Topic : Library Management System
You are going to build a project based on Library Management System. It keeps track of all information about books in the library, their cost, status and total number of books available in the library.

Create a database named library and following TABLES in the database:

1. Branch
2. Employee
3. Books
4. Customer
5. IssueStatus
6. ReturnStatus

Attributes for the tables:

1. Branch

- Branch_no - Set as PRIMARY KEY
- Manager_Id
- Branch_address
- Contact_no

2. Employee

- Emp_Id – Set as PRIMARY KEY
- Emp_name
- Position
- Salary
- Branch_no - Set as FOREIGN KEY and it refer Branch_no in Branch table

3. Books

- ISBN - Set as PRIMARY KEY
- Book_title
- Category
- Rental_Price
- Status [Give yes if book available and no if book not available]
- Author
- Publisher

4. Customer

- Customer_Id - Set as PRIMARY KEY

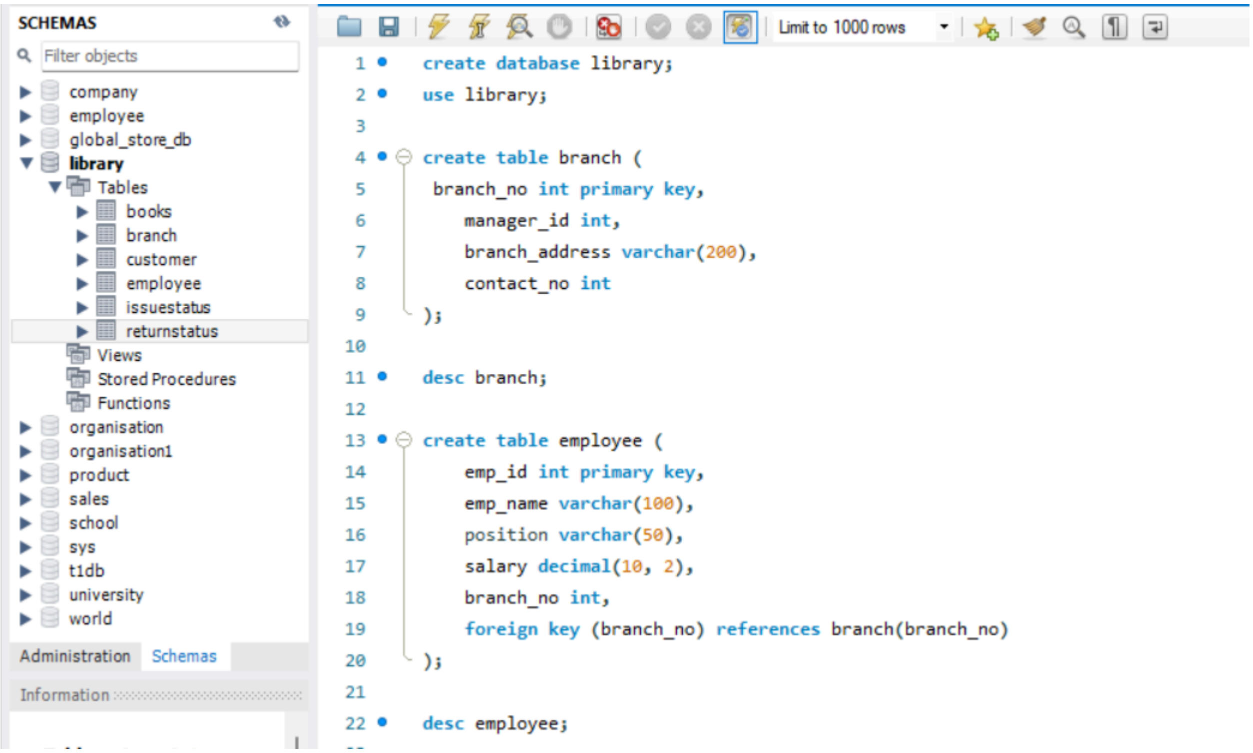
- Customer_name
- Customer_address
- Reg_date

5. IssueStatus

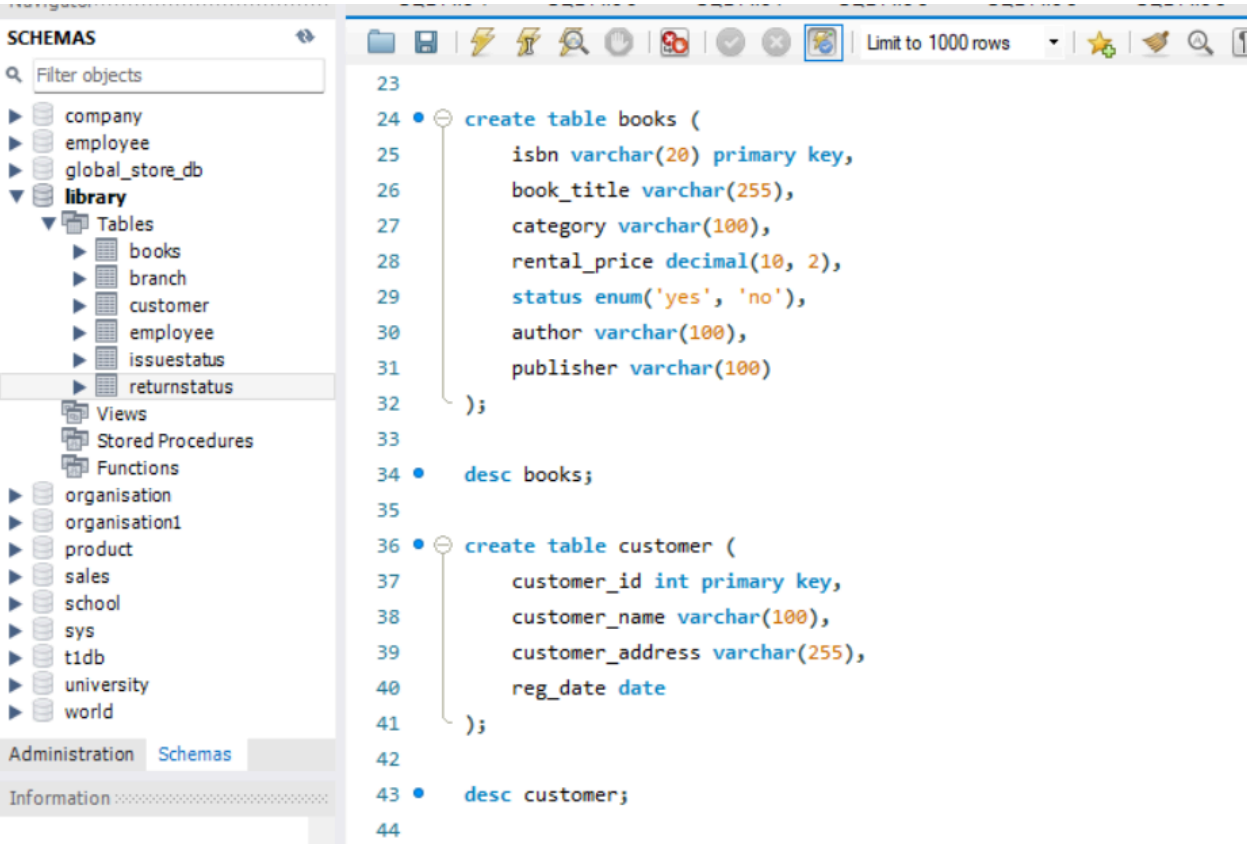
- Issue_Id - Set as PRIMARY KEY
- Issued_cust – Set as FOREIGN KEY and it refer customer_id in CUSTOMER table Issued_book_name
- Issue_date
- Isbn_book – Set as FOREIGN KEY and it should refer isbn in BOOKS table

6. ReturnStatus

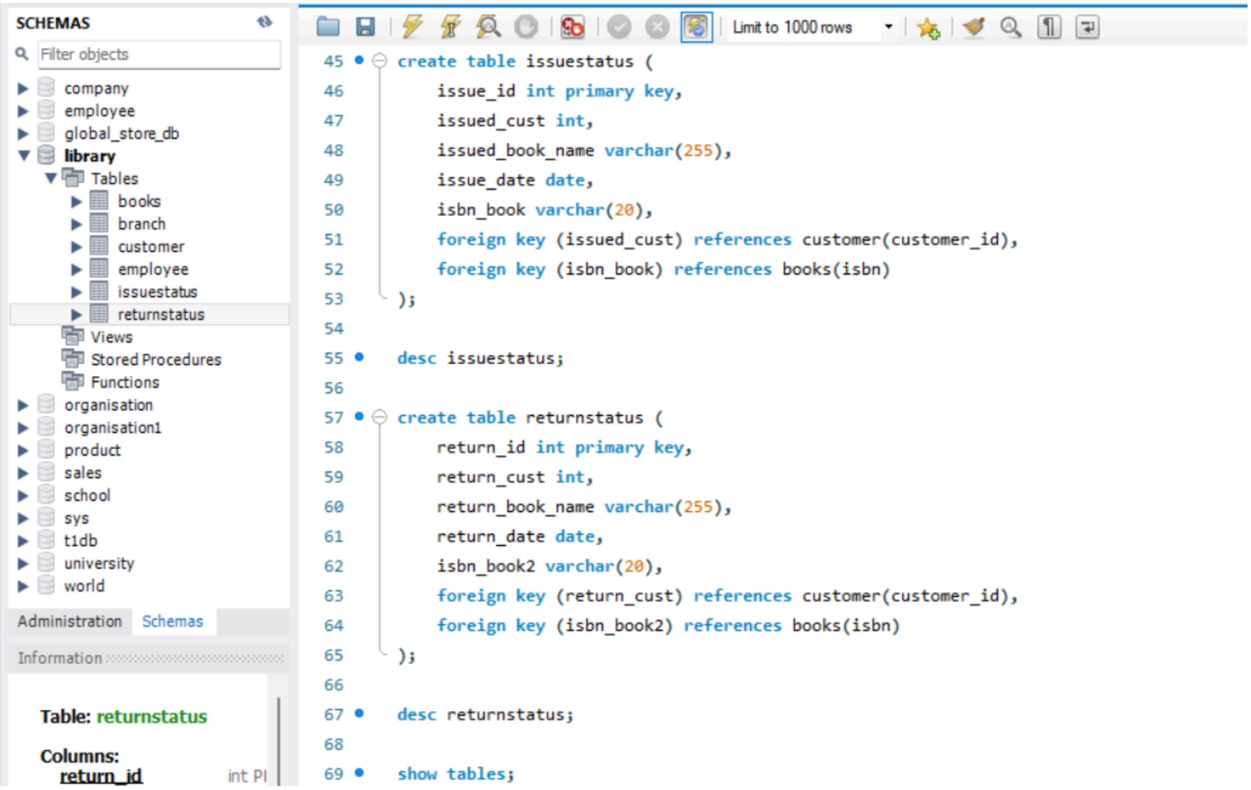
- Return_Id - Set as PRIMARY KEY
- Return_cust
- Return_book_name
- Return_date
- Isbn_book2 - Set as FOREIGN KEY and it should refer isbn in BOOKS table



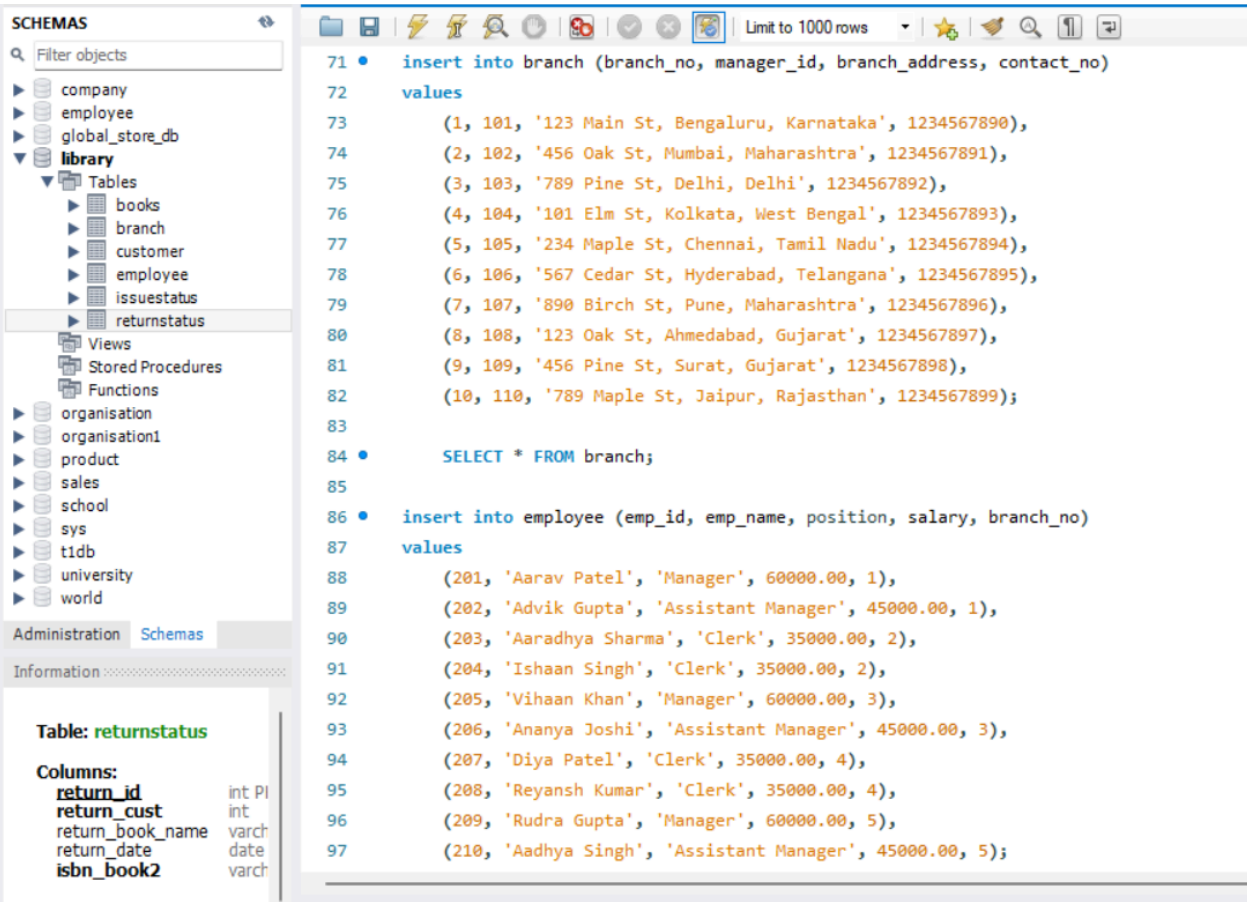
```
create database library;
use library;

create table branch (
 branch_no int primary key,
    manager_id int,
    branch_address varchar(200),
    contact_no int
);

desc branch;

create table employee (
    emp_id int primary key,
    emp_name varchar(100),
    position varchar(50),
    salary decimal(10, 2),
    branch_no int,
    foreign key (branch_no) references branch(branch_no)
);

desc employee;
```



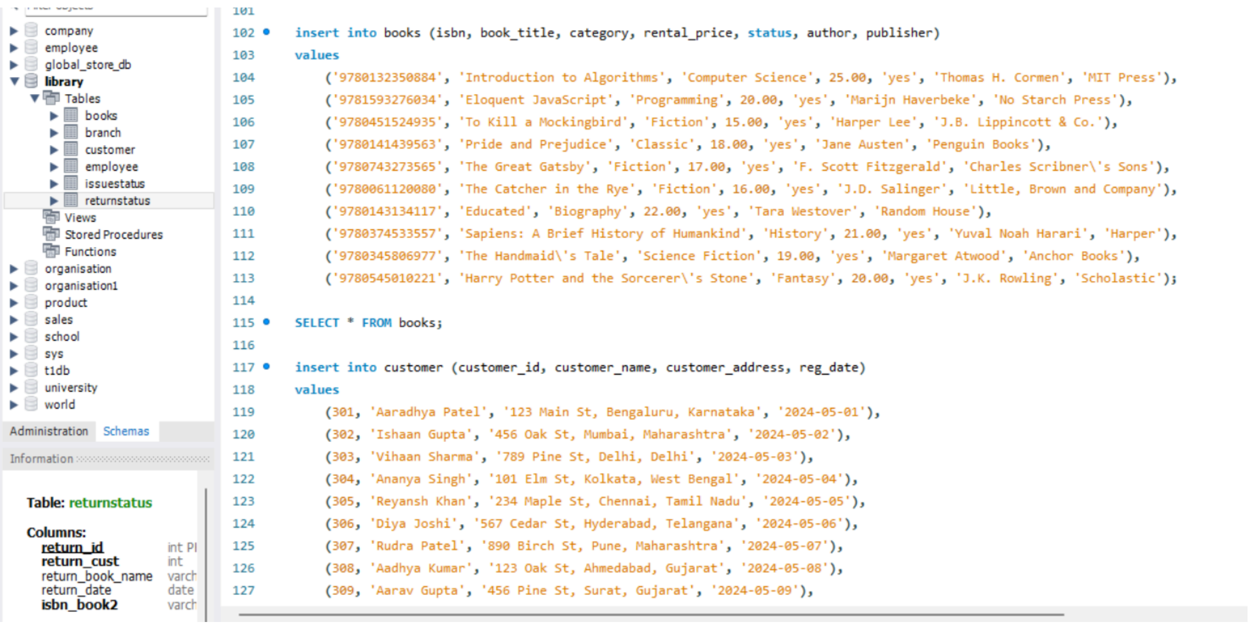
```
create table books (
    isbn varchar(20) primary key,
    book_title varchar(255),
    category varchar(100),
    rental_price decimal(10, 2),
    status enum('yes', 'no'),
    author varchar(100),
    publisher varchar(100)
);

desc books;

create table customer (
    customer_id int primary key,
    customer_name varchar(100),
    customer_address varchar(255),
    reg_date date
);

desc customer;
```



```
create table issuestatus (
    issue_id int primary key,
    issued_cust int,
    issued_book_name varchar(255),
    issue_date date,
    isbn_book varchar(20),
    foreign key (issued_cust) references customer(customer_id),
    foreign key (isbn_book) references books(isbn)
);

desc issuestatus;

create table returnstatus (
    return_id int primary key,
    return_cust int,
    return_book_name varchar(255),
    return_date date,
    isbn_book2 varchar(20),
    foreign key (return_cust) references customer(customer_id),
    foreign key (isbn_book2) references books(isbn)
);

desc returnstatus;

show tables;
```



```sql
insert into branch (branch_no, manager_id, branch_address, contact_no)
values
    (1, 101, '123 Main St, Bengaluru, Karnataka', 1234567890),
    (2, 102, '456 Oak St, Mumbai, Maharashtra', 1234567891),
    (3, 103, '789 Pine St, Delhi, Delhi', 1234567892),
    (4, 104, '101 Elm St, Kolkata, West Bengal', 1234567893),
    (5, 105, '234 Maple St, Chennai, Tamil Nadu', 1234567894),
    (6, 106, '567 Cedar St, Hyderabad, Telangana', 1234567895),
    (7, 107, '890 Birch St, Pune, Maharashtra', 1234567896),
    (8, 108, '123 Oak St, Ahmedabad, Gujarat', 1234567897),
    (9, 109, '456 Pine St, Surat, Gujarat', 1234567898),
    (10, 110, '789 Maple St, Jaipur, Rajasthan', 1234567899);

    SELECT * FROM branch;

insert into employee (emp_id, emp_name, position, salary, branch_no)
values
    (201, 'Aarav Patel', 'Manager', 60000.00, 1),
    (202, 'Advik Gupta', 'Assistant Manager', 45000.00, 1),
    (203, 'Aaradhya Sharma', 'Clerk', 35000.00, 2),
    (204, 'Ishaan Singh', 'Clerk', 35000.00, 2),
    (205, 'Vihaan Khan', 'Manager', 60000.00, 3),
    (206, 'Ananya Joshi', 'Assistant Manager', 45000.00, 3),
    (207, 'Diya Patel', 'Clerk', 35000.00, 4),
    (208, 'Reyansh Kumar', 'Clerk', 35000.00, 4),
    (209, 'Rudra Gupta', 'Manager', 60000.00, 5),
    (210, 'Aadhya Singh', 'Assistant Manager', 45000.00, 5);
```



```sql
insert into books (isbn, book_title, category, rental_price, status, author, publisher)
values
    ('9780132350884', 'Introduction to Algorithms', 'Computer Science', 25.00, 'yes', 'Thomas H. Cormen', 'MIT Press'),
    ('9781593276034', 'Eloquent JavaScript', 'Programming', 20.00, 'yes', 'Marijn Haverbeke', 'No Starch Press'),
    ('9780451524935', 'To Kill a Mockingbird', 'Fiction', 15.00, 'yes', 'Harper Lee', 'J.B. Lippincott & Co.'),
    ('9780141439563', 'Pride and Prejudice', 'Classic', 18.00, 'yes', 'Jane Austen', 'Penguin Books'),
    ('9780743273565', 'The Great Gatsby', 'Fiction', 17.00, 'yes', 'F. Scott Fitzgerald', 'Charles Scribner\'s Sons'),
    ('9780061120080', 'The Catcher in the Rye', 'Fiction', 16.00, 'yes', 'J.D. Salinger', 'Little, Brown and Company'),
    ('9780143134117', 'Educated', 'Biography', 22.00, 'yes', 'Tara Westover', 'Random House'),
    ('9780374533557', 'Sapiens: A Brief History of Humankind', 'History', 21.00, 'yes', 'Yuval Noah Harari', 'Harper'),
    ('9780345806977', 'The Handmaid\'s Tale', 'Science Fiction', 19.00, 'yes', 'Margaret Atwood', 'Anchor Books'),
    ('9780545010221', 'Harry Potter and the Sorcerer\'s Stone', 'Fantasy', 20.00, 'yes', 'J.K. Rowling', 'Scholastic');

SELECT * FROM books;

insert into customer (customer_id, customer_name, customer_address, reg_date)
values
    (301, 'Aaradhya Patel', '123 Main St, Bengaluru, Karnataka', '2024-05-01'),
    (302, 'Ishaan Gupta', '456 Oak St, Mumbai, Maharashtra', '2024-05-02'),
    (303, 'Vihaan Sharma', '789 Pine St, Delhi, Delhi', '2024-05-03'),
    (304, 'Ananya Singh', '101 Elm St, Kolkata, West Bengal', '2024-05-04'),
    (305, 'Reyansh Khan', '234 Maple St, Chennai, Tamil Nadu', '2024-05-05'),
    (306, 'Diya Joshi', '567 Cedar St, Hyderabad, Telangana', '2024-05-06'),
    (307, 'Rudra Patel', '890 Birch St, Pune, Maharashtra', '2024-05-07'),
    (308, 'Aadhya Kumar', '123 Oak St, Ahmedabad, Gujarat', '2024-05-08'),
    (309, 'Aarav Gupta', '456 Pine St, Surat, Gujarat', '2024-05-09'),
```

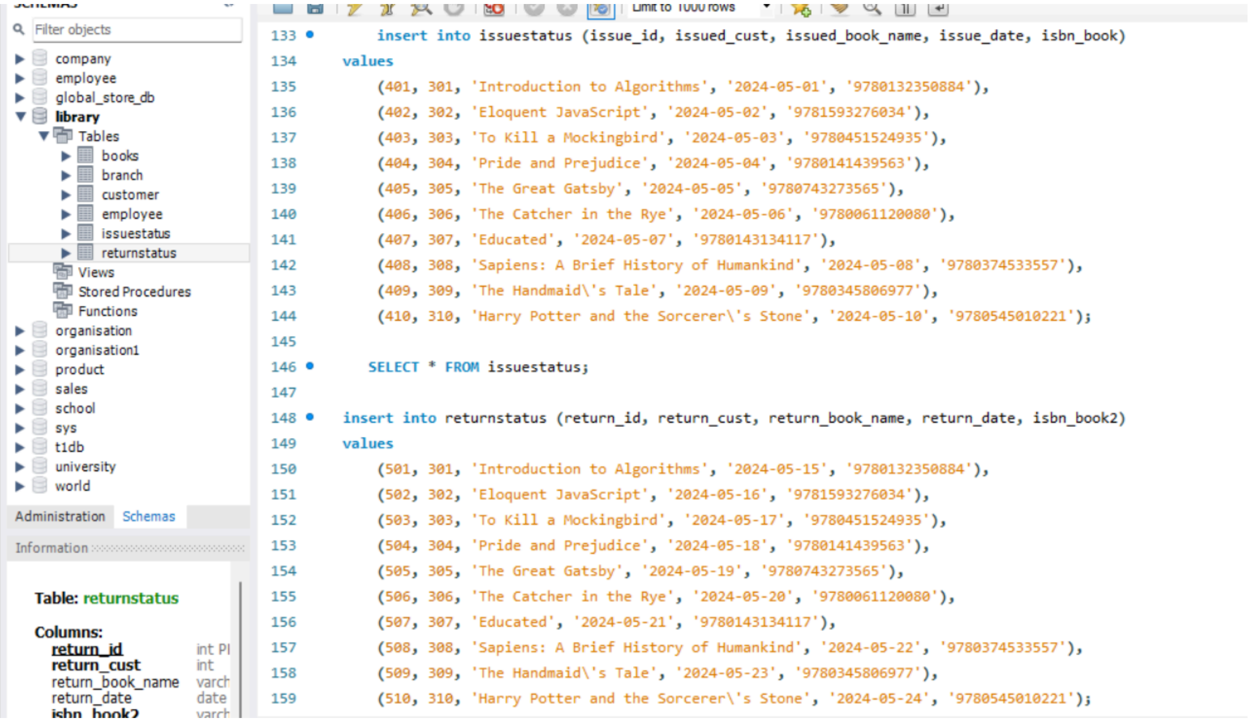


Table: returnstatus

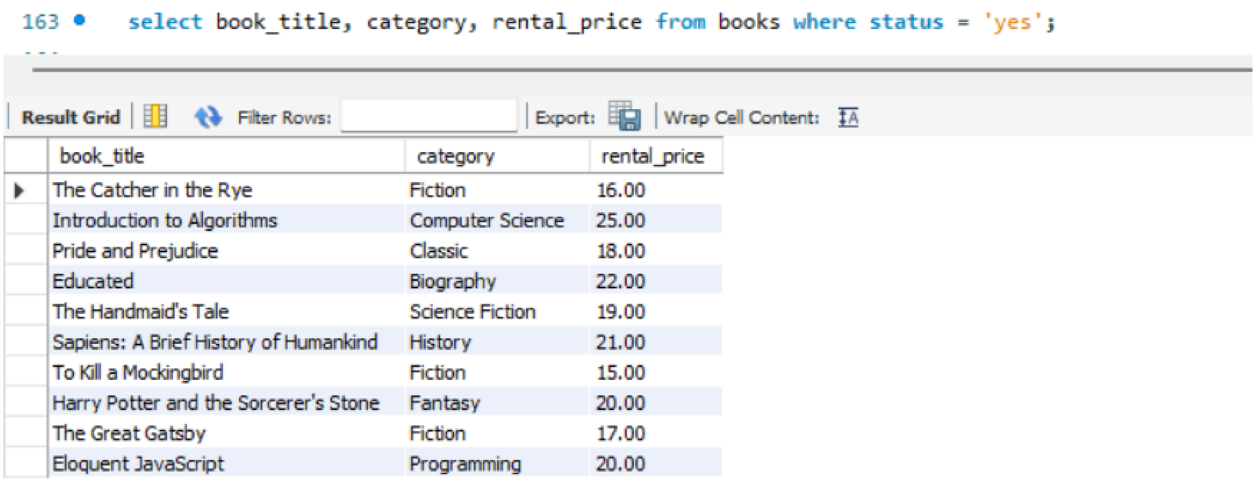
Columns:

return_id	int PI
return_cust	int
return_book_name	varch
return_date	date
isbn_book2	varch

```
    insert into issuestatus (issue_id, issued_cust, issued_book_name, issue_date, isbn_book)
values
    (401, 301, 'Introduction to Algorithms', '2024-05-01', '9780132350884'),
    (402, 302, 'Eloquent JavaScript', '2024-05-02', '9781593276034'),
    (403, 303, 'To Kill a Mockingbird', '2024-05-03', '9780451524935'),
    (404, 304, 'Pride and Prejudice', '2024-05-04', '9780141439563'),
    (405, 305, 'The Great Gatsby', '2024-05-05', '9780743273565'),
    (406, 306, 'The Catcher in the Rye', '2024-05-06', '9780061120080'),
    (407, 307, 'Educated', '2024-05-07', '9780143134117'),
    (408, 308, 'Sapiens: A Brief History of Humankind', '2024-05-08', '9780374533557'),
    (409, 309, 'The Handmaid\'s Tale', '2024-05-09', '9780345806977'),
    (410, 310, 'Harry Potter and the Sorcerer\'s Stone', '2024-05-10', '9780545010221');

   SELECT * FROM issuestatus;

insert into returnstatus (return_id, return_cust, return_book_name, return_date, isbn_book2)
values
    (501, 301, 'Introduction to Algorithms', '2024-05-15', '9780132350884'),
    (502, 302, 'Eloquent JavaScript', '2024-05-16', '9781593276034'),
    (503, 303, 'To Kill a Mockingbird', '2024-05-17', '9780451524935'),
    (504, 304, 'Pride and Prejudice', '2024-05-18', '9780141439563'),
    (505, 305, 'The Great Gatsby', '2024-05-19', '9780743273565'),
    (506, 306, 'The Catcher in the Rye', '2024-05-20', '9780061120080'),
    (507, 307, 'Educated', '2024-05-21', '9780143134117'),
    (508, 308, 'Sapiens: A Brief History of Humankind', '2024-05-22', '9780374533557'),
    (509, 309, 'The Handmaid\'s Tale', '2024-05-23', '9780345806977'),
    (510, 310, 'Harry Potter and the Sorcerer\'s Stone', '2024-05-24', '9780545010221');
```

Display all the tables and Write the queries for the following :

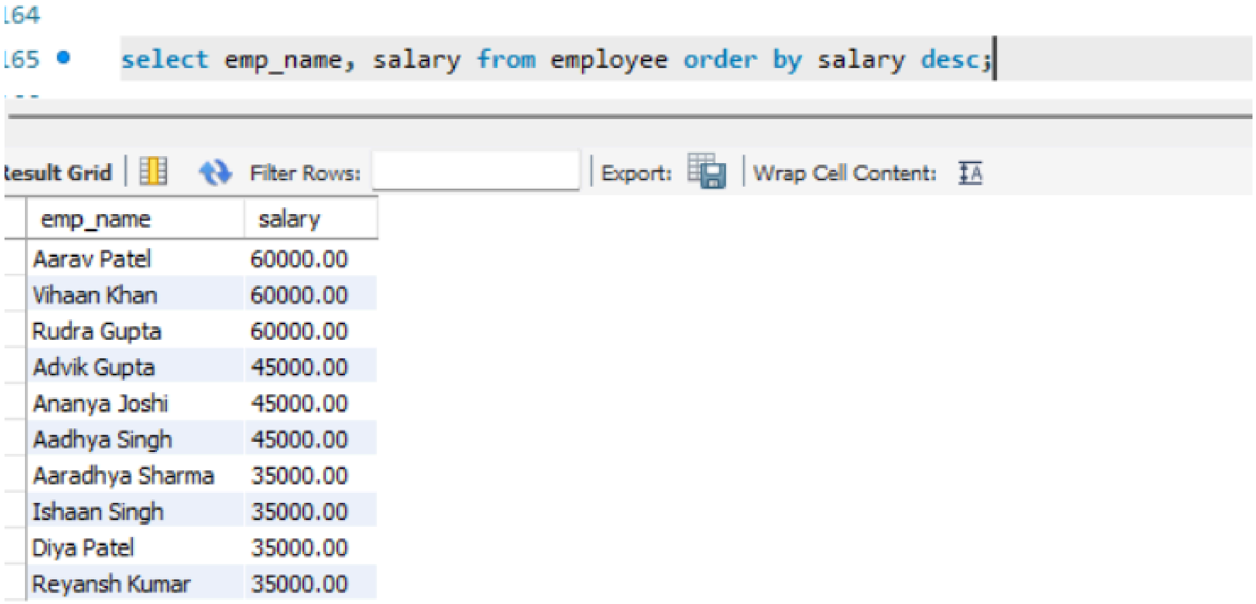
1. Retrieve the book title, category, and rental price of all available books.



```sql
select book_title, category, rental_price from books where status = 'yes';
```

book_title	category	rental_price
The Catcher in the Rye	Fiction	16.00
Introduction to Algorithms	Computer Science	25.00
Pride and Prejudice	Classic	18.00
Educated	Biography	22.00
The Handmaid's Tale	Science Fiction	19.00
Sapiens: A Brief History of Humankind	History	21.00
To Kill a Mockingbird	Fiction	15.00
Harry Potter and the Sorcerer's Stone	Fantasy	20.00
The Great Gatsby	Fiction	17.00
Eloquent JavaScript	Programming	20.00

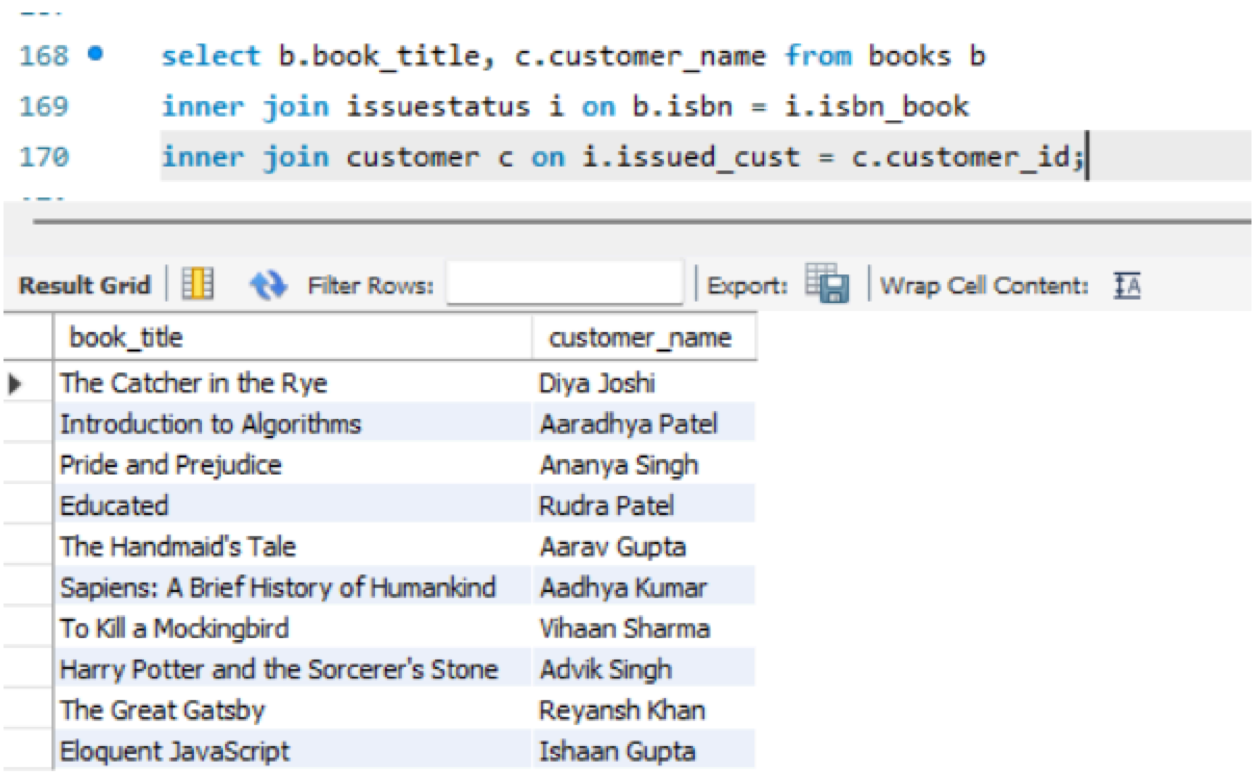
2. List the employee names and their respective salaries in descending order of salary.



```sql
select emp_name, salary from employee order by salary desc;
```

emp_name	salary
Aarav Patel	60000.00
Vihaan Khan	60000.00
Rudra Gupta	60000.00
Advik Gupta	45000.00
Ananya Joshi	45000.00
Aadhya Singh	45000.00
Aaradhya Sharma	35000.00
Ishaan Singh	35000.00
Diya Patel	35000.00
Reyansh Kumar	35000.00

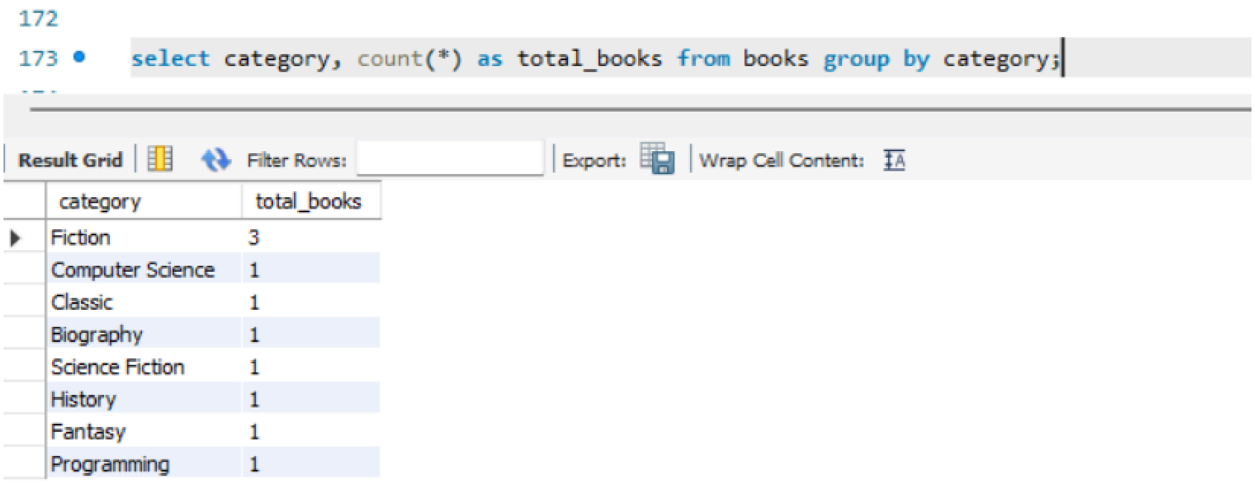
3. Retrieve the book titles and the corresponding customers who have issued those books.



```sql
select b.book_title, c.customer_name from books b
inner join issuestatus i on b.isbn = i.isbn_book
inner join customer c on i.issued_cust = c.customer_id;
```

book_title	customer_name
The Catcher in the Rye	Diya Joshi
Introduction to Algorithms	Aaradhya Patel
Pride and Prejudice	Ananya Singh
Educated	Rudra Patel
The Handmaid's Tale	Aarav Gupta
Sapiens: A Brief History of Humankind	Aadhya Kumar
To Kill a Mockingbird	Vihaan Sharma
Harry Potter and the Sorcerer's Stone	Advik Singh
The Great Gatsby	Reyansh Khan
Eloquent JavaScript	Ishaan Gupta

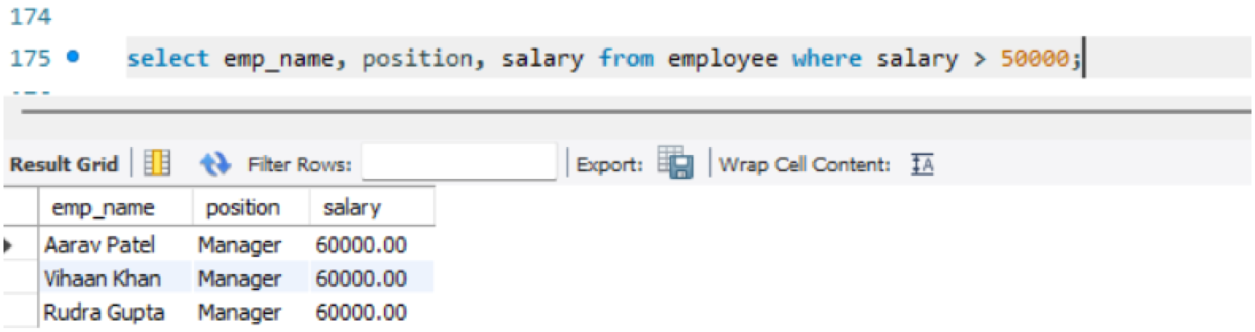
4. Display the total count of books in each category.



```sql
select category, count(*) as total_books from books group by category;
```

category	total_books
Fiction	3
Computer Science	1
Classic	1
Biography	1
Science Fiction	1
History	1
Fantasy	1
Programming	1

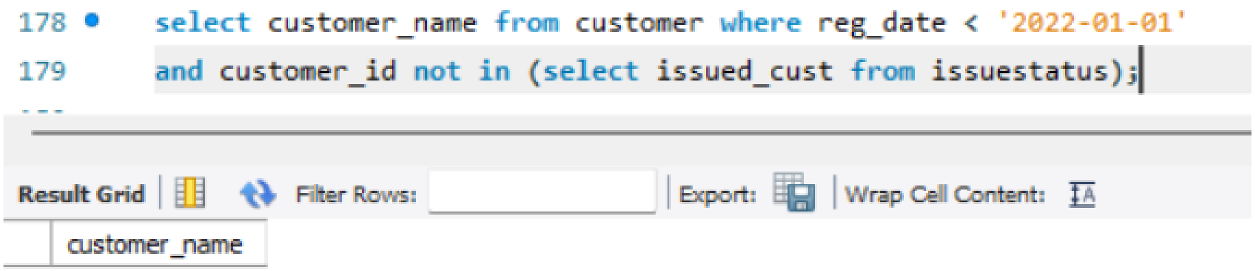
5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.



```sql
select emp_name, position, salary from employee where salary > 50000;
```

emp_name	position	salary
Aarav Patel	Manager	60000.00
Vihaan Khan	Manager	60000.00
Rudra Gupta	Manager	60000.00

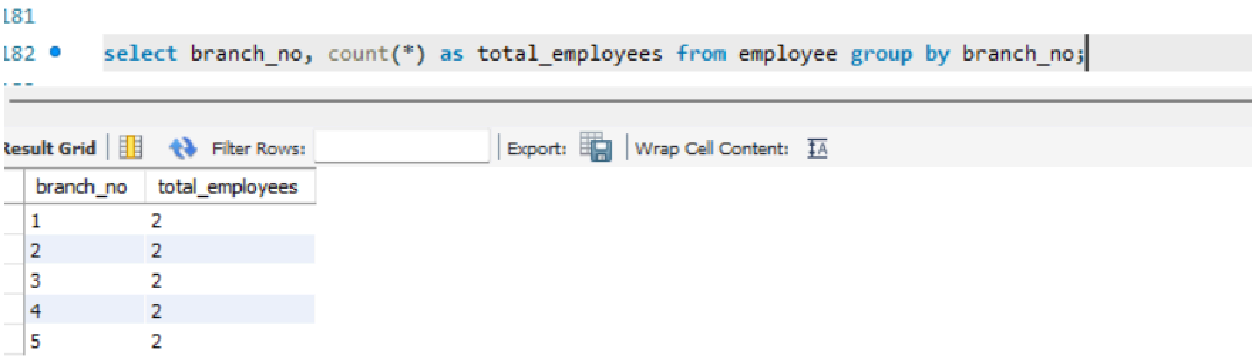
6. List the customer names who registered before 2022-01-01 and have not issued any books yet.



```sql
select customer_name from customer where reg_date < '2022-01-01'
and customer_id not in (select issued_cust from issuestatus);
```

customer_name

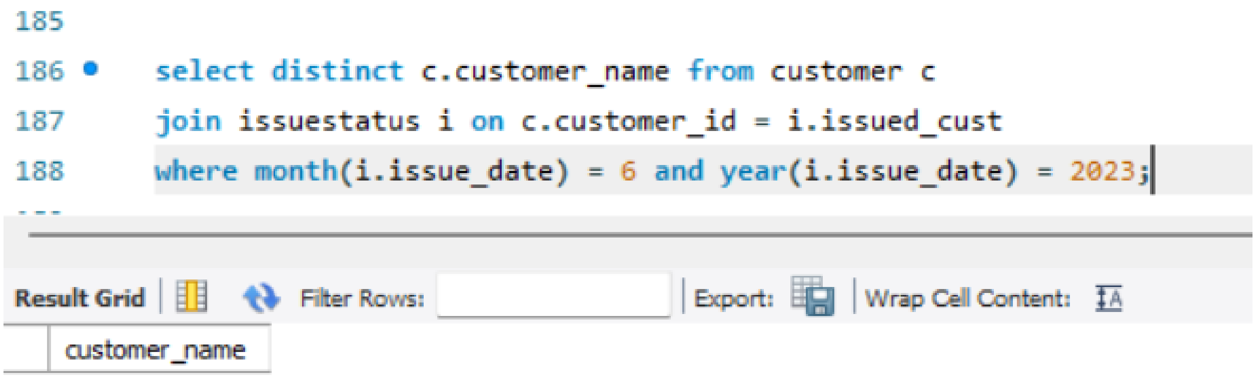
7. Display the branch numbers and the total count of employees in each branch.



```sql
select branch_no, count(*) as total_employees from employee group by branch_no;
```

branch_no	total_employees
1	2
2	2
3	2
4	2
5	2

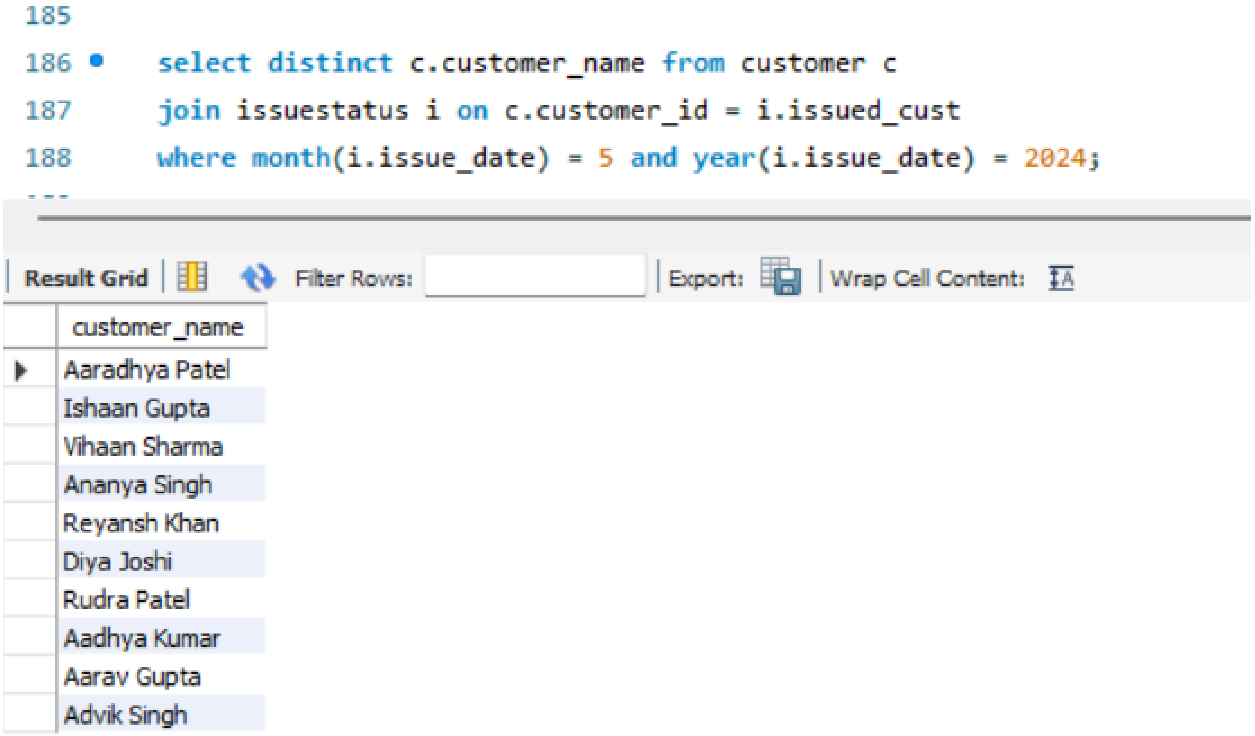
8. Display the names of customers who have issued books in the month of June 2023.



```sql

select distinct c.customer_name from customer c
join issuestatus i on c.customer_id = i.issued_cust
where month(i.issue_date) = 6 and year(i.issue_date) = 2023;
```

	customer_name

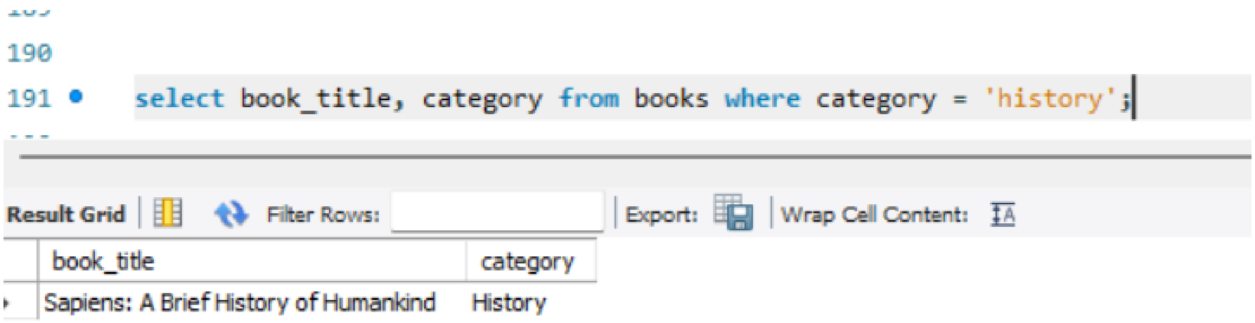
Another example for may 2024



```sql

select distinct c.customer_name from customer c
join issuestatus i on c.customer_id = i.issued_cust
where month(i.issue_date) = 5 and year(i.issue_date) = 2024;
```

	customer_name
▶	Aaradhya Patel
	Ishaan Gupta
	Vihaan Sharma
	Ananya Singh
	Reyansh Khan
	Diya Joshi
	Rudra Patel
	Aadhya Kumar
	Aarav Gupta
	Advik Singh

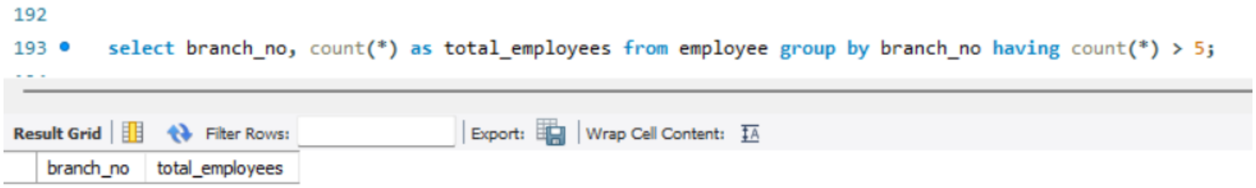
9. Retrieve book_title from book table containing history.



```
select book_title, category from books where category = 'history';
```

book_title	category
Sapiens: A Brief History of Humankind	History

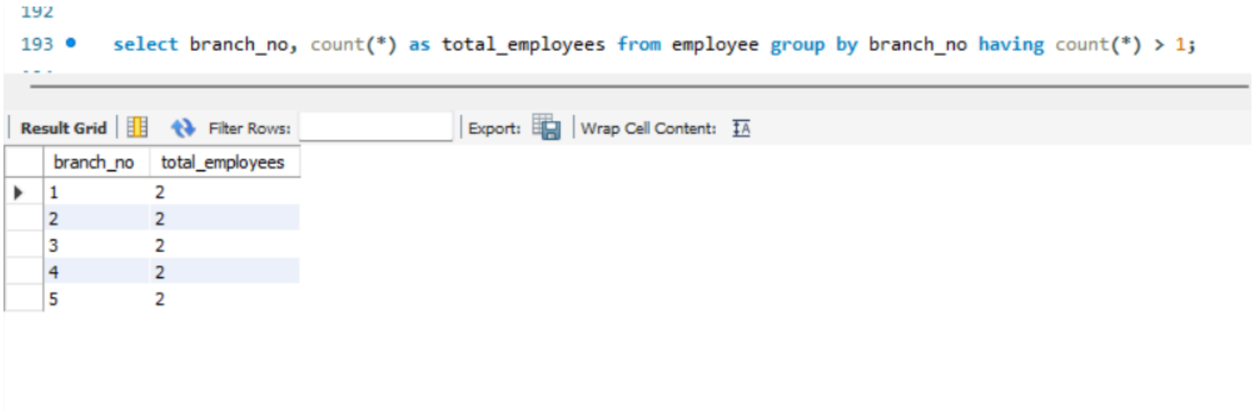
10.Retrieve the branch numbers along with the count of employees for branches having more than 5 employees



```
select branch_no, count(*) as total_employees from employee group by branch_no having count(*) > 5;
```

branch_no	total_employees

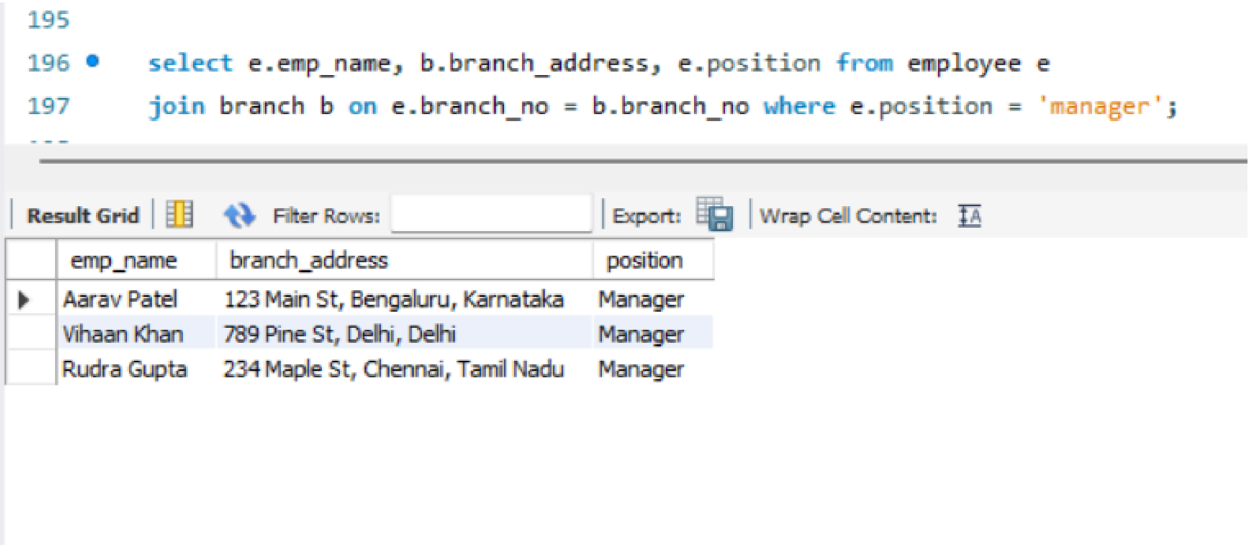
Another example with list more than 1



```
select branch_no, count(*) as total_employees from employee group by branch_no having count(*) > 1;
```

branch_no	total_employees
1	2
2	2
3	2
4	2
5	2

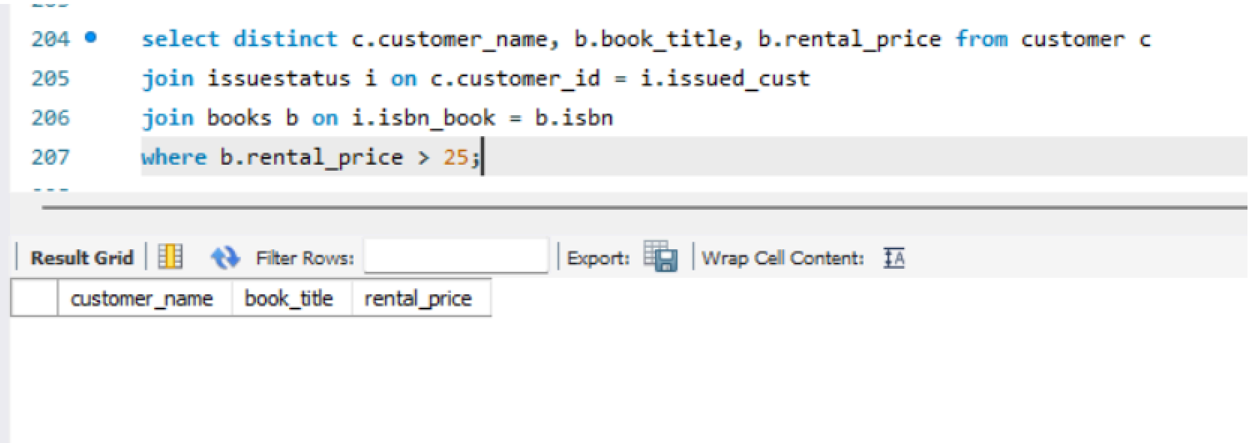
11. Retrieve the names of employees who manage branches and their respective branch addresses.



```
select e.emp_name, b.branch_address, e.position from employee e
join branch b on e.branch_no = b.branch_no where e.position = 'manager';
```

emp_name	branch_address	position
Aarav Patel	123 Main St, Bengaluru, Karnataka	Manager
Vihaan Khan	789 Pine St, Delhi, Delhi	Manager
Rudra Gupta	234 Maple St, Chennai, Tamil Nadu	Manager

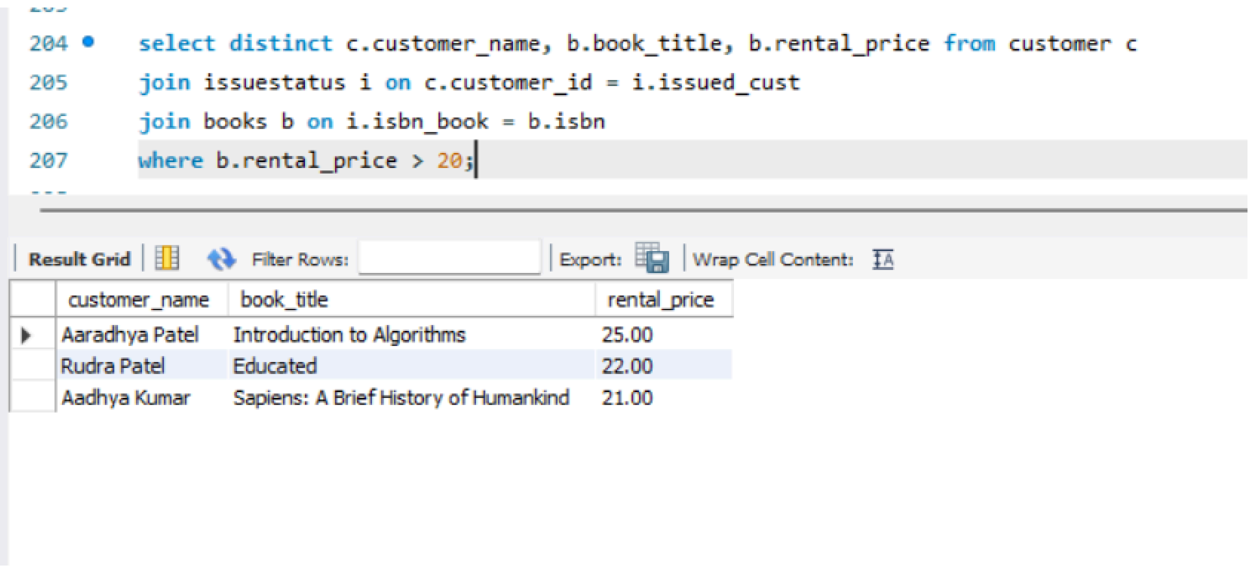
12. Display the names of customers who have issued books with a rental price higher than Rs. 25.



```
select distinct c.customer_name, b.book_title, b.rental_price from customer c
join issuestatus i on c.customer_id = i.issued_cust
join books b on i.isbn_book = b.isbn
where b.rental_price > 25;
```

customer_name	book_title	rental_price

Another example for rental price higher than rs 20.



```sql
select distinct c.customer_name, b.book_title, b.rental_price from customer c
join issuestatus i on c.customer_id = i.issued_cust
join books b on i.isbn_book = b.isbn
where b.rental_price > 20;
```

customer_name	book_title	rental_price
Aaradhya Patel	Introduction to Algorithms	25.00
Rudra Patel	Educated	22.00
Aadhya Kumar	Sapiens: A Brief History of Humankind	21.00