Module End Project

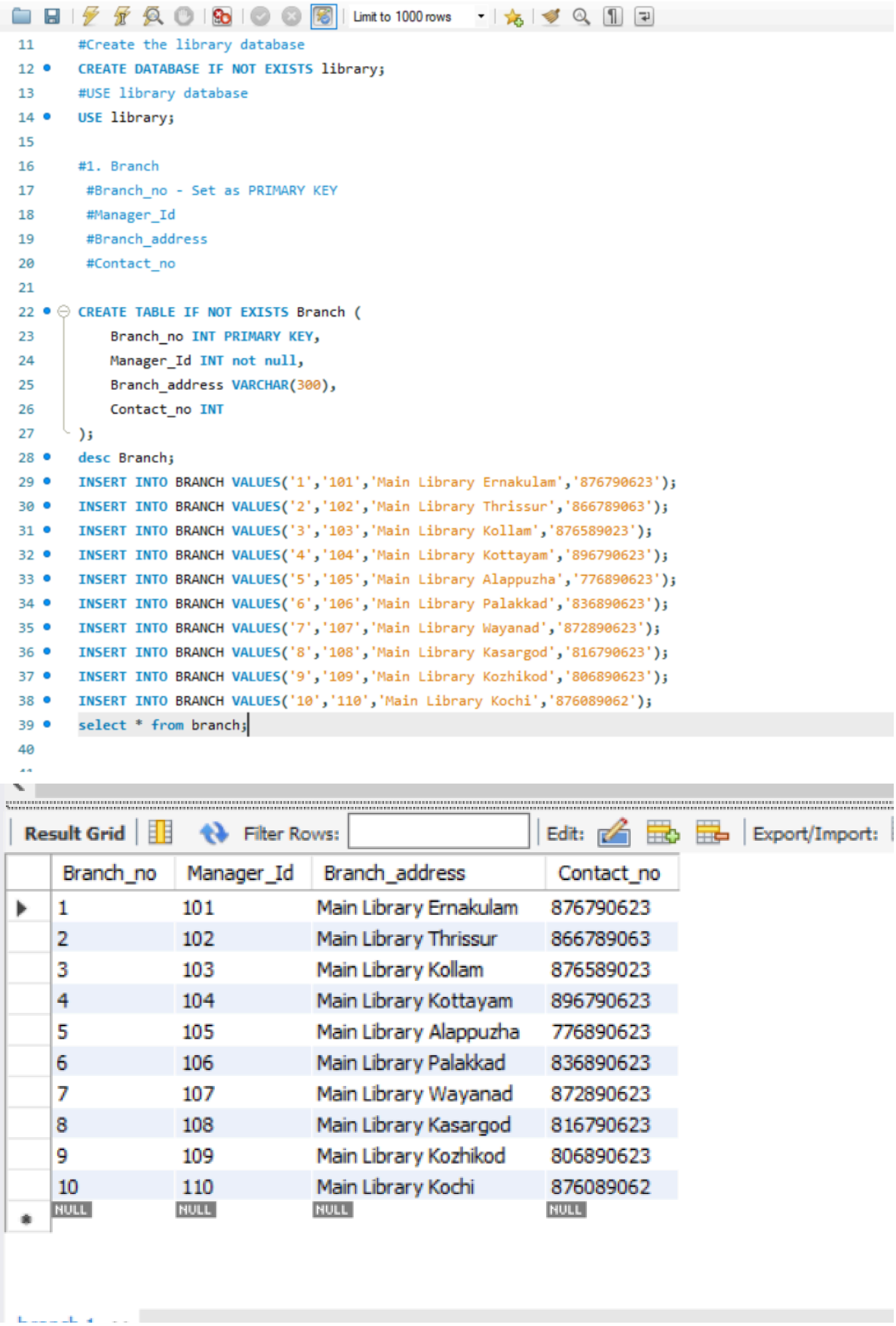
Topic : Library Management System
You are going to build a project based on Library Management System. It keeps track of all information about books in the library, their cost, status and total number of books available in the library.

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

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

Attributes for the tables:

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



```
#Create the library database
CREATE DATABASE IF NOT EXISTS library;
#USE library database
USE library;

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

CREATE TABLE IF NOT EXISTS Branch (
    Branch_no INT PRIMARY KEY,
    Manager_Id INT not null,
    Branch_address VARCHAR(300),
    Contact_no INT
);
desc Branch;
INSERT INTO BRANCH VALUES('1','101','Main Library Ernakulam','876790623');
INSERT INTO BRANCH VALUES('2','102','Main Library Thrissur','866789063');
INSERT INTO BRANCH VALUES('3','103','Main Library Kollam','876589023');
INSERT INTO BRANCH VALUES('4','104','Main Library Kottayam','896790623');
INSERT INTO BRANCH VALUES('5','105','Main Library Alappuzha','776890623');
INSERT INTO BRANCH VALUES('6','106','Main Library Palakkad','836890623');
INSERT INTO BRANCH VALUES('7','107','Main Library Wayanad','872890623');
INSERT INTO BRANCH VALUES('8','108','Main Library Kasargod','816790623');
INSERT INTO BRANCH VALUES('9','109','Main Library Kozhikod','806890623');
INSERT INTO BRANCH VALUES('10','110','Main Library Kochi','876089062');
select * from branch;
```

Branch_no	Manager_Id	Branch_address	Contact_no
1	101	Main Library Ernakulam	876790623
2	102	Main Library Thrissur	866789063
3	103	Main Library Kollam	876589023
4	104	Main Library Kottayam	896790623
5	105	Main Library Alappuzha	776890623
6	106	Main Library Palakkad	836890623
7	107	Main Library Wayanad	872890623
8	108	Main Library Kasargod	816790623
9	109	Main Library Kozhikod	806890623
10	110	Main Library Kochi	876089062
NULL	NULL	NULL	NULL

2. Employee

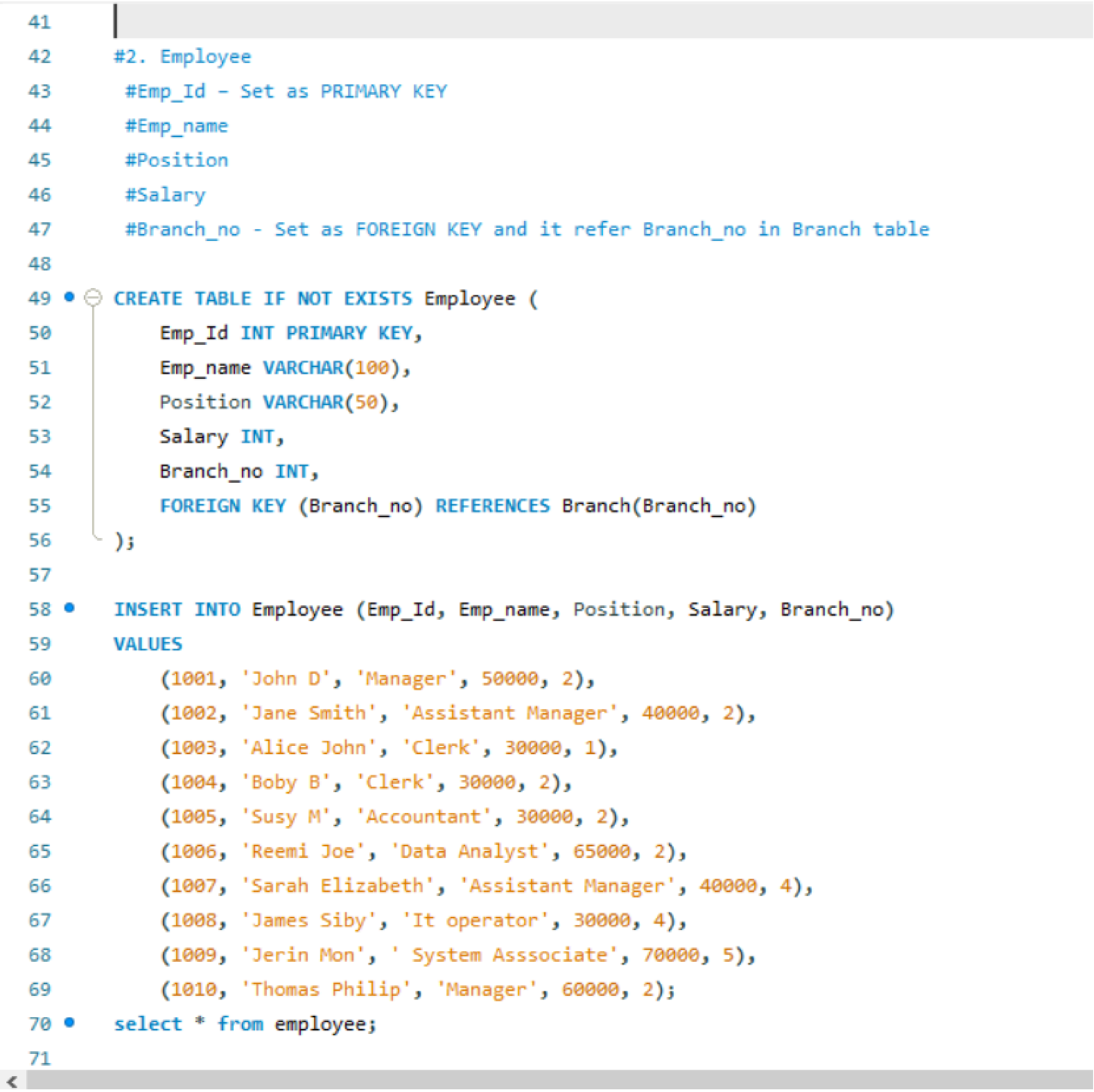
Emp_Id – Set as PRIMARY KEY

Emp_name

Position

Salary

Branch_no - Set as FOREIGN KEY and it refer Branch_no in Branch table



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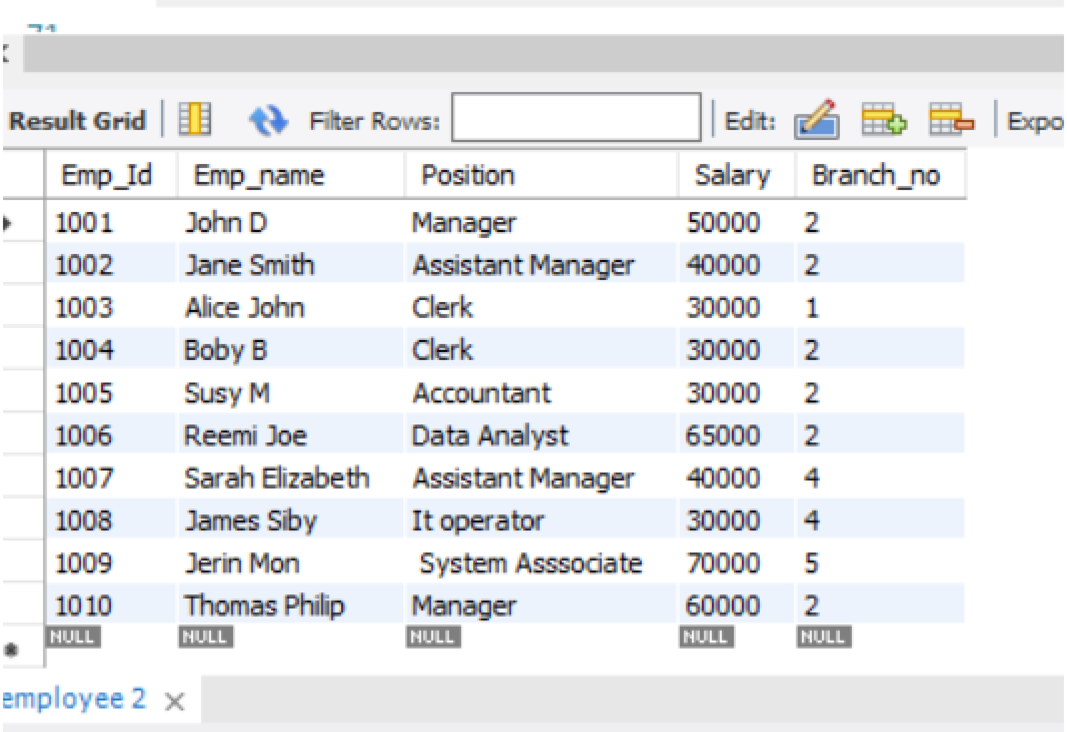
#2. Employee
 #Emp_Id – Set as PRIMARY KEY
 #Emp_name
 #Position
 #Salary
 #Branch_no - Set as FOREIGN KEY and it refer Branch_no in Branch table

CREATE TABLE IF NOT EXISTS Employee (
    Emp_Id INT PRIMARY KEY,
    Emp_name VARCHAR(100),
    Position VARCHAR(50),
    Salary INT,
    Branch_no INT,
    FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no)
);

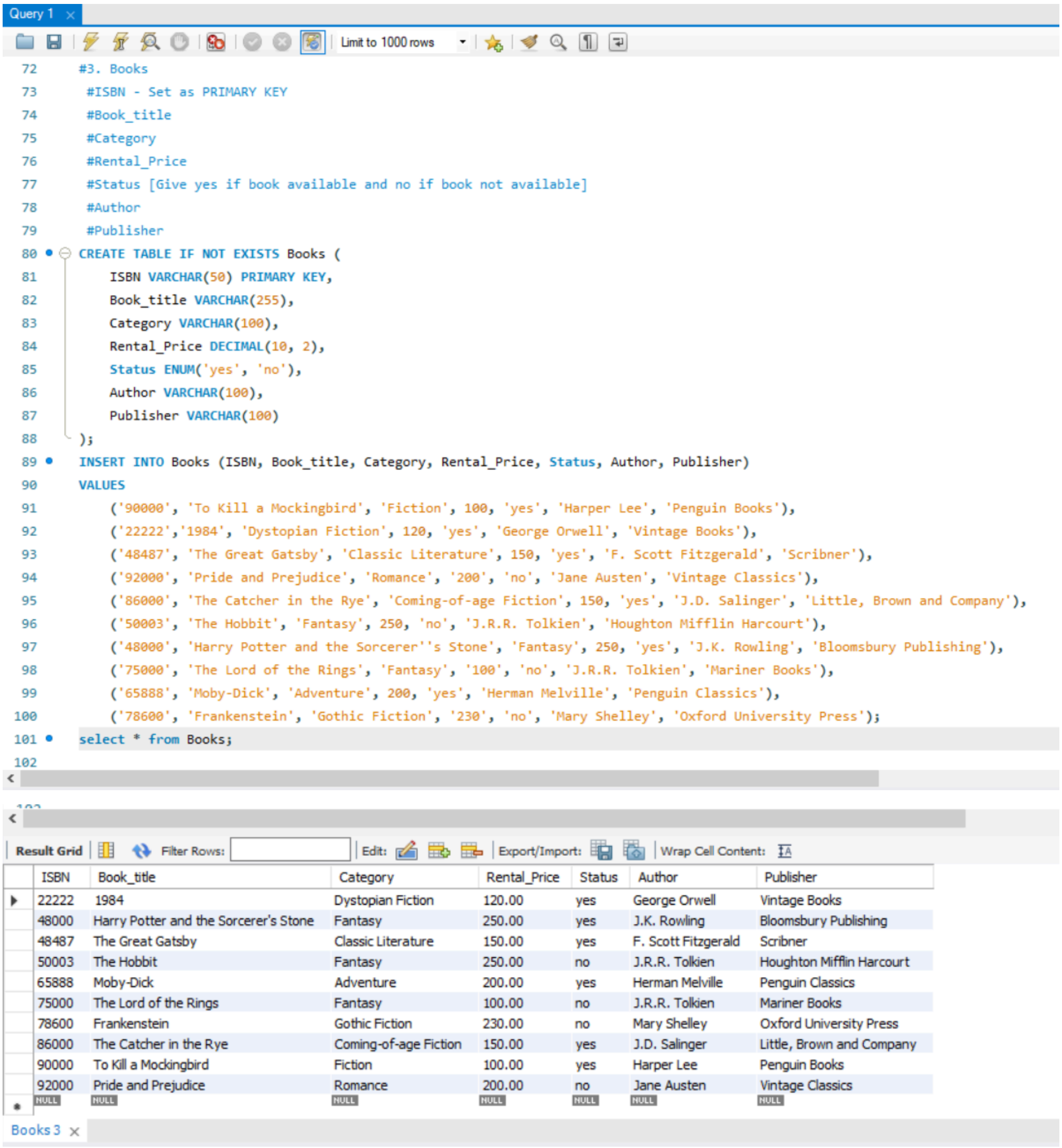
INSERT INTO Employee (Emp_Id, Emp_name, Position, Salary, Branch_no)
VALUES
    (1001, 'John D', 'Manager', 50000, 2),
    (1002, 'Jane Smith', 'Assistant Manager', 40000, 2),
    (1003, 'Alice John', 'Clerk', 30000, 1),
    (1004, 'Boby B', 'Clerk', 30000, 2),
    (1005, 'Susy M', 'Accountant', 30000, 2),
    (1006, 'Reemi Joe', 'Data Analyst', 65000, 2),
    (1007, 'Sarah Elizabeth', 'Assistant Manager', 40000, 4),
    (1008, 'James Siby', 'It operator', 30000, 4),
    (1009, 'Jerin Mon', ' System Asssociate', 70000, 5),
    (1010, 'Thomas Philip', 'Manager', 60000, 2);
select * from employee;

```



Emp_Id	Emp_name	Position	Salary	Branch_no
1001	John D	Manager	50000	2
1002	Jane Smith	Assistant Manager	40000	2
1003	Alice John	Clerk	30000	1
1004	Boby B	Clerk	30000	2
1005	Susy M	Accountant	30000	2
1006	Reemi Joe	Data Analyst	65000	2
1007	Sarah Elizabeth	Assistant Manager	40000	4
1008	James Siby	It operator	30000	4
1009	Jerin Mon	System Asssociate	70000	5
1010	Thomas Philip	Manager	60000	2
NULL	NULL	NULL	NULL	NULL

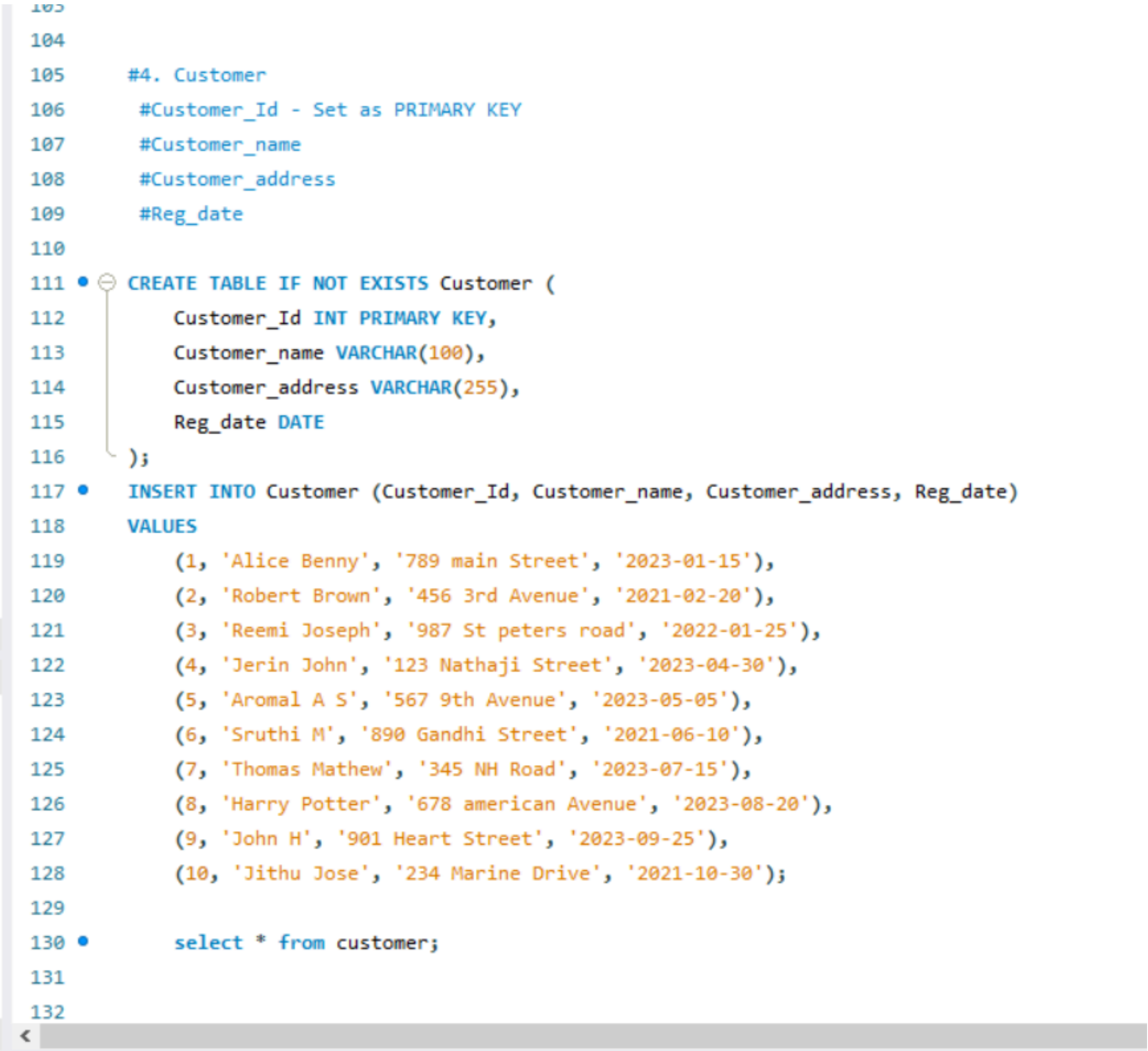
3. Books
ISBN - Set as PRIMARY KEY
Book_title
Category
Rental_Price
Status [Give yes if book available and no if book not available]
Author
Publisher



```
#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 IF NOT EXISTS Books (
    ISBN VARCHAR(50) PRIMARY KEY,
    Book_title VARCHAR(255),
    Category VARCHAR(100),
    Rental_Price DECIMAL(10, 2),
    Status ENUM('yes', 'no'),
    Author VARCHAR(100),
    Publisher VARCHAR(100)
);
INSERT INTO Books (ISBN, Book_title, Category, Rental_Price, Status, Author, Publisher)
VALUES
    ('90000', 'To Kill a Mockingbird', 'Fiction', 100, 'yes', 'Harper Lee', 'Penguin Books'),
    ('22222','1984', 'Dystopian Fiction', 120, 'yes', 'George Orwell', 'Vintage Books'),
    ('48487', 'The Great Gatsby', 'Classic Literature', 150, 'yes', 'F. Scott Fitzgerald', 'Scribner'),
    ('92000', 'Pride and Prejudice', 'Romance', '200', 'no', 'Jane Austen', 'Vintage Classics'),
    ('86000', 'The Catcher in the Rye', 'Coming-of-age Fiction', 150, 'yes', 'J.D. Salinger', 'Little, Brown and Company'),
    ('50003', 'The Hobbit', 'Fantasy', 250, 'no', 'J.R.R. Tolkien', 'Houghton Mifflin Harcourt'),
    ('48000', 'Harry Potter and the Sorcerer''s Stone', 'Fantasy', 250, 'yes', 'J.K. Rowling', 'Bloomsbury Publishing'),
    ('75000', 'The Lord of the Rings', 'Fantasy', '100', 'no', 'J.R.R. Tolkien', 'Mariner Books'),
    ('65888', 'Moby-Dick', 'Adventure', 200, 'yes', 'Herman Melville', 'Penguin Classics'),
    ('78600', 'Frankenstein', 'Gothic Fiction', '230', 'no', 'Mary Shelley', 'Oxford University Press');
select * from Books;
```

ISBN	Book_title	Category	Rental_Price	Status	Author	Publisher
22222	1984	Dystopian Fiction	120.00	yes	George Orwell	Vintage Books
48000	Harry Potter and the Sorcerer's Stone	Fantasy	250.00	yes	J.K. Rowling	Bloomsbury Publishing
48487	The Great Gatsby	Classic Literature	150.00	yes	F. Scott Fitzgerald	Scribner
50003	The Hobbit	Fantasy	250.00	no	J.R.R. Tolkien	Houghton Mifflin Harcourt
65888	Moby-Dick	Adventure	200.00	yes	Herman Melville	Penguin Classics
75000	The Lord of the Rings	Fantasy	100.00	no	J.R.R. Tolkien	Mariner Books
78600	Frankenstein	Gothic Fiction	230.00	no	Mary Shelley	Oxford University Press
86000	The Catcher in the Rye	Coming-of-age Fiction	150.00	yes	J.D. Salinger	Little, Brown and Company
90000	To Kill a Mockingbird	Fiction	100.00	yes	Harper Lee	Penguin Books
92000	Pride and Prejudice	Romance	200.00	no	Jane Austen	Vintage Classics
NULL	NULL	NULL	NULL	NULL	NULL	NULL

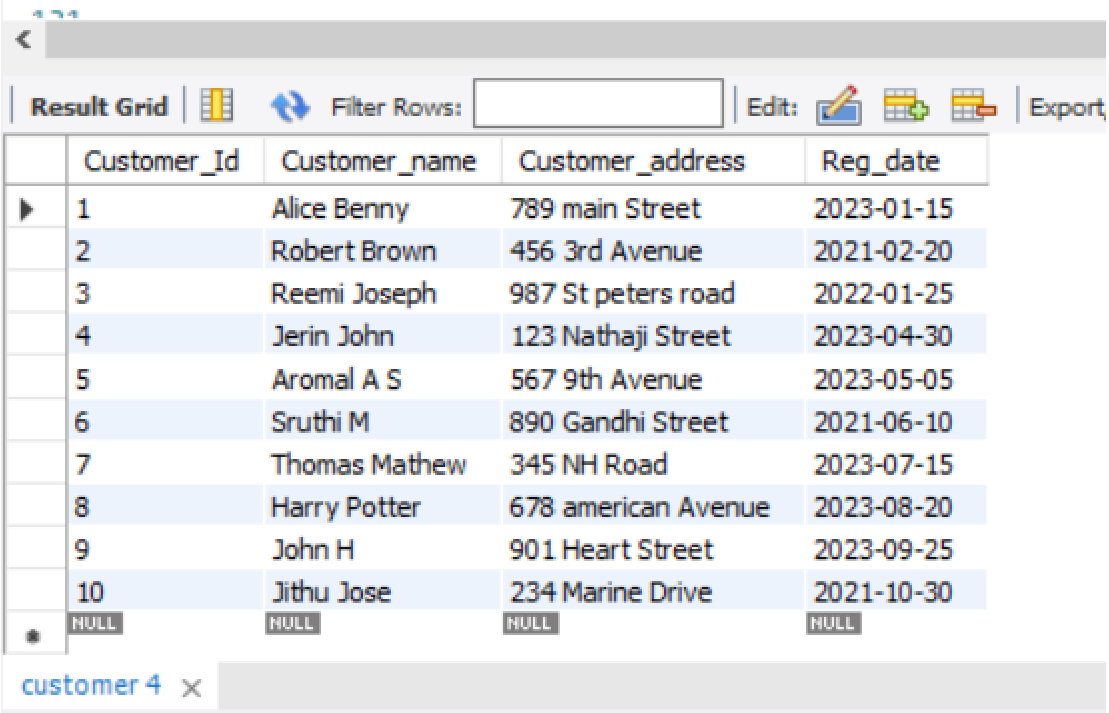
4. Customer
Customer_Id - Set as PRIMARY KEY
Customer_name
Customer_address
Reg_date



```
#4. Customer
 #Customer_Id - Set as PRIMARY KEY
 #Customer_name
 #Customer_address
 #Reg_date

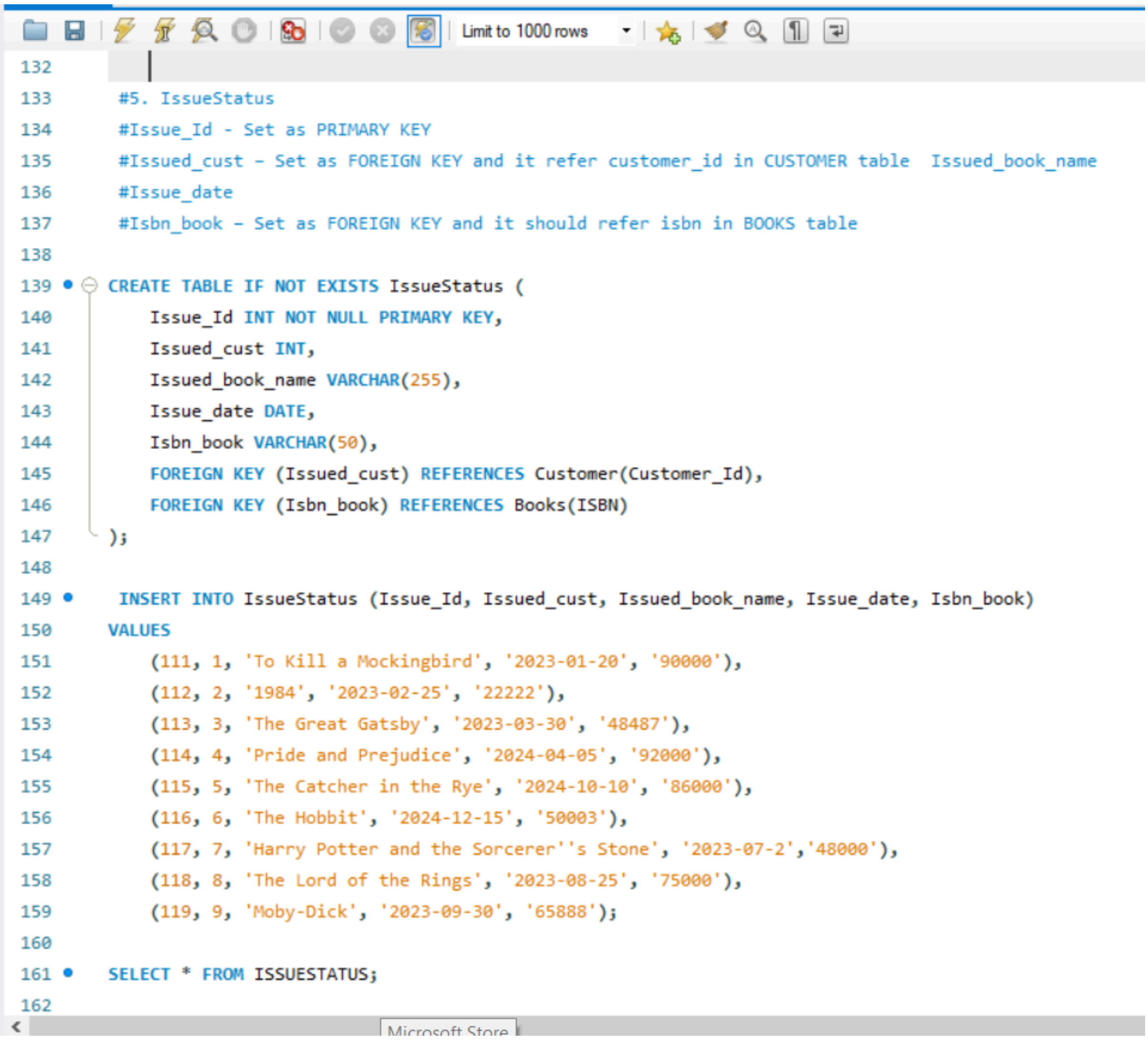
CREATE TABLE IF NOT EXISTS Customer (
    Customer_Id INT PRIMARY KEY,
    Customer_name VARCHAR(100),
    Customer_address VARCHAR(255),
    Reg_date DATE
);
INSERT INTO Customer (Customer_Id, Customer_name, Customer_address, Reg_date)
VALUES
    (1, 'Alice Benny', '789 main Street', '2023-01-15'),
    (2, 'Robert Brown', '456 3rd Avenue', '2021-02-20'),
    (3, 'Reemi Joseph', '987 St peters road', '2022-01-25'),
    (4, 'Jerin John', '123 Nathaji Street', '2023-04-30'),
    (5, 'Aromal A S', '567 9th Avenue', '2023-05-05'),
    (6, 'Sruthi M', '890 Gandhi Street', '2021-06-10'),
    (7, 'Thomas Mathew', '345 NH Road', '2023-07-15'),
    (8, 'Harry Potter', '678 american Avenue', '2023-08-20'),
    (9, 'John H', '901 Heart Street', '2023-09-25'),
    (10, 'Jithu Jose', '234 Marine Drive', '2021-10-30');

    select * from customer;
```



Customer_Id	Customer_name	Customer_address	Reg_date
1	Alice Benny	789 main Street	2023-01-15
2	Robert Brown	456 3rd Avenue	2021-02-20
3	Reemi Joseph	987 St peters road	2022-01-25
4	Jerin John	123 Nathaji Street	2023-04-30
5	Aromal A S	567 9th Avenue	2023-05-05
6	Sruthi M	890 Gandhi Street	2021-06-10
7	Thomas Mathew	345 NH Road	2023-07-15
8	Harry Potter	678 american Avenue	2023-08-20
9	John H	901 Heart Street	2023-09-25
10	Jithu Jose	234 Marine Drive	2021-10-30
NULL	NULL	NULL	NULL

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

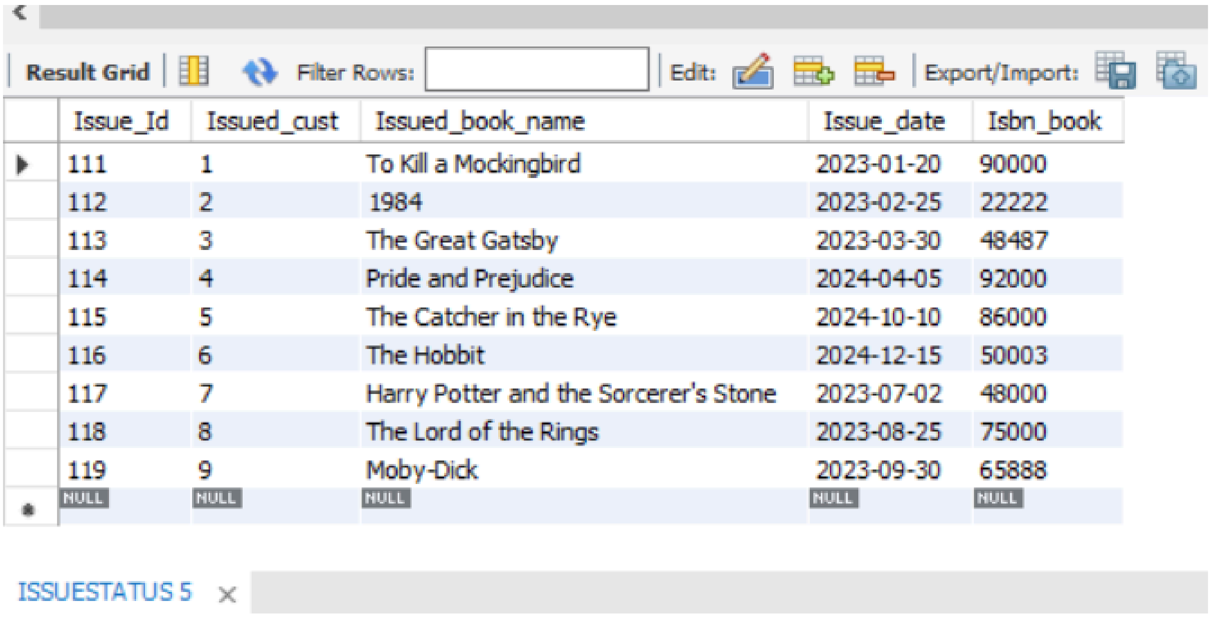


```
 #5. IssueStatus
 #Issue_Id - Set as PRIMARY KEY
 #Issued_cust - Set as FOREIGN KEY and it refer customer_id in CUSTOMER table  Issued_book_name
 #Issue_date
 #Isbn_book - Set as FOREIGN KEY and it should refer isbn in BOOKS table

CREATE TABLE IF NOT EXISTS IssueStatus (
    Issue_Id INT NOT NULL PRIMARY KEY,
    Issued_cust INT,
    Issued_book_name VARCHAR(255),
    Issue_date DATE,
    Isbn_book VARCHAR(50),
    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
    (111, 1, 'To Kill a Mockingbird', '2023-01-20', '90000'),
    (112, 2, '1984', '2023-02-25', '22222'),
    (113, 3, 'The Great Gatsby', '2023-03-30', '48487'),
    (114, 4, 'Pride and Prejudice', '2024-04-05', '92000'),
    (115, 5, 'The Catcher in the Rye', '2024-10-10', '86000'),
    (116, 6, 'The Hobbit', '2024-12-15', '50003'),
    (117, 7, 'Harry Potter and the Sorcerer''s Stone', '2023-07-2','48000'),
    (118, 8, 'The Lord of the Rings', '2023-08-25', '75000'),
    (119, 9, 'Moby-Dick', '2023-09-30', '65888');

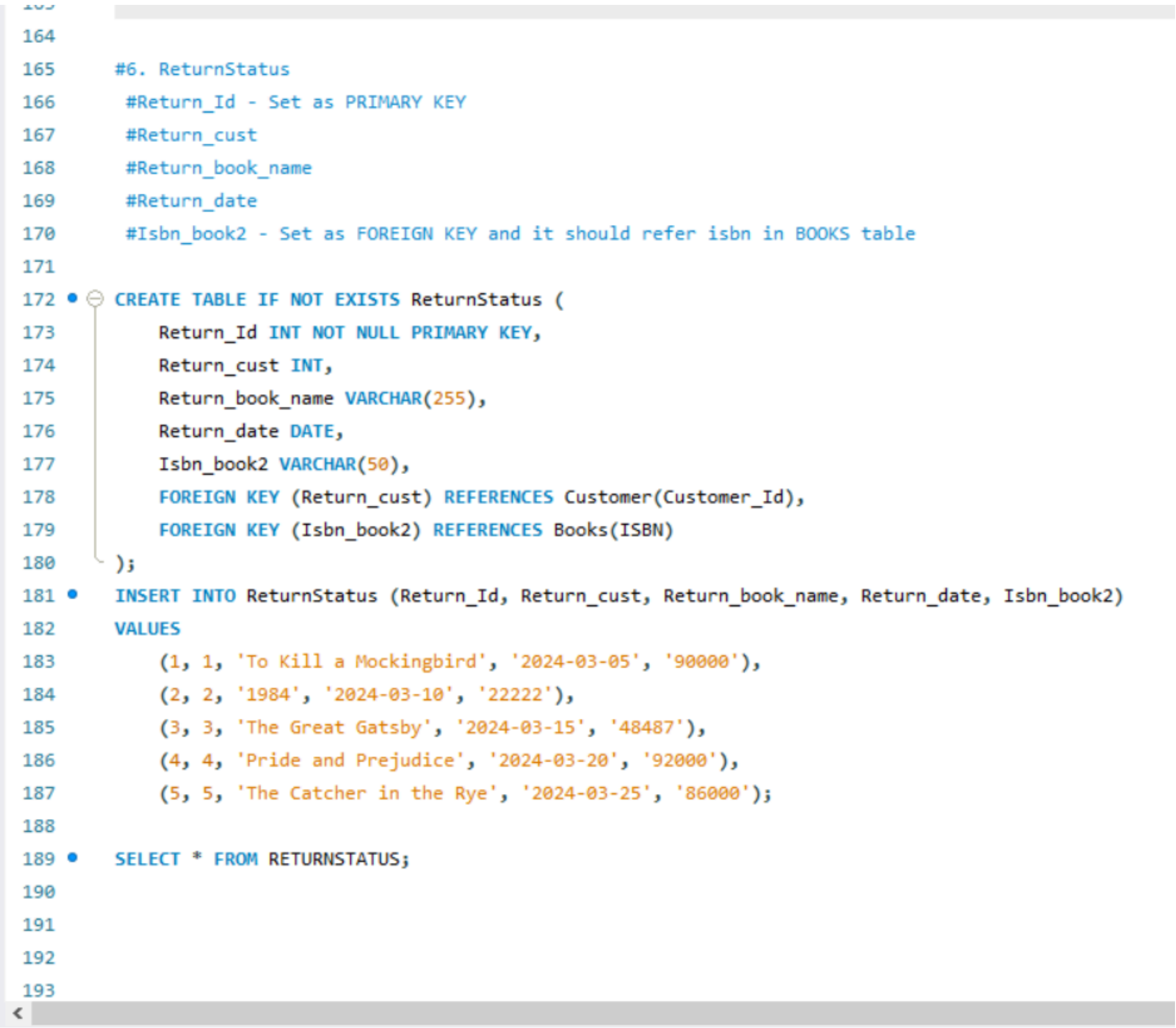
SELECT * FROM ISSUESTATUS;
```



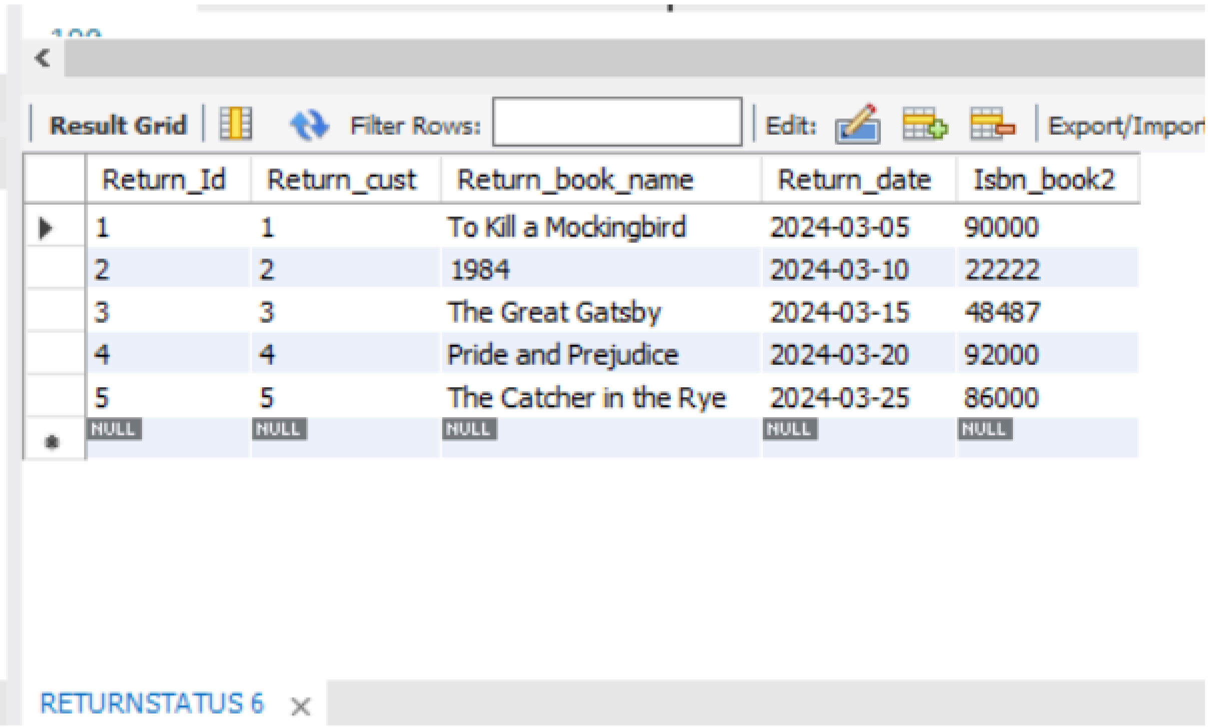
Issue_Id	Issued_cust	Issued_book_name	Issue_date	Isbn_book
111	1	To Kill a Mockingbird	2023-01-20	90000
112	2	1984	2023-02-25	22222
113	3	The Great Gatsby	2023-03-30	48487
114	4	Pride and Prejudice	2024-04-05	92000
115	5	The Catcher in the Rye	2024-10-10	86000
116	6	The Hobbit	2024-12-15	50003
117	7	Harry Potter and the Sorcerer's Stone	2023-07-02	48000
118	8	The Lord of the Rings	2023-08-25	75000
119	9	Moby-Dick	2023-09-30	65888
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 isbn in BOOKS table



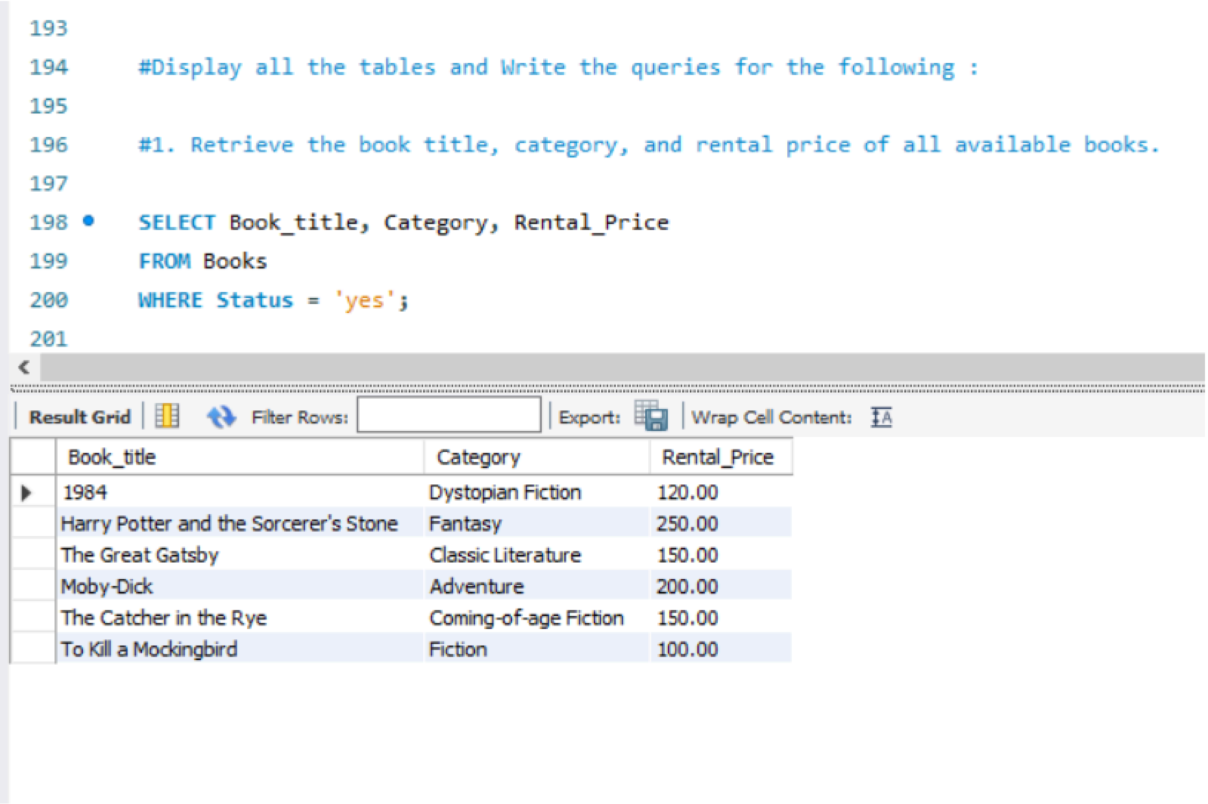
```sql

#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 TABLE IF NOT EXISTS ReturnStatus (
    Return_Id INT NOT NULL PRIMARY KEY,
    Return_cust INT,
    Return_book_name VARCHAR(255),
    Return_date DATE,
    Isbn_book2 VARCHAR(50),
    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, 'To Kill a Mockingbird', '2024-03-05', '90000'),
    (2, 2, '1984', '2024-03-10', '22222'),
    (3, 3, 'The Great Gatsby', '2024-03-15', '48487'),
    (4, 4, 'Pride and Prejudice', '2024-03-20', '92000'),
    (5, 5, 'The Catcher in the Rye', '2024-03-25', '86000');

SELECT * FROM RETURNSTATUS;
```



Return_Id	Return_cust	Return_book_name	Return_date	Isbn_book2
1	1	To Kill a Mockingbird	2024-03-05	90000
2	2	1984	2024-03-10	22222
3	3	The Great Gatsby	2024-03-15	48487
4	4	Pride and Prejudice	2024-03-20	92000
5	5	The Catcher in the Rye	2024-03-25	86000
NULL	NULL	NULL	NULL	NULL

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

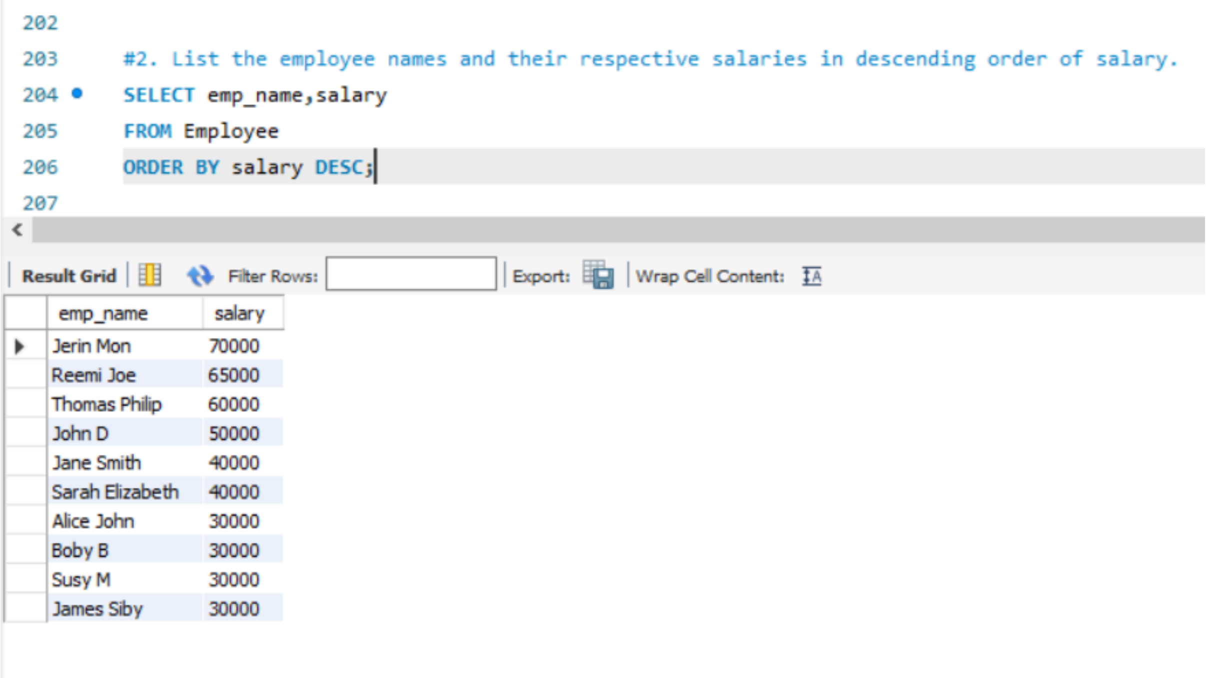
1. Retrieve the book title, category, and rental price of all available books.



```sql
#Display all the tables and Write the queries for the following :

#1. 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
1984	Dystopian Fiction	120.00
Harry Potter and the Sorcerer's Stone	Fantasy	250.00
The Great Gatsby	Classic Literature	150.00
Moby-Dick	Adventure	200.00
The Catcher in the Rye	Coming-of-age Fiction	150.00
To Kill a Mockingbird	Fiction	100.00

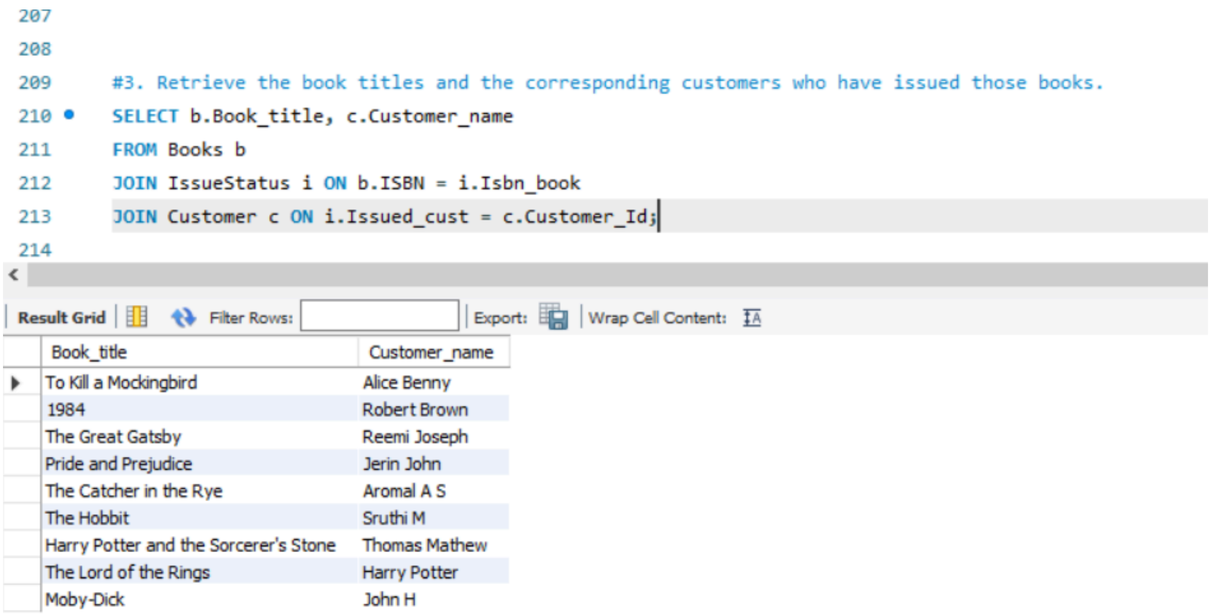
2. List the employee names and their respective salaries in descending order of salary.



```sql
#2. 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
Jerin Mon	70000
Reemi Joe	65000
Thomas Philip	60000
John D	50000
Jane Smith	40000
Sarah Elizabeth	40000
Alice John	30000
Boby B	30000
Susy M	30000
James Siby	30000

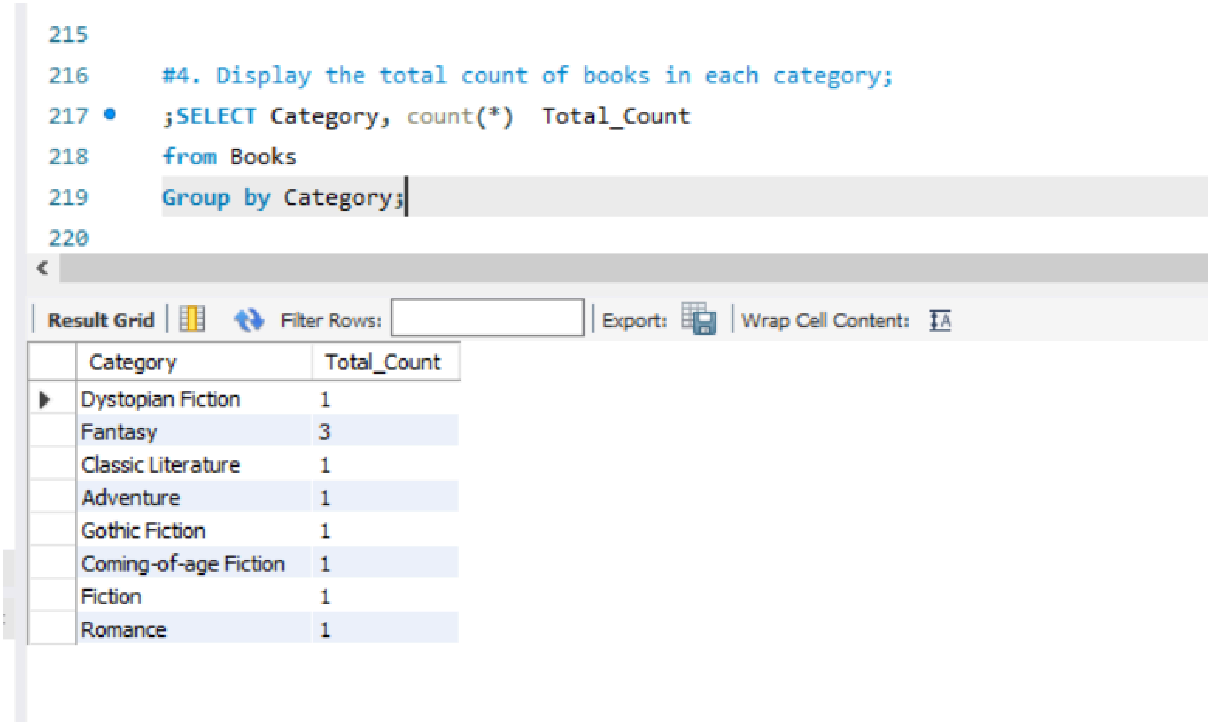
3. Retrieve the book titles and the corresponding customers who have issued those books.



```
#3. 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
To Kill a Mockingbird	Alice Benny
1984	Robert Brown
The Great Gatsby	Reemi Joseph
Pride and Prejudice	Jerin John
The Catcher in the Rye	Aromal A S
The Hobbit	Sruthi M
Harry Potter and the Sorcerer's Stone	Thomas Mathew
The Lord of the Rings	Harry Potter
Moby-Dick	John H

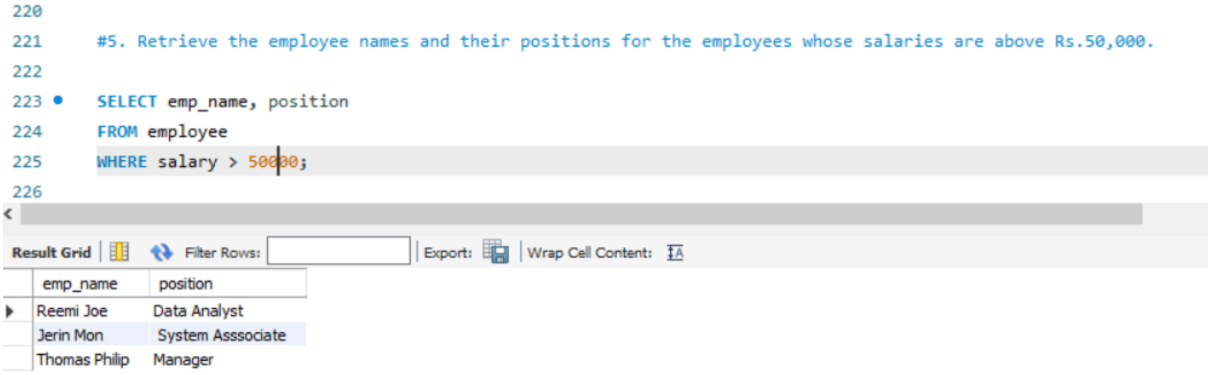
4. Display the total count of books in each category.



```
#4. Display the total count of books in each category;
;SELECT Category, count(*)  Total_Count
from Books
Group by Category;
```

Category	Total_Count
Dystopian Fiction	1
Fantasy	3
Classic Literature	1
Adventure	1
Gothic Fiction	1
Coming-of-age Fiction	1
Fiction	1
Romance	1

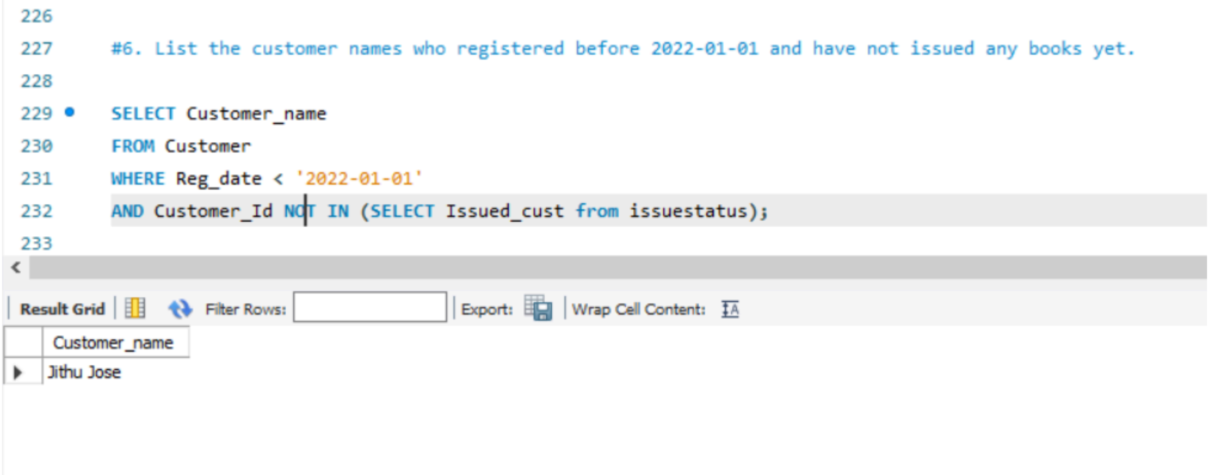
5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.



```
#5. 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
Reemi Joe	Data Analyst
Jerin Mon	System Asssociate
Thomas Philip	Manager

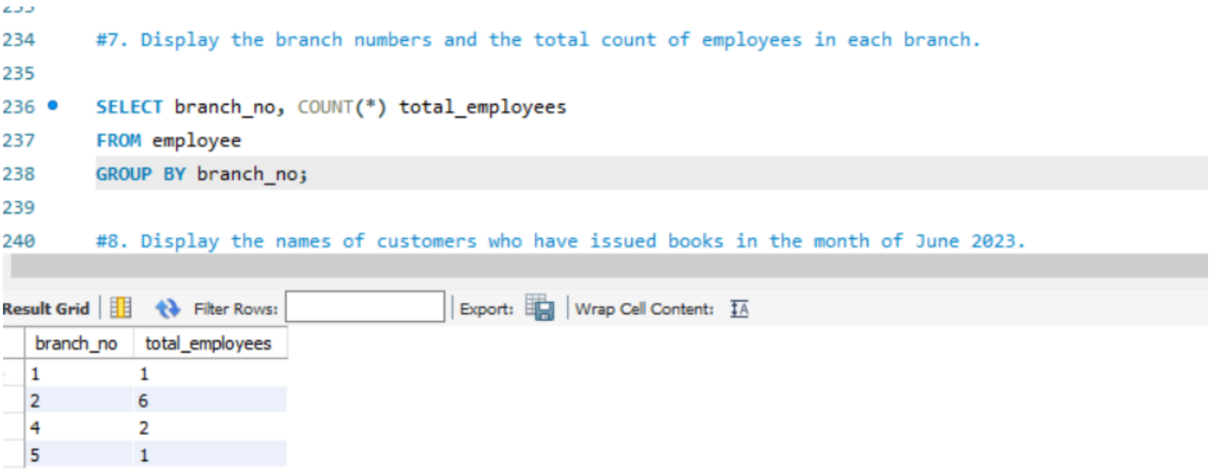
6. List the customer names who registered before 2022-01-01 and have not issued any books yet.



```
#6. 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
Jithu Jose

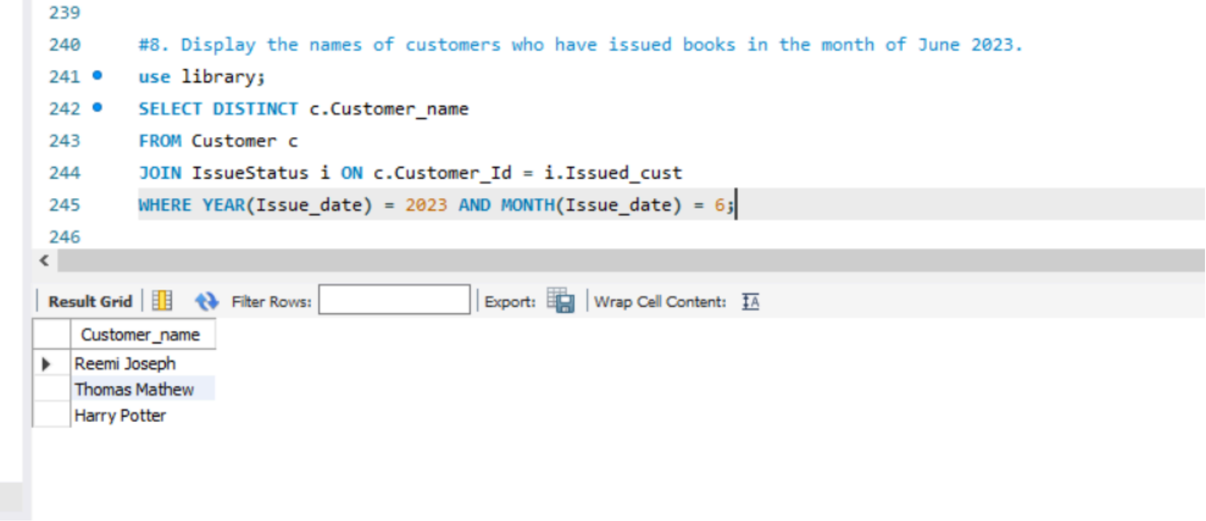
7. Display the branch numbers and the total count of employees in each branch.



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

SELECT branch_no, COUNT(*) total_employees
FROM employee
GROUP BY branch_no;

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

branch_no	total_employees
1	1
2	6
4	2
5	1

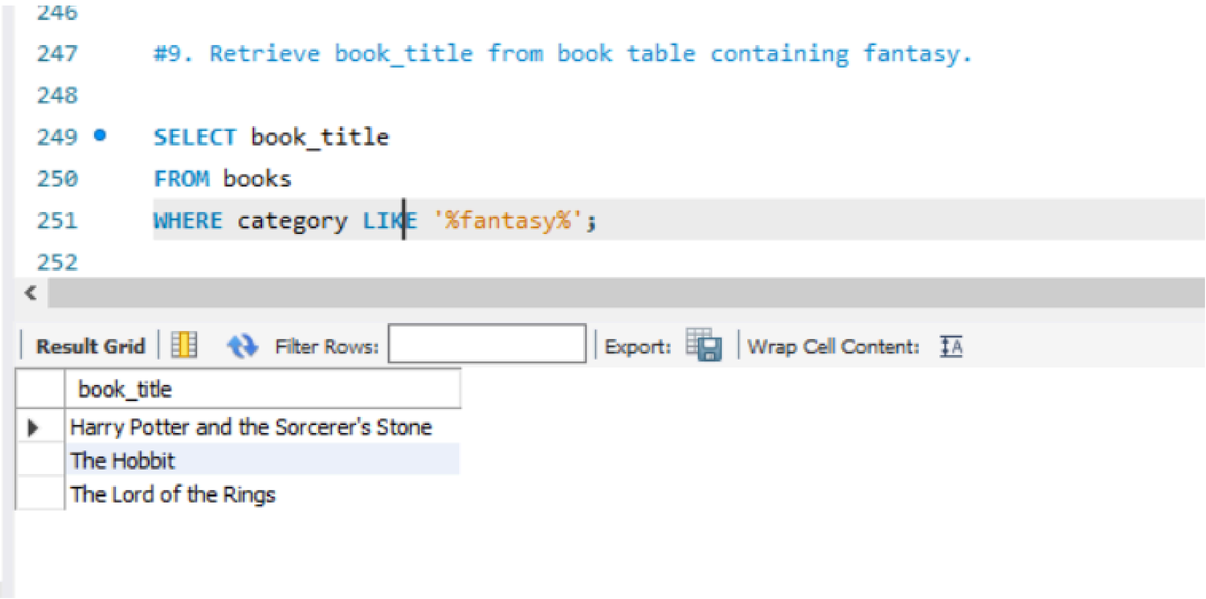
8. Display the names of customers who have issued books in the month of June 2023.



```sql

#8. Display the names of customers who have issued books in the month of June 2023.
use library;
SELECT DISTINCT c.Customer_name
FROM Customer c
JOIN IssueStatus i ON c.Customer_Id = i.Issued_cust
WHERE YEAR(Issue_date) = 2023 AND MONTH(Issue_date) = 6;

```

Customer_name
Reemi Joseph
Thomas Mathew
Harry Potter

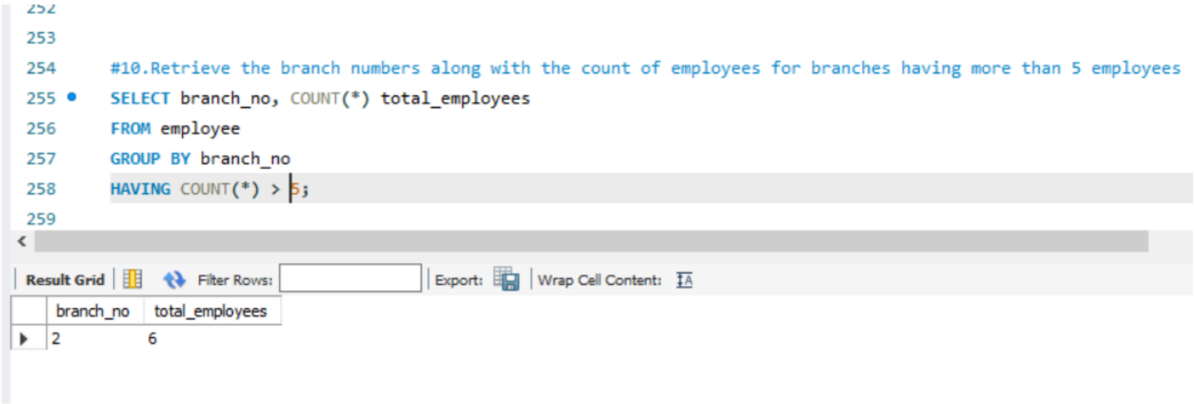
9. Retrieve book_title from book table containing history.



```sql

#9. Retrieve book_title from book table containing fantasy.

SELECT book_title
FROM books
WHERE category LIKE '%fantasy%';

```

book_title
Harry Potter and the Sorcerer's Stone
The Hobbit
The Lord of the Rings

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



```
#10.Retrieve the branch numbers along with the count of employees for branches having more than 5 employees
SELECT branch_no, COUNT(*) total_employees
FROM employee
GROUP BY branch_no
HAVING COUNT(*) > 5;
```

branch_no	total_employees
2	6