim is to build a database system that maintains data related to a bookstore having various branches and different types of goods. The system will record the various purchase of the books and merchandise, their availability and its related data and the store's employee details.

FUNCTIONALITIES IN THE SYSTEM

1. Generate a report to find out which books were sold the most / least in the last 3 months.
- This can be used to see that the books don't go out of stock and to know what type of books people prefer.

2. A report listing the details of the books that haven't been sold (not even one) last year.
- These books can be put on clearance sale

3. The type of merchandise that got sold the most in the past three months.
- Get more of that products in turn increasing revenue

4. List of employees sorted according to the years of experience they have with the store.
- For rewards

5. Report on what category of books were rented the most in the last 6 months.
- To increase profit by stocking more books for rent.
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6. Identify the branch that grossed more profit till date.
- More goods can be stocked in that store that has max sales.

7. List the members who have made the top 10 purchases among the bookstore members in the past year.
- To provide gift vouchers for special discounts.

8. Give a report on the total no. of books and merchandise (irrespective of the categories) sold till date.
- To gauge the sales made.

DATA DESCRIPTION

Products

Attributes : PROD_ID, Selling Price, Cost Price, Category (Type_Code, Cname), Count, Name

a. Books

There are many categories of books in the bookstore including textbooks for different subjects like Biology, Computer Science, Physics, Chemistry, Maths, Literature, multiple genres of novels and magazines on Technology, Fashion and Lifestyle. We also sell refurbished books . We identify the books and their categories by their category name, a unique ID, author(s) and a type-code (this tells us to which category it belongs to). We maintain the date history of purchase and sales along with the rental details of the book.

Attributes : Author

b. Merchandise

Promotional products other than books that are sold in the store fall under merchandise. The goods that are sold are T-Shirts, Water Bottles, Caps, Jackets, Shades, Backpacks, Gift Products (Jewellery, Keychains) and Electronic accessories (Headset, Charger, Phone cases). Every category of merchandise has a unique ID, name, type, price and a brand that helps to identify it.

Attributes : Brand

Customers

The customers can have a membership with the branch and get a discount of 5% for every purchase made in the bookstore. Annual membership fee of $25 is charged. If the customer signs up for the membership, they will also be provided with a Mem_ID. We store the customer details such as name, ID, phone number, address and SSN. We have to keep track of their purchases.

Attributes: CID, Phone Number, Name, SSN, Address (Apt, Street, State, City, ZIP).

Rental

The textbooks in the bookstore can be rented by the customers for a duration of 3 months. This is done at a nominal charge of 15% of the actual price of the book. If the book is returned beyond the due date, the customer would be charged an additional $5 per day delayed. The information regarding the customer such as name, SSN, contact number and address, who have rented the textbook is stored.

Employee

Assisting staffs are the people who work in the store (assuming no part-time employees) and also take care of customer queries. The information pertaining to each employee such as name, SSN, address, phone number, the Date of join and designation is stored. A cashier manages billing and looking up stock details and can also update the book / merchandise information. Every branch has one store manager who will have complete authorization and supervises the employees and also will also maintain the employee's leave / working hours details.

Attributes : Name, SSN, Address, Phone Number, Date of Join, Designation

Branch

Each branch has an ID, address and a phone number to identify it along with other related information. The expenses (Maintenance and unforeseen costs, Income tax) obtained in every branch needs to be stored. With this information, it would be easier to find out which store yields maximum profit.

Attributes: BID, Address, Phone No, Expenses (Type, Cost, Date)

EER DIAGRAM FOR THE SYSTEM

Notes:

1. The designation of the employee can be an assisting staff, cashier or a manager.
2. The cname and type code attribute in Category on Products refers to the categories mentioned in the product's description.

(Please refer EER_Bookstore_Final.pdf for the graded diagram, the corrected final version of the EER diagram and the relational mapping)

SIMPLE ENGLISH VERSION OF THE QUERIES

1. List the book ID's of the books which were sold the most/least in the last 3 months sorting them in order.

2. Find the book id or book names of those which have not been sold out for the last one year.

3. Give the merchandise type code of those products which were sold the most in the past 3 months.

4. List the ssn, name, branch id of the employees associated with the store, sorted according to the years of experience.

5. Give the category name and count of the books that were rented the most in last 6 months by sorting them..

6. Give the branch id of the branch which has grossed the highest profit till date.

7. Give the customer id, name and their total purchase amount of the customers who made the top 10 purchases among the bookstore members in the past one year.

8. Give the count of the number of books and merchandise that has been sold till date.