DBMS Mini Project

Assignment - 3

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Problem Statement: Online Book Store with an Inbuilt Genre Classification System

Application Name: EZBook

Problem Statement Description:

The current issue faced by physical bookstores is the fact that classification is primarily manual and is prone to human errors. We aim to make the classification of books into their genres more automated and user friendly. This advancement will tailor to the needs of the new generation of readers.

According to the Gartner-Hype Cycle, Data classification is one of the up and coming technologies here to stay for 2-5 years.

Task-1: Complete Working model of the Database application

Simple Queries

- 1. Given the bill number, display the payment details of that transaction
 - a. Query: select billdate,totalamount,modeofpayment from Bills where billnumber=403;

- 2. Given the customer ID, find the title of the books bought
 - a. Query: SELECT C.CustomerId , B.bnameFROM BUYS C , BOOKS B WHERE C.isbn = B.isbn;

customerid		bname
	-+	
1	.	Inner Circle
1		A Time to Embrace
1		Omerta
2	.	Cycle of the Werewolf
2	.	When We Were Very Young
3		Omerta
3		Inner Circle
3		A Time to Embrace
3		When We Were Very Young
4		Inner Circle
(10 rows)		

- 3. Number of books produced by each pub. House
 - a. Query:SELECT COUNT(ISBN)

FROM PublicationHouse
GROUP BY Publication House;



4. Find the oldest book

);

a. Query: SELECT * FROM BOOKS WHERE PublishingYear in (SELECT MIN(PublishingYear)FROM BOOKS

isbn | bookid | bname | genre | author | publishingyear | price | rating

- 5. Select all books with rating > 3
 - a. Query: SELECT * FROM BOOKS WHERE rating>3;

isbn	bookid	bname	genre	author
publ:	ishingyear	price rating		
	++		+	+
1416950419	630104	Inner Circle	Young Adult, Mystery	Kate Brian, Julian Peploe
1		50.00 4.0		,
1595542329	9487	A Time to Embrace	Christian Fiction, Christian	Karen Kingsbury
	2006	50.00 4.4		
765354950	39030	Reliquary	Thriller, Mystery	Douglas Preston, Lincoln Child
		50.00 4.0		
	998	The Millionaire Next Door: The Surprising Secrets of Americas Wealthy	Economics-Finance, Nonfiction	Thomas J. Stanley, William D.
Danko		50.00 4.0		
99468034	311164	Black Sheep	Romance, Historical-Historical Fiction	Georgette Heyer
4555404400		50.00 4.1		
1565124138		Joe	Fiction, American-Southern	Larry Brown
525444450		50.00 4.2	I Beeter Children	I A A Miles Franch II Channel
525444459		When We Were Very Young 50.00 4.3	Poetry, Childrens	A.A. Milne, Ernest H. Shepard
451466802	24876258	The Aeronauts Windlass	Fantasy, Science Fiction-Steampunk	Jim Butcher
451400602		50.00 4.2	rantasy, science riction-steampunk	Jill Buccher
743454154	80631	Blood Memory	Mystery,Fiction	Greg Iles
143434134		50.00 4.1	11930019,11001011	dick iics
375756485	81048	Spilling Open: The Art of Becoming Yourself	Art, Nonfiction	Sabrina Ward Harrison
	2000	50.00 4.0		
345432401	22028	Omerta	Fiction, Mystery-Crime	Mario Puzo
	1999	50.00 3.7		
812511751	176892	The Elvenbane	Fantasy, Fantasy-Dragons	Andre Norton, Mercedes Lackey
		50.00 4.0		
451822196	550844	Cycle of the Werewolf	Horror, Fiction	Stephen King, Bernie Wrightson
	1983	50.00 3.7		
(13 rows)				

Complex Queries

- 1. Given the customer name, display the cart of the customer
 - a. Query: Select title, quantity, price, quantity*price as SubTotal from (select bname as title, book_count as quantity, price from (select bname, bookid,price from books where isbn in (select isbn from buys where customerid in (select customerid from customer where custname='Bob'))) as A join (select book_count,Bookid from Cart where customerid in (select customerid from customer where custname='Bob') and bookid in (select producedbookid from produces where publicationisbn in (select isbn from buys where customerid in (select customerid from customer where custname='Bob')))) as B on A.bookid=B.bookid) as C;

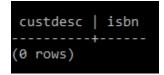
- 2. Identify the current bestsellers based on the count of Books sold
 - a. Query: Select bname as title, quantity_sold as Count from (select bname, isbn from books where isbn in (select distinct isbn from CountBooks)) as A join (select isbn,count(*) as quantity_sold from CountBooks group by ISBN) as B on A.isbn=B.isbn order by quantity_sold desc;

3. Given the ISBN, find books not bought by any customer

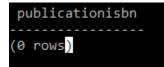
Query:SELECT isbn, bname, price, rating FROM BOOKS WHERE isbn not in (SELECT isbn FROM BUYS);

isbn	bname	price	rating
765354950	Reliquary	50.00	4.0
671015206	The Millionaire Next Door: The Surprising Secrets of Americas Wealthy	50.00	4.0
99468034	Black Sheep	50.00	4.1
1565124138	Joe	50.00	4.2
451466802	The Aeronauts Windlass	50.00	4.2
743454154	Blood Memory	50.00	4.1
375756485	Spilling Open: The Art of Becoming Yourself	50.00	4.0
812511751	The Elvenbane	50.00	4.0
(8 rows)			

- 4. Given the ISBN, obtain customer feedback for books not in bestsellers
 - a. Query: SELECT CustDesc,isbn FROM CUSTOMERFEEDBACK WHERE isbn not in (
 SELECT isbn from BestSellers);



- 5. Given ISBN, obtain ISBN for books not in Produces.
 - a. Query: SELECT PublicationISBN FROM PRODUCES
 WHERE PublicationISBN not in
 (
 SELECT isbn FROM BOOKS
);



Analysis of Query Execution

1. Analysing the query to obtain bestsellers based on the count

2. Analyse query which finds books not bought by any customer.

```
ezbook=# explain analyse SELECT isbn , bname , price , rating FROM BOOKS
ezbook-# WHERE isbn not in (
ezbook(# SELECT isbn FROM BUYS);

QUERY PLAN

Seq Scan on books (cost=23.75..36.13 rows=95 width=96) (actual time=0.073..0.076 rows=8 loops=1)
Filter: (NOT (hashed SubPlan 1))
Rows Removed by Filter: 5
SubPlan 1

-> Seq Scan on buys (cost=0.00..21.00 rows=1100 width=38) (actual time=0.011..0.012 rows=10 loops=1)
Planning Time: 1.266 ms
Execution Time: 0.228 ms
(7 rows)
```

Task-2: Create multiple users and define their access privileges

There are three main users in this mini-world. A customer, A Cashier and An Admin Customer permissions:

1. BestSellers: View

2. Bills: View

3. Cart: View, Update

4. Customer(table): View, Update

5. CustomerFeedback: View, Update, Delete

6. Books: View

7. PublishingHouse: View

8. Request for Books: View, Edit

9. Screenshots

```
ezbook=# create user customer with nosuperuser;
CREATE ROLE
ezbook=# grant connect on database 'ezbook' to customer;
ERROR: syntax error at or near "'ezbook'"
LINE 1: grant connect on database 'ezbook' to customer;

ezbook=# grant connect on database "ezbook" to customer;
GRANT
ezbook=# grant select on BestSellers to customer;
GRANT
ezbook=# grant select on Bills to customer;
GRANT
ezbook=# grant select on Cart to customer;
GRANT
ezbook=# grant select on Cart to customer;
GRANT
```

```
ezbook=# grant update on Cart to customer;
GRANT
```

Cashier permissions:

- CountBooks: View
 Bills: View and Update
- 3. Cart: View4. Screenshots

```
ezbook=# create user cashier with nosuperuser;
CREATE ROLE
ezbook=# grant connect on database "ezbook" to cashier;
GRANT
ezbook=# grant select on countbooks to cashier;
GRANT
ezbook=# grant select on bills to cashier;
GRANT
ezbook=# grant update on bills to cashier;
GRANT
ezbook=# grant update on bills to cashier;
GRANT
ezbook=# grant select on cart to cashier;
GRANT
```

Admin Permissions

- 1. CountBooks: View, Update
- 2. BestSeller: View, Update, Delete
- 3. Bills: View, Update, Delete
- 4. Cart: View, Delete
- 5. Customer: View, Delete
- 6. Buys: View
- 7. CustomerFeedback: View
- 8. Books: View, Update, Delete
- 9. Produces: View and Update
- 10. Writer/Publisher: View, Update, Delete
- 11. RequestForBooks: View, Update, Delete
- 12 Screenshots

```
ezbook=# create user admin with nosuperuser;
CREATE ROLE
ezbook=# grant connect on database "ezbook" to admin;
GRANT
ezbook=# grant select on countbooks to admin;
GRANT
ezbook=# grant update on countbooks to admin;
GRANT
ezbook=# grant update on bestsellers to admin;
GRANT
ezbook=# grant delete on bestsellers to admin;
GRANT
ezbook=# grant select on bestsellers to admin;
GRANT
ezbook=# grant delete on bills to admin;
ezbook=# grant select on bills to admin;
GRANT
ezbook=# grant update on bills to admin;
GRANT
ezbook=# grant select on cart to admin;
GRANT
ezbook=# grant delete on cart to admin;
GRANT
```

```
ezbook=# grant select on customer to admin;
GRANT
ezbook=# grant delete on customer to admin;
GRANT
ezbook=# grant update on customer to admin;
GRANT
ezbook=# grant select on customer to cust;
GRANT
ezbook=# grant update on customer to cust;
GRANT
ezbook=#
ezbook=# grant select on buys to admin;
GRANT
ezbook=#
ezbook=# grant select on customerfeedback to admin;
ezbook=# grant select on customerfeedback to cust;
GRANT
ezbook=# grant update on customerfeedback to cust;
GRANT
ezbook=# grant delete on customerfeedback to cust;
```

```
ezbook=# grant delete on customerfeedback to cust;
GRANT
ezbook=# grant select on books to admin;
ezbook=# grant update on books to admin;
ezbook=# grant delete on books to admin;
GRANT
ezbook=# grant select on books to cust;
GRANT
ezbook=#
ezbook=# grant select on produces to admin;
ezbook=# grant update on produces to admin;
ezbook=# grant delete on produces to admin;
GRANT
ezbook=#
ezbook=# grant select on PublicationHouse to admin;
GRANT
ezbook=# grant update on PublicationHouse to admin;
ezbook=# grant delete on PublicationHouse to admin;
ezbook=# grant select on PublicationHouse to cust;
GRANT
ezbook=#
```

```
ezbook=# grant select on RequestForBooks to admin;
GRANT
ezbook=# grant delete on RequestForBooks to admin;
GRANT
ezbook=# grant select on RequestForBooks to cust;
GRANT
ezbook=# grant update on RequestForBooks to cust;
GRANT
ezbook=# grant update on RequestForBooks to cust;
GRANT
ezbook=#
```