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SQL PROJECT

Online Bookstore Database Management System

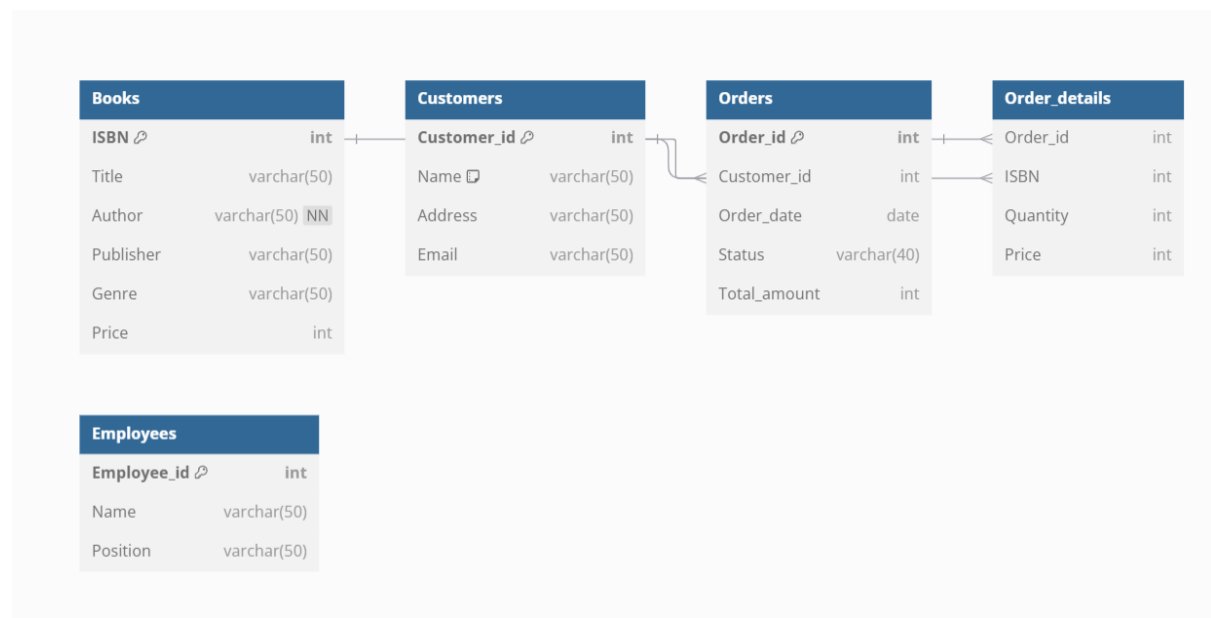
● Project Scope:-

Design and implement a SQL database for an online bookstore. The database should handle various aspects of book inventory, customer orders, and administrative functions.

● Available Tables:-

1. Books
2. Customers
3. Orders
4. Order Details
5. Employees

● ER Diagram:-



● QUERIES:

1. Database Design (DDL - Data Definition Language):

- Books (ISBN, title, author, publisher, genre, price)

```
CREATE TABLE Books
(
  ISBN int PRIMARY KEY, Title varchar(50), Author varchar(50) NOT NULL,
  Publisher varchar(50), Genre varchar(50), Price int);
```

- Customers (customer_id, name, address, email)

```
CREATE TABLE Customers
(
  Customer_id int PRIMARY KEY, Name varchar(50) DEFAULT 'Unknown',
  Address varchar(50), Email varchar(50));
```

- Orders (order_id, customer_id, order_date, status, total_amount)

```
CREATE TABLE Orders
(
  Order_id int PRIMARY KEY, Customer_id int, Order_date date,
  Status varchar(40), Total_amount int,
  FOREIGN KEY (Customer_id) REFERENCES Customers(Customer_id));
```

- Order Details (order_id, ISBN, quantity, price)

```
CREATE TABLE Order_details
(
  Order_id int, ISBN int, Quantity int, Price int,
  FOREIGN KEY (ISBN) REFERENCES Books(ISBN),
  FOREIGN KEY (Order_id) REFERENCES Orders(Order_id));
```

- Employees (employee_id, name, position)

```
CREATE TABLE Employees
(
  Employee_id int PRIMARY KEY, Name varchar(50),
  Position varchar(50));
```

- Add a Salary column in Employees Table

```
ALTER TABLE Employees
ADD COLUMN Salary int;
```

2. Populating Data (DML - Data Manipulation Language):

Books-

```

INSERT INTO Books (ISBN, Title, Author, Publisher, Genre, Price) VALUES
(100001, 'The 3 Mistakes of My Life', 'Chetan Bhagat', 'Rupa Publications', 'Fiction', 250),
(100002, 'The Immortals of Meluha', 'Amish Tripathi', 'Westland', 'Mythology', 300),
(100003, 'The God of Small Things', 'Arundhati Roy', 'Penguin India', 'Fiction', 350),
(100004, 'The Blue Umbrella', 'Ruskin Bond', 'Rupa Publications', 'Children', 150),
(100005, 'Malgudi Days', 'R.K. Narayan', 'Indian Thought Publications', 'Fiction', 200),
(100006, 'Train to Pakistan', 'Khushwant Singh', 'Penguin India', 'Historical Fiction', 275),
(100007, 'The Namesake', 'Jhumpa Lahiri', 'Penguin India', 'Fiction', 400),
(100008, 'A Suitable Boy', 'Vikram Seth', 'Penguin India', 'Fiction', 450),
(100009, 'Clear Light of Day', 'Anita Desai', 'HarperCollins India', 'Fiction', 220),
(100010, 'Inglorious Empire', 'Shashi Tharoor', 'Penguin India', 'Non-Fiction', 500),
(100011, 'The Magic of the Lost Temple', 'Sudha Murty', 'Penguin India', 'Children', 180),
(100012, 'Hullabaloo in the Guava Orchard', 'Kiran Desai', 'Penguin India', 'Fiction', 280),
(100013, 'Midnight's Children', 'Salman Rushdie', 'Rupa Publications', 'Fiction', 600),
(100014, 'Jaya: An Illustrated Retelling of the Mahabharata', 'Devdutt Pattanaik', 'Penguin India', 'Mythology', 320),
(100015, 'I Too Had a Love Story', 'Ravinder Singh', 'Penguin India', 'Romance', 180),
(100016, 'This Is Not Your Story', 'Savi Sharma', 'Westland', 'Romance', 200),
(100017, 'Wings of Fire', 'A.P.J. Abdul Kalam', 'HarperCollins India', 'Non-Fiction', 400),
(100018, 'The Collected Poems', 'Amrita Pritam', 'Rupa Publications', 'Poetry', 250),
(100019, 'The Untouchables', 'Mulk Raj Anand', 'Speaking Tiger', 'Fiction', 275),
(100020, 'Nirmala', 'Premchand', 'Penguin India', 'Classics', 300);

```

Customers-

```

INSERT INTO Customers VALUES
(101, 'Ravi Kumar', '123 MG Road, Delhi', 'ravi.kumar@email.com'),
(102, 'Priya Sharma', '456 Park Avenue, Mumbai', 'priya.sharma@email.com'),
(103, 'Amit Singh', '789 Residency Road, Bangalore', 'amit.singh@email.com'),
(104, 'Sonal Verma', '101 Business Bay, Pune', 'sonal.verma@email.com'),
(105, 'Rahul Jain', '112 Brigade Road, Kolkata', 'rahul.jain@email.com'),
(106, 'Neha Agarwal', '212 Market Street, Jaipur', 'neha.agarwal@email.com'),
(107, 'Aditya Mehta', '321 Anna Nagar, Chennai', 'aditya.mehta@email.com'),
(108, 'Pooja Sinha', '654 Station Road, Hyderabad', 'pooja.sinha@email.com'),
(109, 'Vikram Desai', '768 Marine Drive, Mumbai', 'vikram.desai@email.com'),
(110, 'Anjali Patel', '873 Sector 14, Gurgaon', 'anjali.patel@email.com'),
(111, 'Unknown', '45 Residency Road, Chandigarh', 'chandigarh.user@email.com'),
(112, 'Suresh Gupta', '98 Model Town, Ludhiana', 'suresh.gupta@email.com'),
(113, 'Meena Reddy', '12 Race Course Road, Bangalore', 'meena.reddy@email.com'),
(114, 'Vikas Bansal', '78 GT Road, Kanpur', 'vikas.bansal@email.com'),
(115, 'Rekha Iyer', '1011 Bannerghatta Road, Bangalore', 'rekha.iyer@email.com'),
(116, 'Ajay Nair', '22 Commercial Street, Kochi', 'ajay.nair@email.com'),
(117, 'Aarti Gupta', '56 Mall Road, Dehradun', 'aarti.gupta@email.com'),
(118, 'Rohit Shetty', '14 Film City, Mumbai', 'rohit.shetty@email.com'),
(119, 'Nandini Rao', '29 Residency Road, Pune', 'nandini.rao@email.com'),
(120, 'Unknown', '8 Sarojini Nagar, Delhi', 'delhi.user@email.com');

```

Orders-

```
INSERT INTO Orders VALUES
(1001, 101, '2023-07-01', 'Shipped', 2500),
(1002, 102, '2023-08-02', 'Processing', 1500),
(1003, 103, '2023-08-03', 'Delivered', 3200),
(1004, 104, '2023-07-04', 'Cancelled', 1800),
(1005, 105, '2023-08-05', 'Shipped', 2700),
(1006, 106, '2023-06-06', 'Processing', 4000),
(1007, 107, '2023-08-07', 'Delivered', 2200),
(1008, 108, '2023-08-08', 'Processing', 3000),
(1009, 109, '2023-07-09', 'Shipped', 1500),
(1010, 110, '2023-08-10', 'Delivered', 5000),
(1011, 111, '2023-05-11', 'Cancelled', 2100),
(1012, 112, '2023-06-12', 'Processing', 3400),
(1013, 113, '2023-08-13', 'Shipped', 2900),
(1014, 114, '2023-08-14', 'Delivered', 1800),
(1015, 115, '2023-07-15', 'Shipped', 3700),
(1016, 116, '2023-08-16', 'Processing', 2600),
(1017, 117, '2023-05-17', 'Cancelled', 3300),
(1018, 118, '2023-05-18', 'Delivered', 4500),
(1019, 119, '2023-08-19', 'Shipped', 2900),
(1020, 120, '2023-06-20', 'Processing', 4100);
```


Order_details-

```
INSERT INTO Order_details VALUES
(1001, 100001, 2, 500),
(1002, 100002, 1, 300),
(1003, 100003, 3, 1050),
(1004, 100004, 1, 150),
(1005, 100005, 2, 400),
(1006, 100006, 4, 1100),
(1007, 100007, 1, 400),
(1008, 100008, 2, 900),
(1009, 100009, 1, 150),
(1010, 100010, 5, 2500),
(1011, 100011, 1, 180),
(1012, 100012, 3, 840),
(1013, 100013, 2, 1200),
(1014, 100014, 1, 320),
(1015, 100015, 3, 540),
(1016, 100016, 2, 400),
(1017, 100017, 1, 400),
(1018, 100018, 3, 750),
(1019, 100019, 4, 1100),
(1020, 100020, 2, 600);
```

Employees-

```
INSERT INTO Employees(Employee_id ,Name,Position,Salary) VALUES
(1, 'Rajesh Kumar', 'Software Engineer', 50000),
(2, 'Sneha Sharma', 'Data Analyst', 55000),
(3, 'Amit Patel', 'Project Manager', 60000),
(4, 'Priya Desai', 'HR Manager', 62000),
(5, 'Ravi Mehta', 'QA Tester', 48000),
(6, 'Neha Singh', 'Business Analyst', 53000),
(7, 'Vikram Reddy', 'Database Administrator', 61000),
(8, 'Anjali Gupta', 'UI/UX Designer', 57000),
(9, 'Rohit Verma', 'Software Engineer', 60000),
(10, 'Sonia Agarwal', 'Product Manager', 59000),
(11, 'Karan Joshi', 'Software Developer', 54000),
(12, 'Maya Iyer', 'Marketing Specialist', 56000),
(13, 'Sameer Khan', 'Systems Analyst', 58000),
(14, 'Nisha Kapoor', 'Support Engineer', 55000),
(15, 'Arjun Nair', 'Technical Lead', 59000);
```

3. Querying Data (DQL - Data Query Language):

- List of books by a specific Publisher:

```
SELECT * FROM Books
WHERE Publisher="Penguin India";
```

ISBN	Title	Author	Publisher	Genre	Price
100003	The God of Small Things	Arundhati Roy	Penguin India	Fiction	350
100006	Train to Pakistan	Khushwant Singh	Penguin India	Historical Fiction	275
100007	The Namesake	Jhumpa Lahiri	Penguin India	Fiction	400
100008	A Suitable Boy	Vikram Seth	Penguin India	Fiction	450
100010	Inglorious Empire	Shashi Tharoor	Penguin India	Non-Fiction	500
100011	The Magic of the Lost Temple	Sudha Murty	Penguin India	Children	180
100012	Hullabaloo in the Guava Orchard	Kiran Desai	Penguin India	Fiction	280
100014	Jaya: An Illustrated Retelling of the Mahabharata	Devdutt Pattanaik	Penguin India	Mythology	320
100015	I Too Had a Love Story	Ravinder Singh	Penguin India	Romance	180
100020	Nirmala	Premchand	Penguin India	Classics	300
NULL	NULL	NULL	NULL	NULL	NULL

- Total sales by month:

```
SELECT SUM(Total_amount) as Total_Sales,MONTH(Order_date) as Month FROM Orders
GROUP BY Month
order by Month;
```

Total_Sales	Month
9900	5
11500	6
9500	7
27800	8

- Customers who purchased more than a certain amount:

```
SELECT * FROM Orders
WHERE Total_amount>=3000;
```

Order_id	Customer_id	Order_date	Status	Total_amount
1003	103	2023-08-03	Delivered	3200
1006	106	2023-06-06	Processing	4000
1008	108	2023-08-08	Processing	3000
1010	110	2023-08-10	Delivered	5000
1012	112	2023-06-12	Processing	3400
1015	115	2023-07-15	Shipped	3700
1017	117	2023-05-17	Cancelled	3300
1018	118	2023-05-18	Delivered	4500
1020	120	2023-06-20	Processing	4100
NULL	NULL	NULL	NULL	NULL

- Best-selling books:

```
SELECT ISBN,Quantity,Price FROM Order_details
ORDER BY Quantity DESC
LIMIT 3;
```

ISBN	Quantity	Price
100010	5	2500
100019	4	1100
100006	4	1100

- Cancelled orders:

```
SELECT * FROM Orders
WHERE Status="Cancelled";
```

Order_id	Customer_id	Order_date	Status	Total_amount
1004	104	2023-07-04	Cancelled	1800
1011	111	2023-05-11	Cancelled	2100
1017	117	2023-05-17	Cancelled	3300
NULL	NULL	NULL	NULL	NULL

-Average Book Price:

```
SELECT AVG(Price) As Average_Price
FROM Books;
```

Average_Price
323.9500

-Update Price Using ISBN Number:

```
UPDATE Books
SET Price=699
WHERE ISBN=100002;
SELECT * FROM Books;
```

ISBN	Title	Author	Publisher	Genre	Price
100001	The 3 Mistakes of My Life	Chetan Bhagat	Rupa Publications	Fiction	250
100002	The Immortals of Meluha	Amish Tripathi	Westland	Mythology	699
100003	The God of Small Things	Arundhati Roy	Penguin India	Fiction	350
100004	The Blue Umbrella	Ruskin Bond	Rupa Publications	Children	150
100005	Malgudi Days	R.K. Narayan	Indian Thought Publications	Fiction	200
100006	Train to Pakistan	Khushwant Singh	Penguin India	Historical Fiction	275
100007	The Namesake	Jhumpa Lahiri	Penguin India	Fiction	400
100008	A Suitable Boy	Vikram Seth	Penguin India	Fiction	450
100009	Clear Light of Day	Anita Desai	HarperCollins India	Fiction	220
100010	Inglorious Empire	Shashi Tharoor	Penguin India	Non-Fiction	500
100011	The Magic of the Lost Te...	Sudha Murty	Penguin India	Children	180
100012	Hullabaloo in the Guava ...	Kiran Desai	Penguin India	Fiction	280
100013	Midnight's Children	Salman Rushdie	Rupa Publications	Fiction	600
100014	Jaya: An Illustrated Ret...	Devdutt Pattanaik	Penguin India	Mythology	320
100015	I Too Had a Love Story	Ravinder Singh	Penguin India	Romance	180

-DELETE Using In operator:

```
DELETE FROM Order_details
WHERE price in(400,600,500);
```

- Find customers who have placed orders exceeding a certain total amount:

```
SELECT * FROM Orders WHERE Order_id
IN(SELECT Order_id FROM Orders WHERE Total_amount>4000);
```

Order_id	Customer_id	Order_date	Status	Total_amount
1010	110	2023-08-10	Delivered	5000
1018	118	2023-05-18	Delivered	4500
1020	120	2023-06-20	Processing	4100
NULL	NULL	NULL	NULL	NULL

- Identify books that have never been ordered:

```
SELECT * FROM Order_details
> WHERE price IN(SELECT price FROM Order_details
- WHERE ISNULL(Quantity ));
```

Order_id	ISBN	Quantity	Price
1008	100008	2	900
1001	100001	NULL	500
1005	100005	NULL	900
1007	100007	NULL	214

- Retrieve order details along with customer information:


```

SELECT Orders.Order_id,
Orders.Customer_id,
Orders.Order_date,
Orders.Total_amount,
Customers.Name,
Customers.Address
FROM Orders
INNER JOIN
Customers
on Orders.Customer_id=Customers.Customer_id;

```

Order_id	Customer_id	Order_date	Total_amount	Name	Address
1001	101	2023-07-01	2500	Ravi Kumar	123 MG Road, Delhi
1002	102	2023-08-02	1500	Priya Sharma	456 Park Avenue, Mumbai
1003	103	2023-08-03	3200	Amit Singh	789 Residency Road, Bangalore
1004	104	2023-07-04	1800	Sonal Verma	101 Business Bay, Pune
1005	105	2023-08-05	2700	Rahul Jain	112 Brigade Road, Kolkata
1006	106	2023-06-06	4000	Neha Agarwal	212 Market Street, Jaipur
1007	107	2023-08-07	2200	Aditya Mehta	321 Anna Nagar, Chennai
1008	108	2023-08-08	3000	Pooja Sinha	654 Station Road, Hyderabad
1009	109	2023-07-09	1500	Vikram Desai	768 Marine Drive, Mumbai
1010	110	2023-08-10	5000	Anjali Patel	873 Sector 14, Gurgaon
1011	111	2023-05-11	2100	Unknown	45 Residency Road, Chandigarh
1012	112	2023-06-12	3400	Suresh Gupta	98 Model Town, Ludhiana
1013	113	2023-08-13	2900	Meena Reddy	12 Race Course Road, Bangalore
1014	114	2023-08-14	1800	Vikas Bansal	78 GT Road, Kanpur

- List Author along with their publishers:

```

SELECT ISBN, Author, Publisher
FROM Books;

```

ISBN	Author	Publisher
100001	Chetan Bhagat	Rupa Publications
100002	Amish Tripathi	Westland
100003	Arundhati Roy	Penguin India
100004	Ruskin Bond	Rupa Publications
100005	R.K. Narayan	Indian Thought Publications
100006	Khushwant Singh	Penguin India
100007	Jhumpa Lahiri	Penguin India
100008	Vikram Seth	Penguin India
100009	Anita Desai	HarperCollins India
100010	Shashi Tharoor	Penguin India
100011	Sudha Murty	Penguin India
100012	Kiran Desai	Penquin India

-VIEW to display Delivered Orders:

```
CREATE VIEW Display AS
SELECT Order_id,Status,Total_amount FROM Orders
WHERE Status="Delivered";

SELECT * FROM Display;
```

	Order_id	Status	Total_amount
►	1003	Delivered	3200
	1007	Delivered	2200
	1010	Delivered	5000
	1014	Delivered	1800
	1018	Delivered	4500

-VIEW to display top 3 Orders:

```
CREATE VIEW Top AS
SELECT Order_id,Total_amount
FROM Orders
ORDER BY Total_amount DESC
LIMIT 3;

SELECT * FROM Top;
```

Order_id	Total_amount
1010	5000
1018	4500
1020	4100

