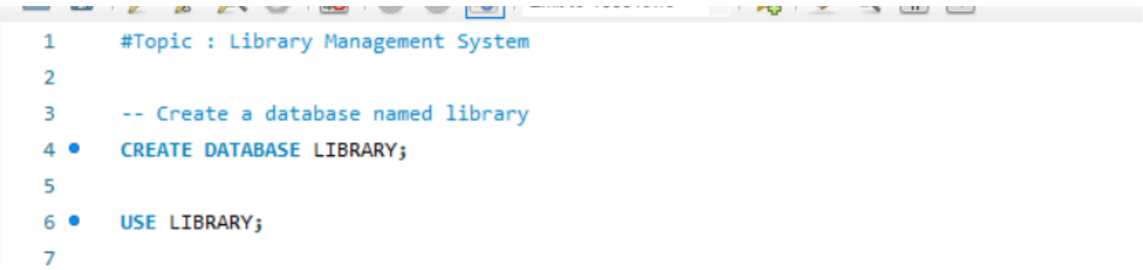
Topic : Library Management System

We are going to build a project based on the 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.

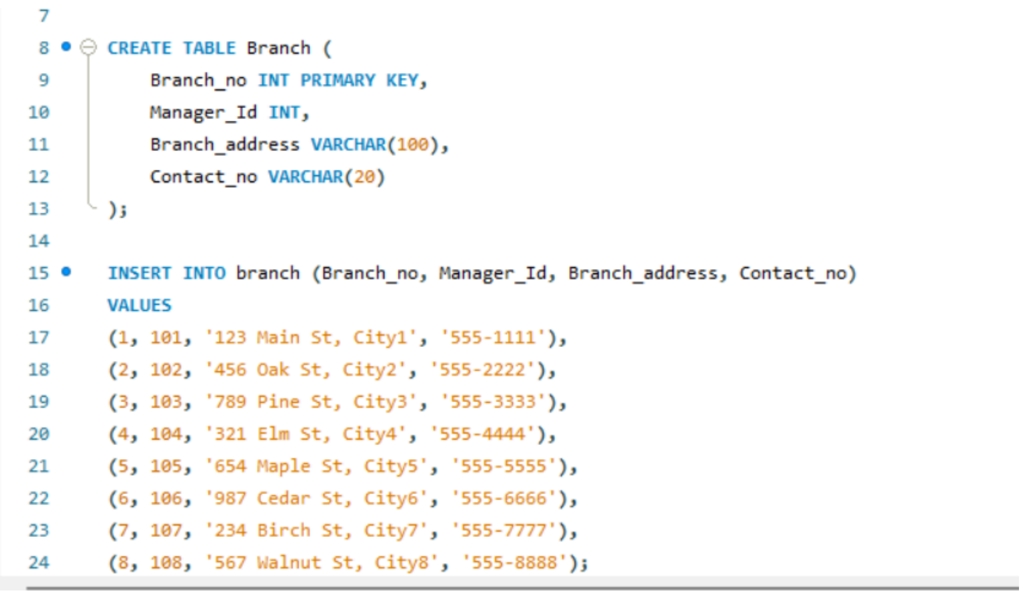
Create a database named library and the following TABLES in the database:
1. Branch
2. Employee
3. Books
4. Customer
5. IssueStatus
6. ReturnStatus



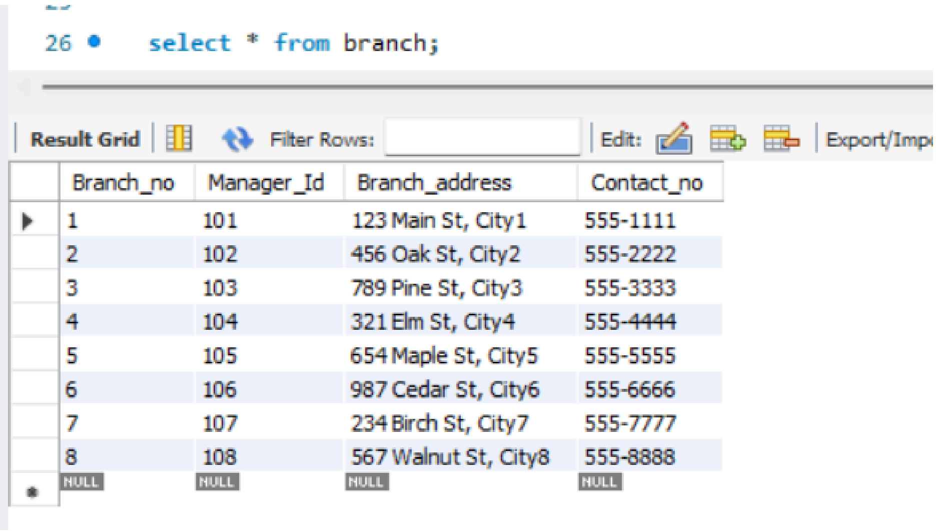
```
#Topic : Library Management System

-- Create a database named library
CREATE DATABASE LIBRARY;

USE LIBRARY;

```

Attributes for the tables:

1. Branch
Branch_no - Set as PRIMARY KEY
Manager_Id
Branch_address
Contact_no



```

CREATE TABLE Branch (
    Branch_no INT PRIMARY KEY,
    Manager_Id INT,
    Branch_address VARCHAR(100),
    Contact_no VARCHAR(20)
);

INSERT INTO branch (Branch_no, Manager_Id, Branch_address, Contact_no)
VALUES
(1, 101, '123 Main St, City1', '555-1111'),
(2, 102, '456 Oak St, City2', '555-2222'),
(3, 103, '789 Pine St, City3', '555-3333'),
(4, 104, '321 Elm St, City4', '555-4444'),
(5, 105, '654 Maple St, City5', '555-5555'),
(6, 106, '987 Cedar St, City6', '555-6666'),
(7, 107, '234 Birch St, City7', '555-7777'),
(8, 108, '567 Walnut St, City8', '555-8888');
```

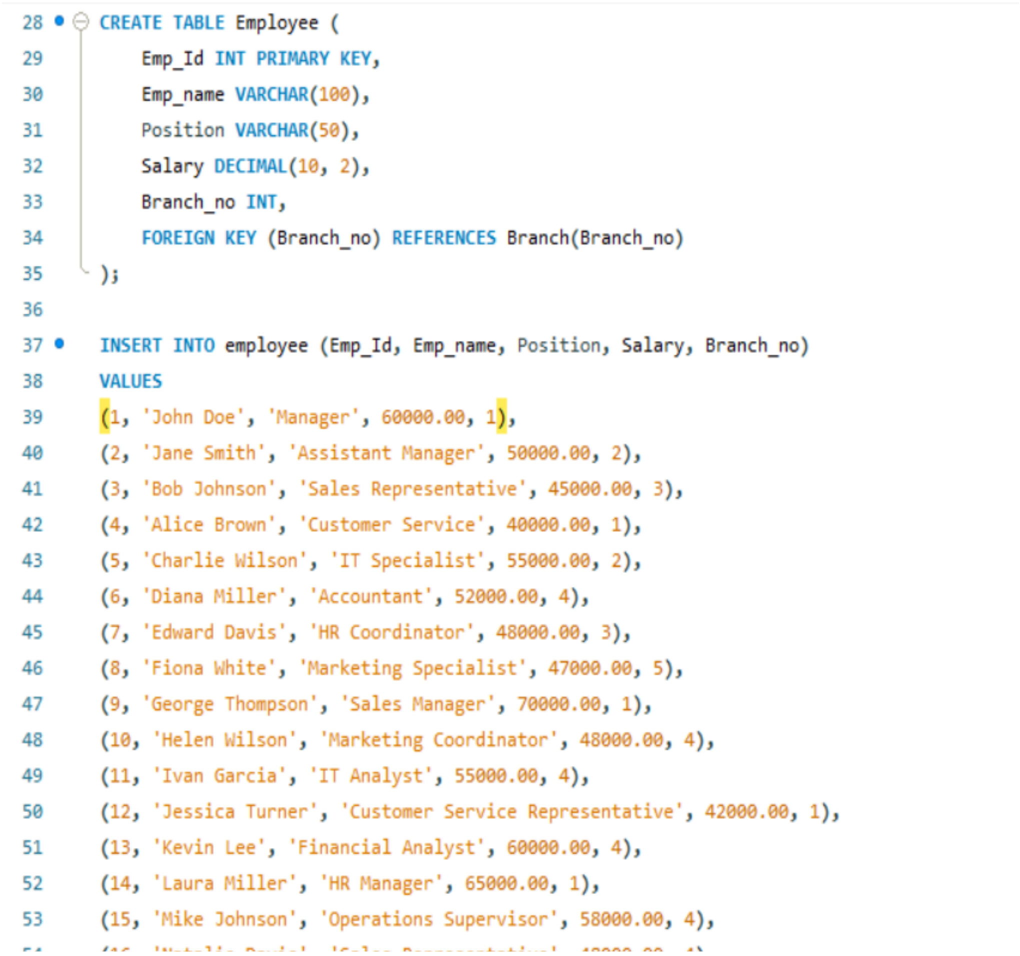


```
select * from branch;
```

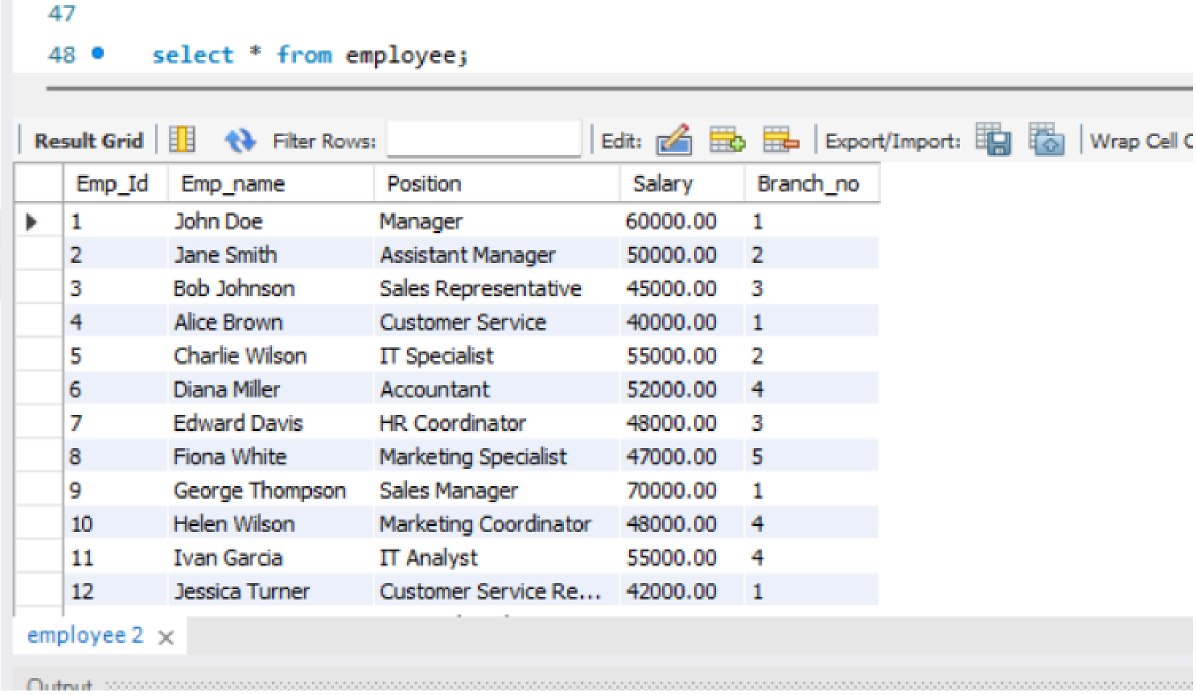
Branch_no	Manager_Id	Branch_address	Contact_no
1	101	123 Main St, City1	555-1111
2	102	456 Oak St, City2	555-2222
3	103	789 Pine St, City3	555-3333
4	104	321 Elm St, City4	555-4444
5	105	654 Maple St, City5	555-5555
6	106	987 Cedar St, City6	555-6666
7	107	234 Birch St, City7	555-7777
8	108	567 Walnut St, City8	555-8888
NULL	NULL	NULL	NULL

2. Employee

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



```
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)
);

INSERT INTO employee (Emp_Id, Emp_name, Position, Salary, Branch_no)
VALUES
(1, 'John Doe', 'Manager', 60000.00, 1),
(2, 'Jane Smith', 'Assistant Manager', 50000.00, 2),
(3, 'Bob Johnson', 'Sales Representative', 45000.00, 3),
(4, 'Alice Brown', 'Customer Service', 40000.00, 1),
(5, 'Charlie Wilson', 'IT Specialist', 55000.00, 2),
(6, 'Diana Miller', 'Accountant', 52000.00, 4),
(7, 'Edward Davis', 'HR Coordinator', 48000.00, 3),
(8, 'Fiona White', 'Marketing Specialist', 47000.00, 5),
(9, 'George Thompson', 'Sales Manager', 70000.00, 1),
(10, 'Helen Wilson', 'Marketing Coordinator', 48000.00, 4),
(11, 'Ivan Garcia', 'IT Analyst', 55000.00, 4),
(12, 'Jessica Turner', 'Customer Service Representative', 42000.00, 1),
(13, 'Kevin Lee', 'Financial Analyst', 60000.00, 4),
(14, 'Laura Miller', 'HR Manager', 65000.00, 1),
(15, 'Mike Johnson', 'Operations Supervisor', 58000.00, 4),
(16, 'Natalie Davis', 'Sales Representative', 48000.00, 4),
```

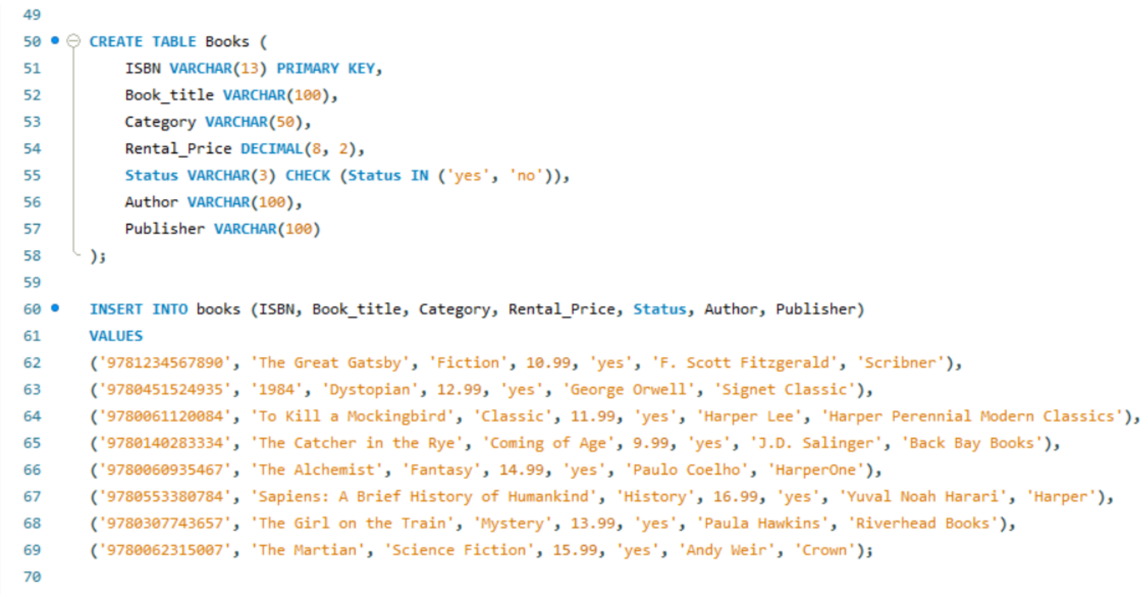


```
select * from employee;
```

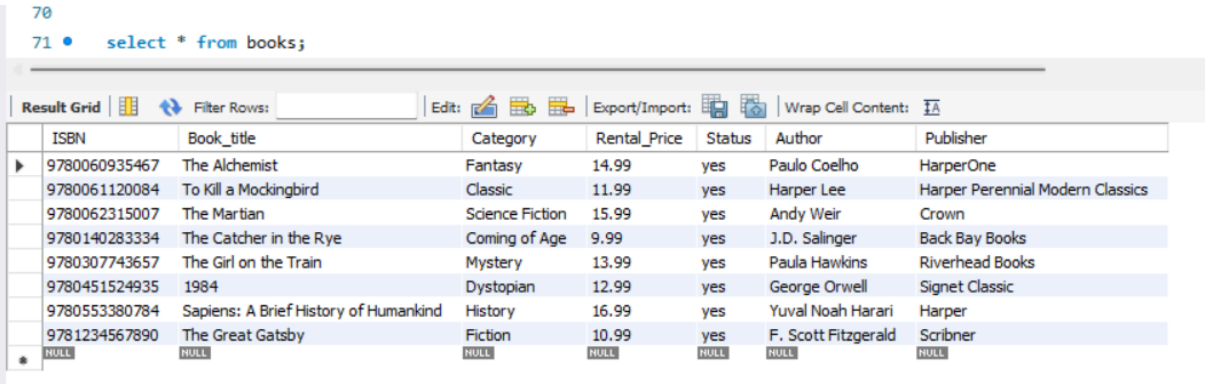
Emp_Id	Emp_name	Position	Salary	Branch_no
1	John Doe	Manager	60000.00	1
2	Jane Smith	Assistant Manager	50000.00	2
3	Bob Johnson	Sales Representative	45000.00	3
4	Alice Brown	Customer Service	40000.00	1
5	Charlie Wilson	IT Specialist	55000.00	2
6	Diana Miller	Accountant	52000.00	4
7	Edward Davis	HR Coordinator	48000.00	3
8	Fiona White	Marketing Specialist	47000.00	5
9	George Thompson	Sales Manager	70000.00	1
10	Helen Wilson	Marketing Coordinator	48000.00	4
11	Ivan Garcia	IT Analyst	55000.00	4
12	Jessica Turner	Customer Service Re...	42000.00	1

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



```
CREATE TABLE Books (
    ISBN VARCHAR(13) PRIMARY KEY,
    Book_title VARCHAR(100),
    Category VARCHAR(50),
    Rental_Price DECIMAL(8, 2),
    Status VARCHAR(3) CHECK (Status IN ('yes', 'no')),
    Author VARCHAR(100),
    Publisher VARCHAR(100)
);

INSERT INTO books (ISBN, Book_title, Category, Rental_Price, Status, Author, Publisher)
VALUES
('9781234567890', 'The Great Gatsby', 'Fiction', 10.99, 'yes', 'F. Scott Fitzgerald', 'Scribner'),
('9780451524935', '1984', 'Dystopian', 12.99, 'yes', 'George Orwell', 'Signet Classic'),
('9780061120084', 'To Kill a Mockingbird', 'Classic', 11.99, 'yes', 'Harper Lee', 'Harper Perennial Modern Classics'),
('9780140283334', 'The Catcher in the Rye', 'Coming of Age', 9.99, 'yes', 'J.D. Salinger', 'Back Bay Books'),
('9780060935467', 'The Alchemist', 'Fantasy', 14.99, 'yes', 'Paulo Coelho', 'HarperOne'),
('9780553380784', 'Sapiens: A Brief History of Humankind', 'History', 16.99, 'yes', 'Yuval Noah Harari', 'Harper'),
('9780307743657', 'The Girl on the Train', 'Mystery', 13.99, 'yes', 'Paula Hawkins', 'Riverhead Books'),
('9780062315007', 'The Martian', 'Science Fiction', 15.99, 'yes', 'Andy Weir', 'Crown');
```

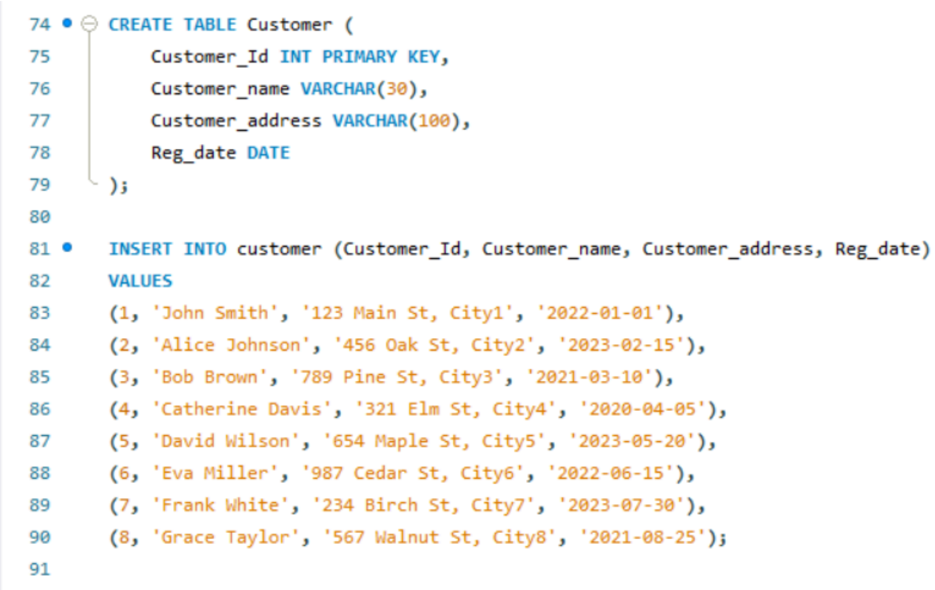


```
select * from books;
```

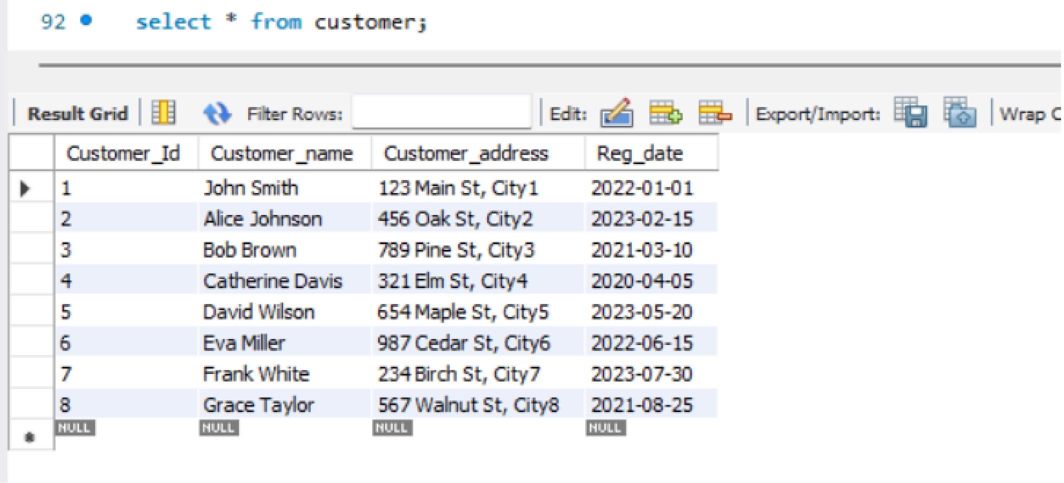
ISBN	Book_title	Category	Rental_Price	Status	Author	Publisher
9780060935467	The Alchemist	Fantasy	14.99	yes	Paulo Coelho	HarperOne
9780061120084	To Kill a Mockingbird	Classic	11.99	yes	Harper Lee	Harper Perennial Modern Classics
9780062315007	The Martian	Science Fiction	15.99	yes	Andy Weir	Crown
9780140283334	The Catcher in the Rye	Coming of Age	9.99	yes	J.D. Salinger	Back Bay Books
9780307743657	The Girl on the Train	Mystery	13.99	yes	Paula Hawkins	Riverhead Books
9780451524935	1984	Dystopian	12.99	yes	George Orwell	Signet Classic
9780553380784	Sapiens: A Brief History of Humankind	History	16.99	yes	Yuval Noah Harari	Harper
9781234567890	The Great Gatsby	Fiction	10.99	yes	F. Scott Fitzgerald	Scribner
NULL	NULL	NULL	NULL	NULL	NULL	NULL

4. Customer

Customer_Id - Set as PRIMARY KEY
Customer_name
Customer_address
Reg_date



```
CREATE TABLE Customer (
    Customer_Id INT PRIMARY KEY,
    Customer_name VARCHAR(30),
    Customer_address VARCHAR(100),
    Reg_date DATE
);

INSERT INTO customer (Customer_Id, Customer_name, Customer_address, Reg_date)
VALUES
(1, 'John Smith', '123 Main St, City1', '2022-01-01'),
(2, 'Alice Johnson', '456 Oak St, City2', '2023-02-15'),
(3, 'Bob Brown', '789 Pine St, City3', '2021-03-10'),
(4, 'Catherine Davis', '321 Elm St, City4', '2020-04-05'),
(5, 'David Wilson', '654 Maple St, City5', '2023-05-20'),
(6, 'Eva Miller', '987 Cedar St, City6', '2022-06-15'),
(7, 'Frank White', '234 Birch St, City7', '2023-07-30'),
(8, 'Grace Taylor', '567 Walnut St, City8', '2021-08-25');
```



```
select * from customer;
```

Customer_Id	Customer_name	Customer_address	Reg_date
1	John Smith	123 Main St, City1	2022-01-01
2	Alice Johnson	456 Oak St, City2	2023-02-15
3	Bob Brown	789 Pine St, City3	2021-03-10
4	Catherine Davis	321 Elm St, City4	2020-04-05
5	David Wilson	654 Maple St, City5	2023-05-20
6	Eva Miller	987 Cedar St, City6	2022-06-15
7	Frank White	234 Birch St, City7	2023-07-30
8	Grace Taylor	567 Walnut St, City8	2021-08-25
NULL	NULL	NULL	NULL

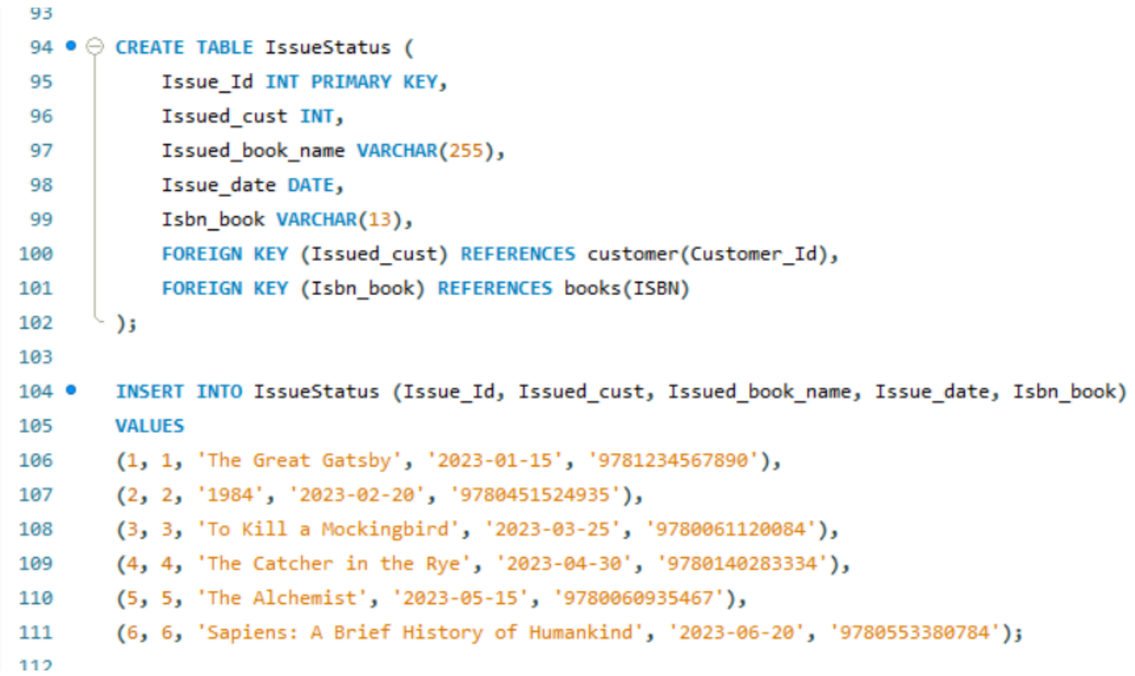
5. IssueStatus

Issue_Id - Set as PRIMARY KEY

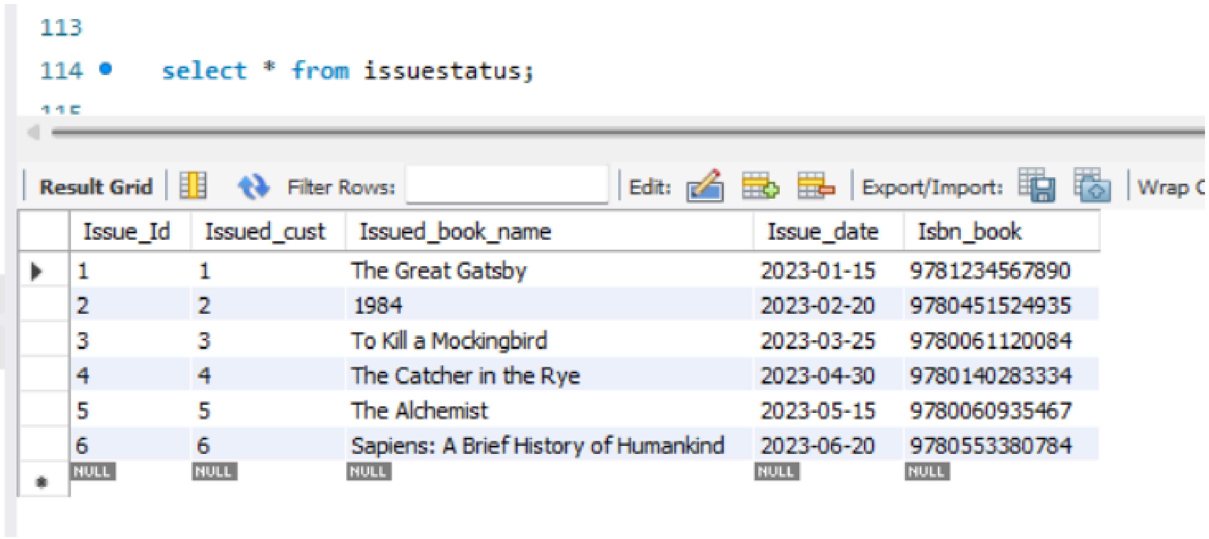
Issued_cust – Set as FOREIGN KEY and it refers to the customer_id in the CUSTOMER table Issued_book_name

Issue_date

Isbn_book – Set as FOREIGN KEY and it should refer to isbn in BOOKS table



```sql
CREATE TABLE IssueStatus (
    Issue_Id INT PRIMARY KEY,
    Issued_cust INT,
    Issued_book_name VARCHAR(255),
    Issue_date DATE,
    Isbn_book VARCHAR(13),
    FOREIGN KEY (Issued_cust) REFERENCES customer(Customer_Id),
    FOREIGN KEY (Isbn_book) REFERENCES books(ISBN)
);

INSERT INTO IssueStatus (Issue_Id, Issued_cust, Issued_book_name, Issue_date, Isbn_book)
VALUES
(1, 1, 'The Great Gatsby', '2023-01-15', '9781234567890'),
(2, 2, '1984', '2023-02-20', '9780451524935'),
(3, 3, 'To Kill a Mockingbird', '2023-03-25', '9780061120084'),
(4, 4, 'The Catcher in the Rye', '2023-04-30', '9780140283334'),
(5, 5, 'The Alchemist', '2023-05-15', '9780060935467'),
(6, 6, 'Sapiens: A Brief History of Humankind', '2023-06-20', '9780553380784');
```



```sql
select * from issuestatus;
```

Issue_Id	Issued_cust	Issued_book_name	Issue_date	Isbn_book
1	1	The Great Gatsby	2023-01-15	9781234567890
2	2	1984	2023-02-20	9780451524935
3	3	To Kill a Mockingbird	2023-03-25	9780061120084
4	4	The Catcher in the Rye	2023-04-30	9780140283334
5	5	The Alchemist	2023-05-15	9780060935467
6	6	Sapiens: A Brief History of Humankind	2023-06-20	9780553380784
NULL	NULL	NULL	NULL	NULL

6. ReturnStatus

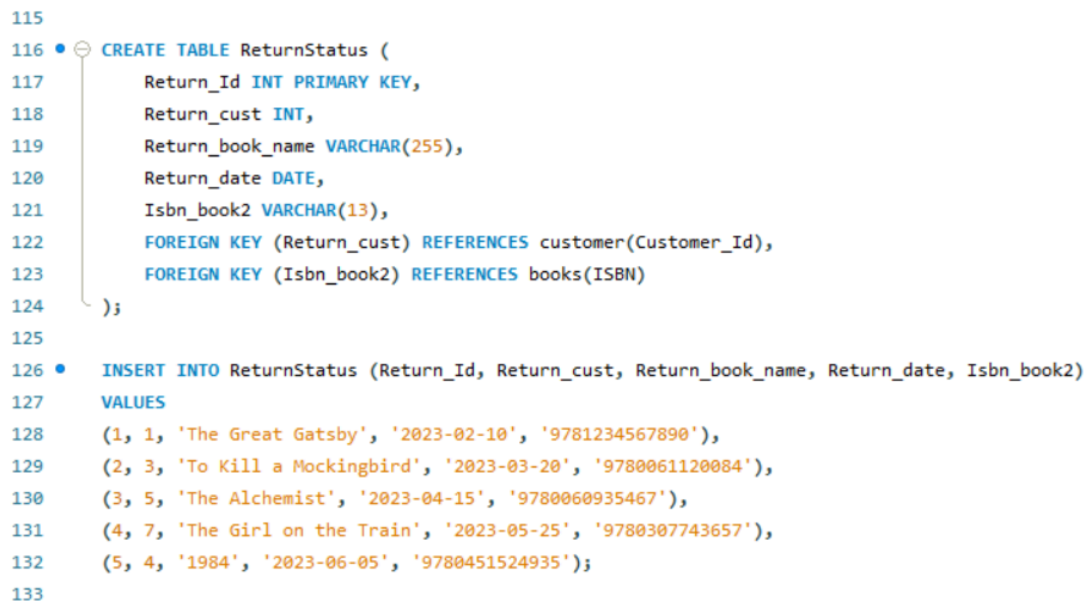
Return_Id - Set as PRIMARY KEY

Return_cust

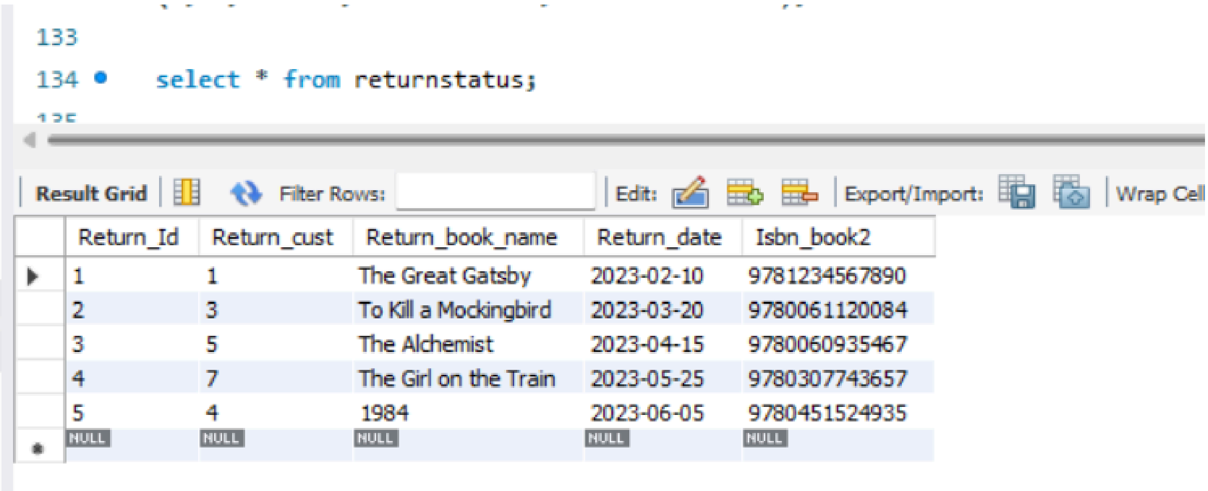
Return_book_name

Return_date

Isbn_book2 - Set as FOREIGN KEY and it should refer to isbn in BOOKS table



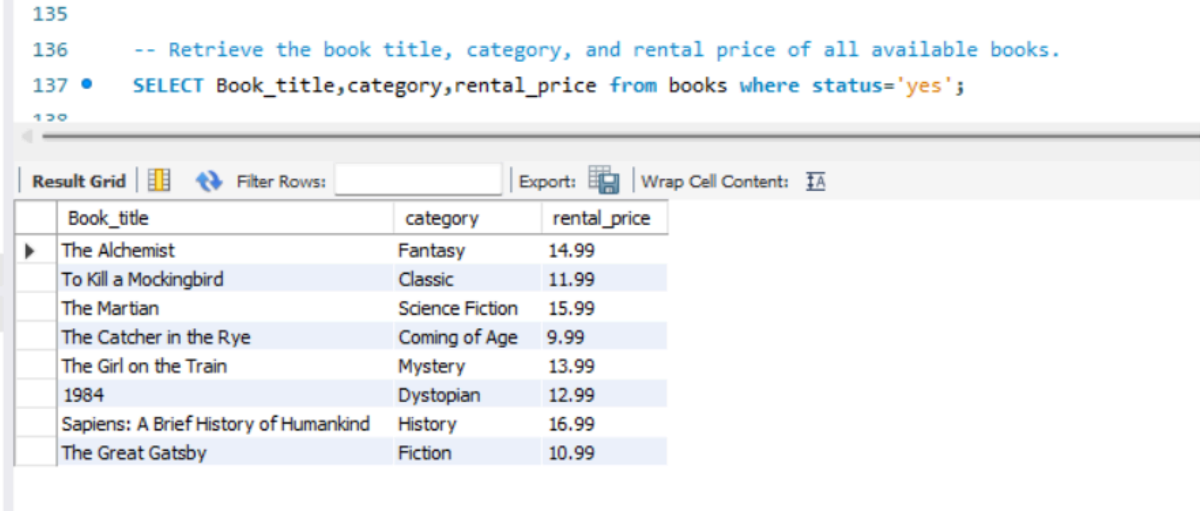
```sql
CREATE TABLE ReturnStatus (
    Return_Id INT PRIMARY KEY,
    Return_cust INT,
    Return_book_name VARCHAR(255),
    Return_date DATE,
    Isbn_book2 VARCHAR(13),
    FOREIGN KEY (Return_cust) REFERENCES customer(Customer_Id),
    FOREIGN KEY (Isbn_book2) REFERENCES books(ISBN)
);

INSERT INTO ReturnStatus (Return_Id, Return_cust, Return_book_name, Return_date, Isbn_book2)
VALUES
(1, 1, 'The Great Gatsby', '2023-02-10', '9781234567890'),
(2, 3, 'To Kill a Mockingbird', '2023-03-20', '9780061120084'),
(3, 5, 'The Alchemist', '2023-04-15', '9780060935467'),
(4, 7, 'The Girl on the Train', '2023-05-25', '9780307743657'),
(5, 4, '1984', '2023-06-05', '9780451524935');
```



```sql
select * from returnstatus;
```

Return_Id	Return_cust	Return_book_name	Return_date	Isbn_book2
1	1	The Great Gatsby	2023-02-10	9781234567890
2	3	To Kill a Mockingbird	2023-03-20	9780061120084
3	5	The Alchemist	2023-04-15	9780060935467
4	7	The Girl on the Train	2023-05-25	9780307743657
5	4	1984	2023-06-05	9780451524935
NULL	NULL	NULL	NULL	NULL

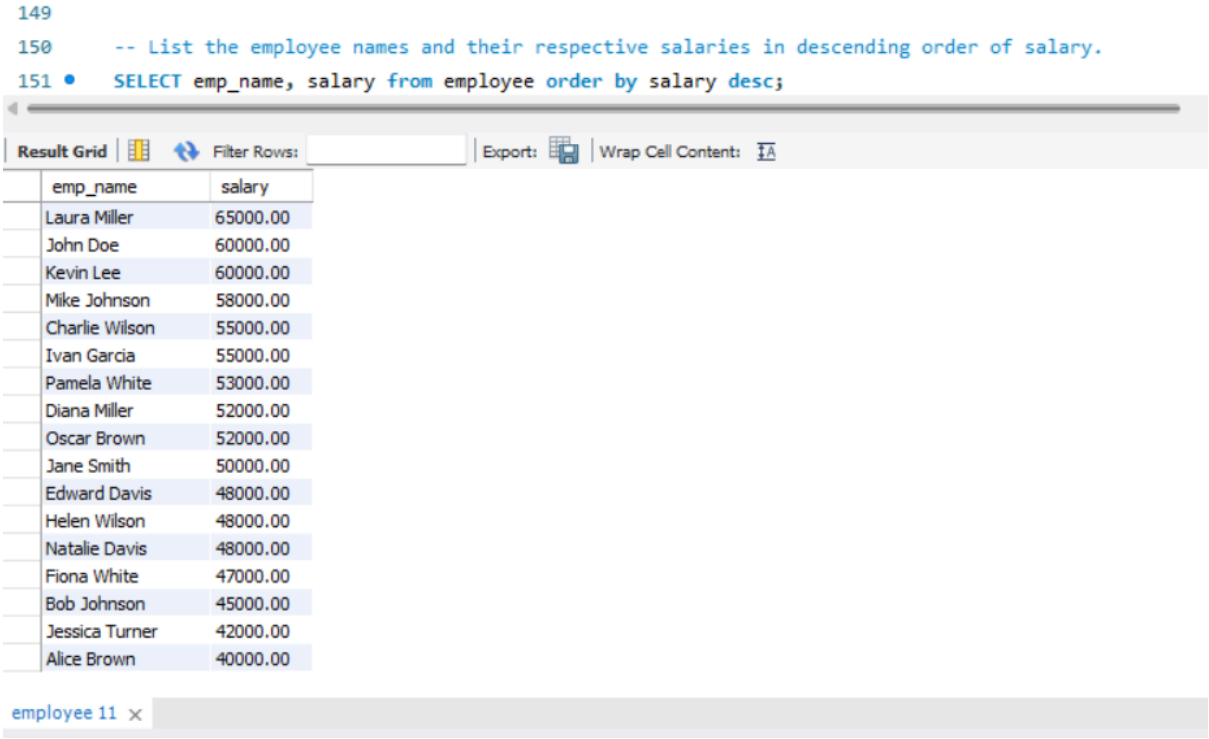
- Retrieve the book title, category, and rental price of all available books.



```sql
-- Retrieve the book title, category, and rental price of all available books.
SELECT Book_title,category,rental_price from books where status='yes';
```

Book_title	category	rental_price
The Alchemist	Fantasy	14.99
To Kill a Mockingbird	Classic	11.99
The Martian	Science Fiction	15.99
The Catcher in the Rye	Coming of Age	9.99
The Girl on the Train	Mystery	13.99
1984	Dystopian	12.99
Sapiens: A Brief History of Humankind	History	16.99
The Great Gatsby	Fiction	10.99

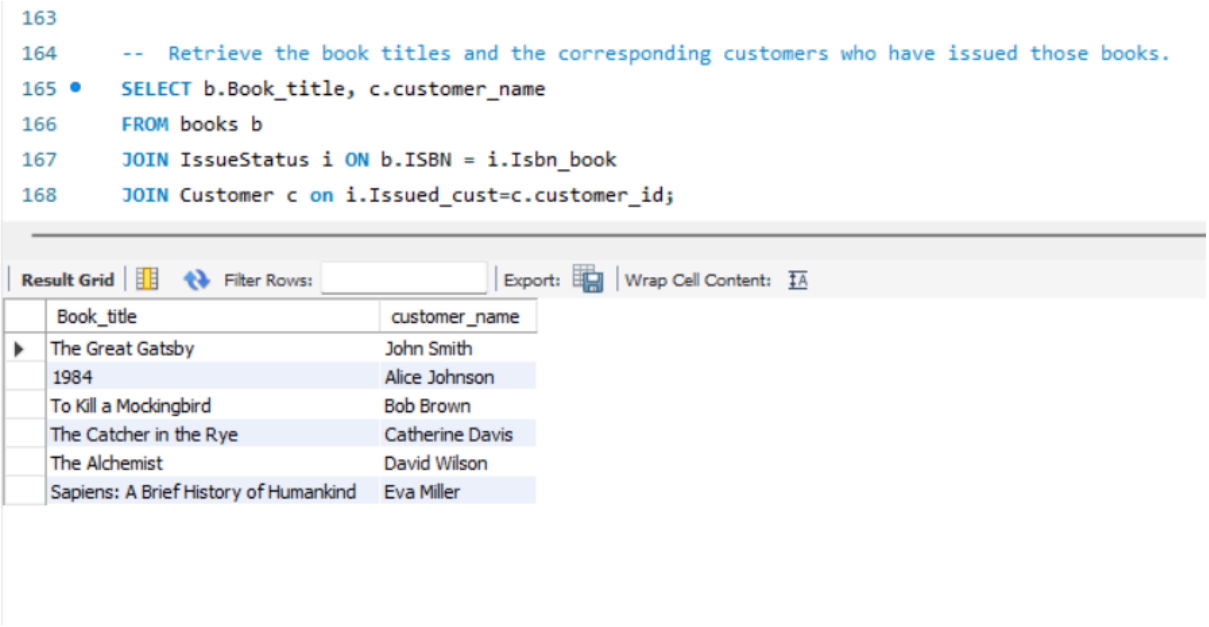
- List the employee names and their respective salaries in descending order of salary



```sql

-- List the employee names and their respective salaries in descending order of salary.
SELECT emp_name, salary from employee order by salary desc;
```

emp_name	salary
Laura Miller	65000.00
John Doe	60000.00
Kevin Lee	60000.00
Mike Johnson	58000.00
Charlie Wilson	55000.00
Ivan Garcia	55000.00
Pamela White	53000.00
Diana Miller	52000.00
Oscar Brown	52000.00
Jane Smith	50000.00
Edward Davis	48000.00
Helen Wilson	48000.00
Natalie Davis	48000.00
Fiona White	47000.00
Bob Johnson	45000.00
Jessica Turner	42000.00
Alice Brown	40000.00

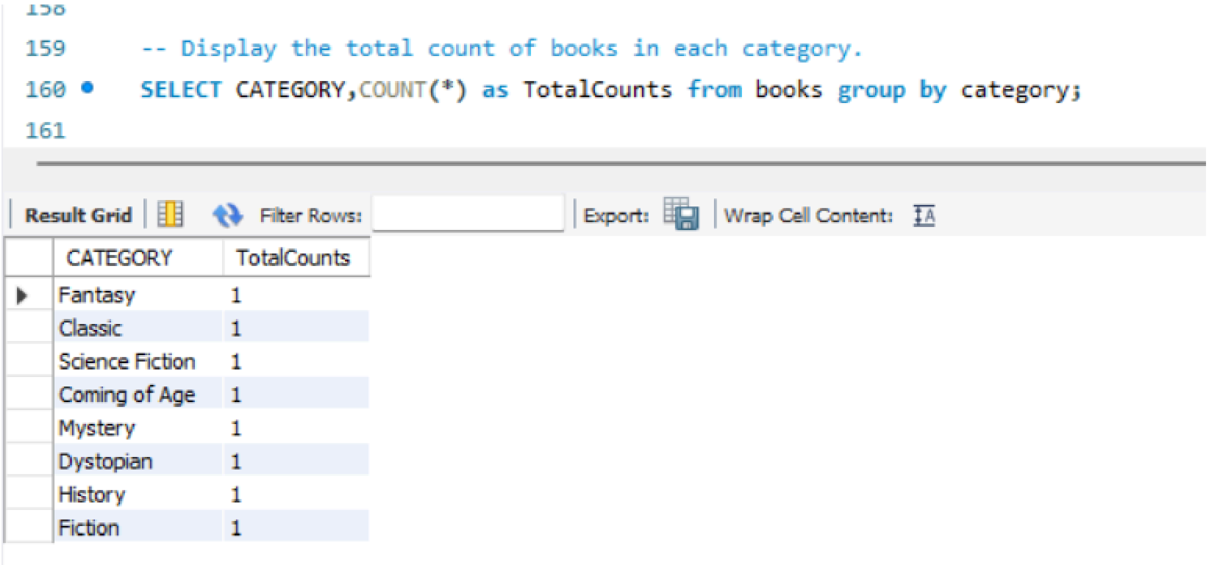
- Retrieve the book titles and the corresponding customers who have issued those books



```sql

--  Retrieve the book titles and the corresponding customers who have issued those books.
SELECT b.Book_title, c.customer_name
FROM books b
JOIN IssueStatus i ON b.ISBN = i.Isbn_book
JOIN Customer c on i.Issued_cust=c.customer_id;
```

Book_title	customer_name
The Great Gatsby	John Smith
1984	Alice Johnson
To Kill a Mockingbird	Bob Brown
The Catcher in the Rye	Catherine Davis
The Alchemist	David Wilson
Sapiens: A Brief History of Humankind	Eva Miller

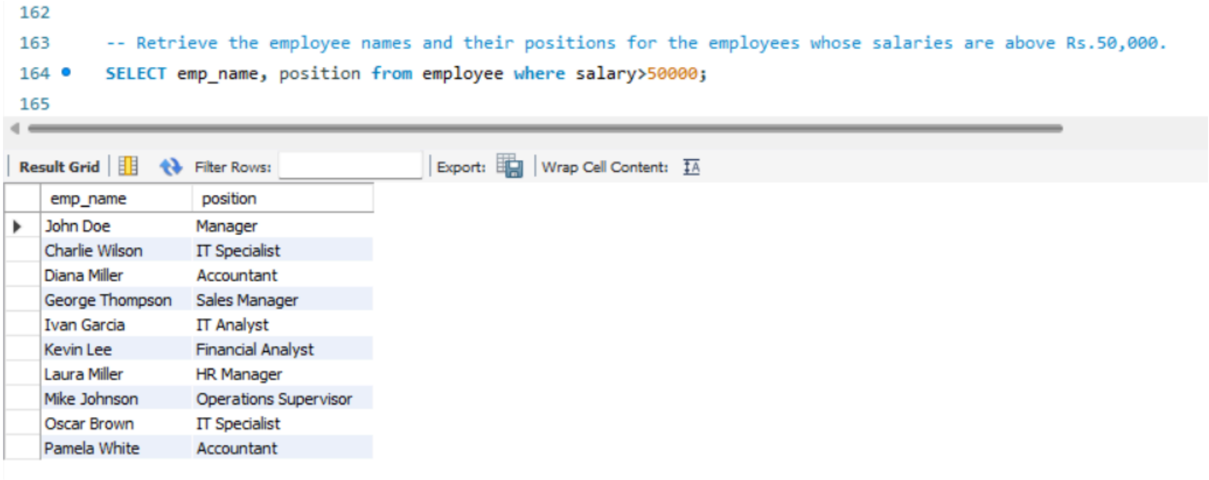
- Display the total count of books in each category.



```sql
-- Display the total count of books in each category.
SELECT CATEGORY,COUNT(*) as TotalCounts from books group by category;
```

CATEGORY	TotalCounts
Fantasy	1
Classic	1
Science Fiction	1
Coming of Age	1
Mystery	1
Dystopian	1
History	1
Fiction	1

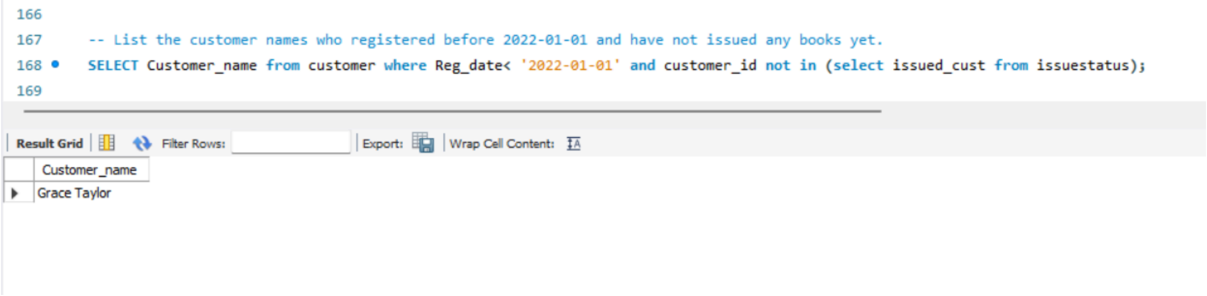
- Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.



```sql
-- Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.
SELECT emp_name, position from employee where salary>50000;
```

emp_name	position
John Doe	Manager
Charlie Wilson	IT Specialist
Diana Miller	Accountant
George Thompson	Sales Manager
Ivan Garcia	IT Analyst
Kevin Lee	Financial Analyst
Laura Miller	HR Manager
Mike Johnson	Operations Supervisor
Oscar Brown	IT Specialist
Pamela White	Accountant

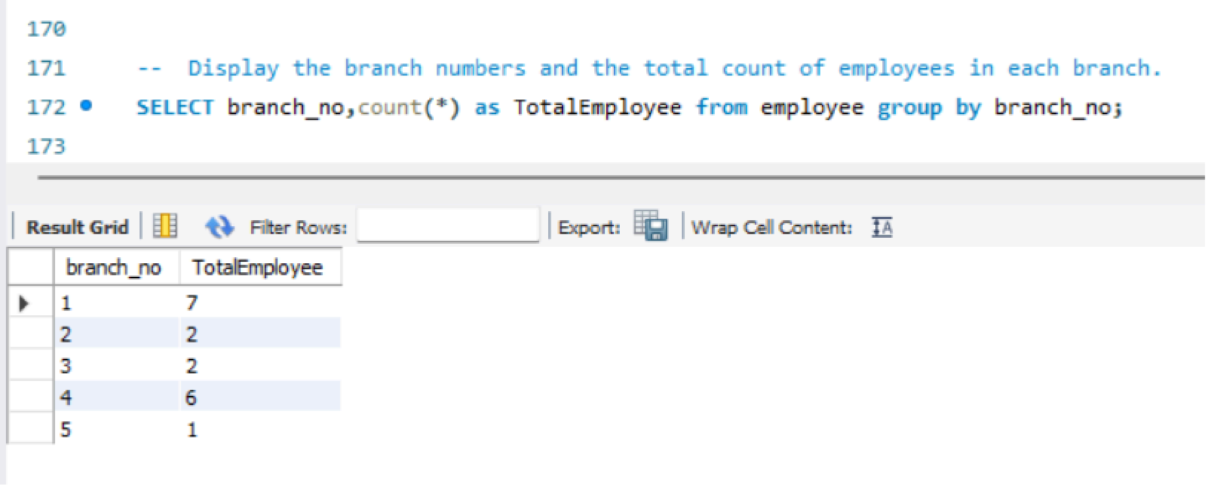
- List the customer names who registered before 2022-01-01 and have not issued any books yet.



```sql
-- List the customer names who registered before 2022-01-01 and have not issued any books yet.
SELECT Customer_name from customer where Reg_date< '2022-01-01' and customer_id not in (select issued_cust from issuestatus);
```

Customer_name
Grace Taylor

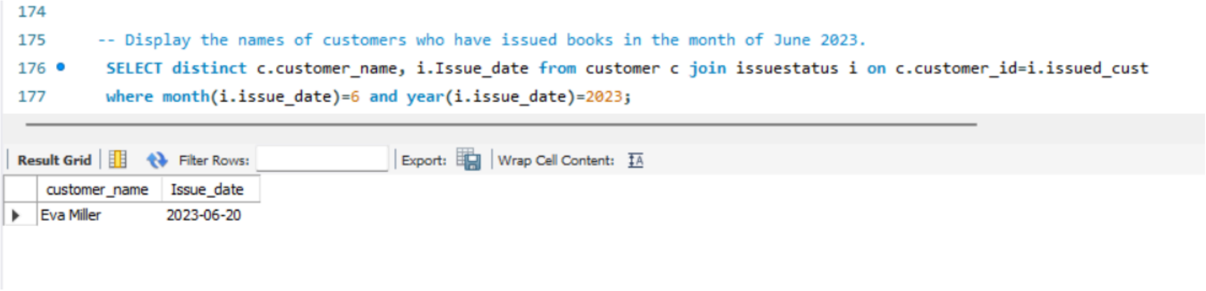
- Display the branch numbers and the total count of employees in each branch.



```
-- Display the branch numbers and the total count of employees in each branch.
SELECT branch_no,count(*) as TotalEmployee from employee group by branch_no;
```

branch_no	TotalEmployee
1	7
2	2
3	2
4	6
5	1

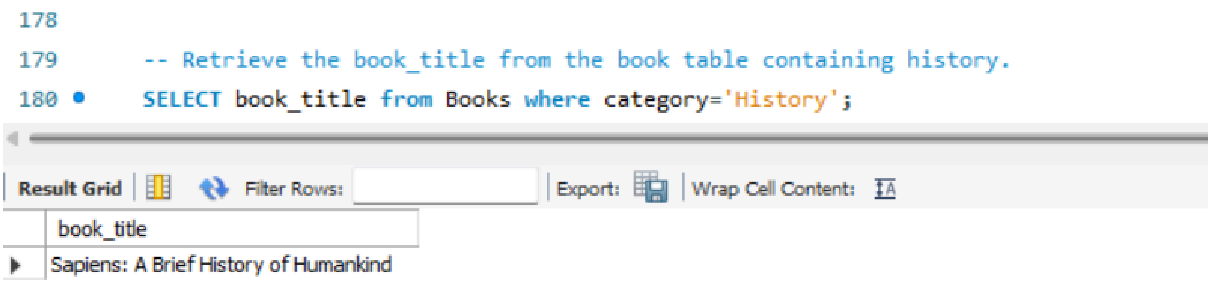
- Display the names of customers who have issued books in the month of June 2023.



```
-- Display the names of customers who have issued books in the month of June 2023.
 SELECT distinct c.customer_name, i.Issue_date 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	Issue_date
Eva Miller	2023-06-20

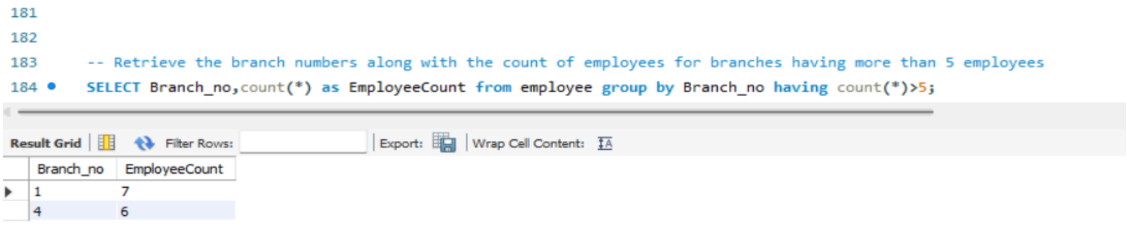
- Retrieve the book_title from the book table containing history



```
-- Retrieve the book_title from the book table containing history.
SELECT book_title from Books where category='History';
```

book_title
Sapiens: A Brief History of Humankind

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



```
-- Retrieve the branch numbers along with the count of employees for branches having more than 5 employees
SELECT Branch_no,count(*) as EmployeeCount from employee group by Branch_no having count(*)>5;
```

Branch_no	EmployeeCount
1	7
4	6