

Library Management System using MYSQL

This project is to build a Library Management System using MS SQL. By doing this project we are creating a database named Library which 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

STEP 1

Creating table named Branch

*Branch_no-set as PRIMARY KEY

*Manager_id

*Branch_address

*Contact_no

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 3* x

Limit to 400 rows

2 • show databases;
3 • use library;
4 • create table branch(branch_no int primary key,
5 manager_id int,
6 branch_address varchar(30),
7 contact_no int);
8
9 • select * from branch;
10
11
12
13

Administration Schemas

Information

No object selected

Result Grid Filter Rows: Export: Wrap Cell Content:

Database
company
information_schema
library
mysql
organisation
performance_schema
population
product
sales
school
sys
testdb
world

Object Info Session Result 1

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator: SQL File 3*

Limit to 400 rows

SCHEMAS

Filter objects

- company
- organisation
- population
- product
- sales
- school
- sys
- testdb
- world

Administration Schemas

Information

No object selected

```

10 • insert into branch (branch_no,manager_id,branch_address,contact_no)
11 values (101,1011,'central square',962345678),
12         (102,1012,'george street',967543245),
13         (103,1013,'willie stargell',98765412),
14         (104,1014,'N.santa anita',91192245),
15         (105,1015,'la palma',765432112),
16         (106,1016,'W.main st',765432147),
17         (107,1017,'escandon',99345612),
18         (108,1018,'vermilion',78123499),
19         (109,1019,'maryland',98765432),
20         (110,1010,'oakland',96549767);
21 • select * from branch;

```

Result Grid

	branch_no	manager_id	branch_address	contact_no
▶	101	1011	central square	962345678
	102	1012	george street	967543245
	103	1013	willie stargell	98765412
	104	1014	N.santa anita	91192245
	105	1015	la palma	765432112
	106	1016	W.main st	765432147
	107	1017	escandon	99345612
	108	1018	vermilion	78123499
	109	1019	maryland	98765432
	110	1010	oakland	96549767
*	NULL	NULL	NULL	NULL

STEP 2

Creating table name Employeee

*Emp_id-Set as PRIMARY KEY

*Emp_name

*Position

*Salary

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

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator: SCHEMAS

Filter objects

- company
- organisation
- population
- product
- sales
- school
- sys
- testdb
- world

Administration Schemas

Information

No object selected

SQL File 3* x

Limit to 400 rows

```
23 • create table employee(employee_id int primary key,
24     employee_name varchar(20),
25     position varchar(20),
26     salary int,
27     branch_no int,
28     foreign key(branch_no) references branch(branch_no) on delete cascade);
29 • select * from employee;
30
31
```

Result Grid

	employee_id	employee_name	position	salary	branch_no
*	NULL	NULL	NULL	NULL	NULL

employee 3 x

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator: SCHEMAS

Filter objects

- company
- organisation
- population
- product
- sales
- school
- sys
- testdb
- world

Administration Schemas

Information

No object selected

SQL File 3* x

Limit to 400 rows

```
30 • insert into employee(employee_id,employee_name,position,salary,branch_no)
31     values(1001,'jake jude','clerk',35000,101),
32           (1002,'stefen mathew','manager',60000,102),
33           (1003,'ajay raj','assist.manager',50000,103),
34           (1004,'manu madhav','clerk',38000,102),
35           (1005,'keerthana menon','manager',63000,101),
36           (1006,'athulaya krishna','clerk',36000,102),
37           (1007,'shiva prasad','manager',75000,103),
38           (1008,'khalid rahman','clerk',48000,101),
39           (1009,'anu mohan','assist.manager',66000,101),
40           (1010,'rohith sundar','assist.manager',66000,101);
41 • select * from employee;
42
43
44
```

Result Grid

	employee_id	employee_name	position	salary	branch_no
▶	1001	jake jude	clerk	35000	101
	1002	stefen mathew	manager	60000	102
	1003	ajay raj	assist.manager	50000	103
	1004	manu madhav	clerk	38000	102
	1005	keerthana menon	manager	63000	101
	1006	athulaya krishna	clerk	36000	102
	1007	shiva prasad	manager	75000	103
	1008	khalid rahman	clerk	48000	101
	1009	anu mohan	assist.manager	66000	101
	1010	rohith sundar	assist.manager	66000	101

Object Info Session

employee 4 x

STEP 3

Creating table name Books

*ISBN -Set as PRIMARY KEY

*Book_TITLE

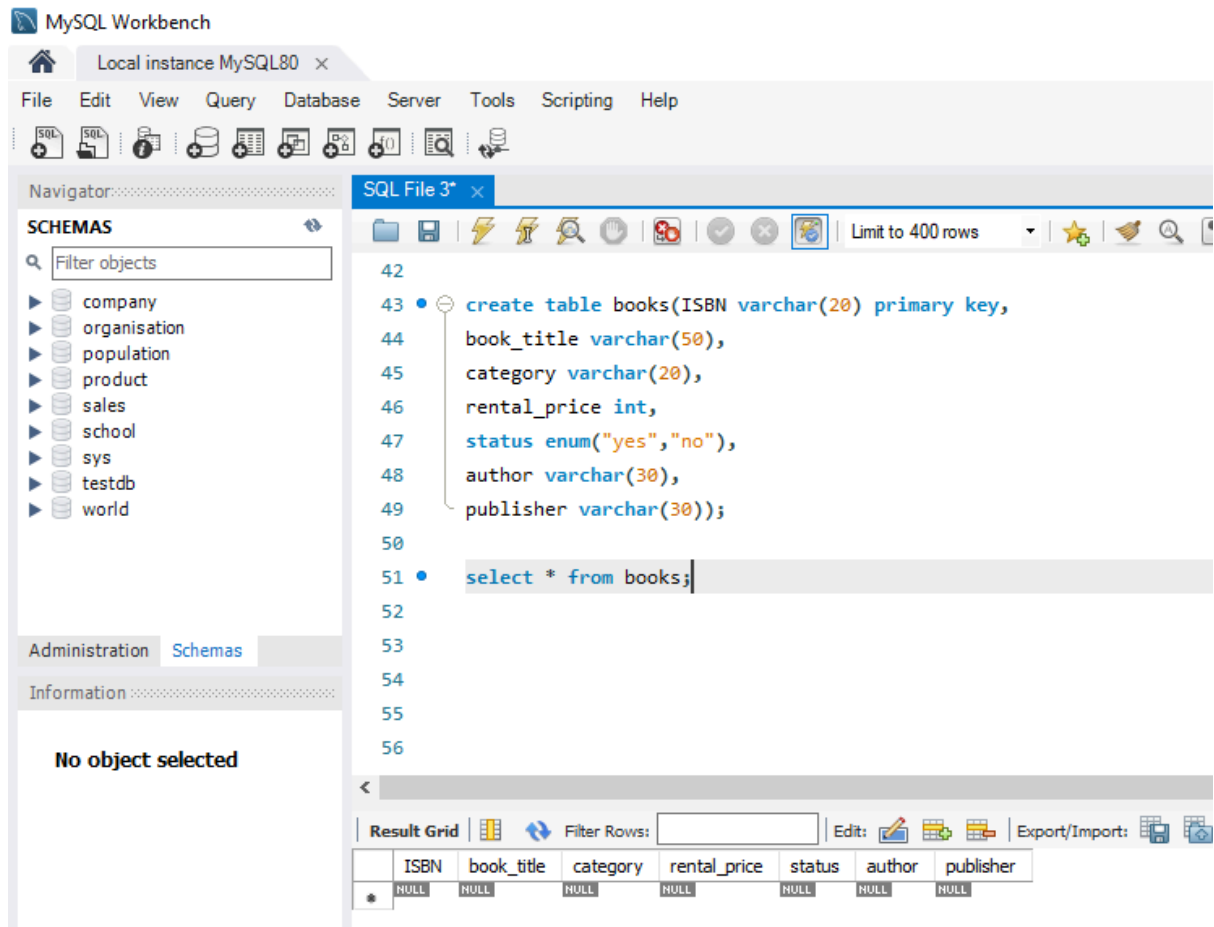
*Category

*Rental_Price

*Status[Give yes if book available and no if book not available]

*Author

*Publisher



MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

SQL File 4* x SQL File 5*

Limit to 400 rows

```

53 • insert into books(ISBN,book_title,category,rental_price,status,author,publisher)values
54   ('9355208618','the girl on the train','thriller',5,'no','ruskin bond','rupa'),
55   ('9781616416','pride and prejudice','romance',5,'yes','jan austen','ABDO'),
56   ('9781781259','the decision book','business',6,'yes','mikeal krogerus','hachette'),
57   ('97807475326','harry potter','fantasy',8,'no','j.k rowling','bloomsbury'),
58   ('9781471409332','the queen of nothing','fantasy',8,'yes','holy black','hot key books'),
59   ('97544325567','gone girl','thriller',7,'no','gillian flynn','crown publisher'),
60   ('987744433568','the lean startup','business',8,'yes','eric ries','crown business'),
61   ('9776544324677','how to find friends and influence people','business',7,'yes','dale carnegie','simon and schuster'),
62   ('987876554556','note book','romance',6,'yes','nichole sparke','warner books'),
63   ('995543321456','me before you','romance',10,'yes','jojo moyes','pamela dorman');
64 • select * from books;

```

Result Grid | Filter Rows: | Edit: | Export/Imports: | Wrap Cell Content: |

ISBN	book_title	category	rental_price	status	author	publisher
9355208618	the girl on the train	thriller	5	no	ruskin bond	rupa
97544325567	gone girl	thriller	7	no	gillian flynn	crown publisher
9776544324677	how to find friends and influence people	business	7	yes	dale carnegie	simon and schuster
97807475326	harry potter	fantasy	8	no	j.k rowling	bloomsbury
9781471409332	the queen of nothing	fantasy	8	yes	holy black	hot key books
9781616416	pride and prejudice	romance	5	yes	jan austen	ABDO
9781781259	the decision book	business	6	yes	mikeal krogerus	hachette
987744433568	the lean startup	business	8	yes	eric ries	crown business
987876554556	note book	romance	6	yes	nichole sparke	warner books
995543321456	me before you	romance	10	yes	jojo moyes	pamela dorman

books 6 books 7 v

STEP 4

Creating table name Customer.

*Customer_id

*Customer_name

*Customer_address

*Reg_date



```
65 • create table customer(customer_id int primary key,  
66     customer_name varchar(20),  
67     customer_address varchar(30),  
68     reg_date date);  
69  
70 • select * from customer;  
71  
72  
73  
74  
75  
76
```



	customer_id	customer_name	customer_address	reg_date
*	NULL	NULL	NULL	NULL

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- company
- organisation
- population
- product
- sales
- school
- sys
- testdb
- world

Administration Schemas

Information

No object selected

SQL File 7* x SQL File 8*

Limit to 400 rows

```

70 • insert into customer(customer_id,customer_name,customer_address,reg_date)values
71      (111,'jack parkin','2nd avenue','2021-01-22'),
72      (112,'monica peter','23 central square','2021-04-04'),
73      (113,'ross antony','234 oakland','2021-06-12'),
74      (114,'genny davis','223 vermillion','2021-09-08'),
75      (115,'raceal green','98 george street','2022-01-13'),
76      (116,'tom hanks','456 illinois','2022-6-26'),
77      (117,'selena gomez','284 oakland','2022-10-29'),
78      (118,'zac efron','234 george street','2023-02-14'),
79      (119,'brad pitt','5th avenue','2023-5-04'),
80      (1110,'stella winsen','456 central square','2023-10-21');
81 • select * from customer;
82
83
84

```

Result Grid

customer_id	customer_name	customer_address	reg_date
111	jack parkin	2nd avenue	2021-01-22
112	monica peter	23 central square	2021-04-04
113	ross antony	234 oakland	2021-06-12
114	genny davis	223 vermillion	2021-09-08
115	raceal green	98 george street	2022-01-13
116	tom hanks	456 illinois	2022-06-26
117	selena gomez	284 oakland	2022-10-29
118	zac efron	234 george street	2023-02-14
119	brad pitt	5th avenue	2023-05-04
1110	stella winsen	456 central square	2023-10-21

Object Info Session customer 27 x

STEP 5

Creating table name IssueStatus

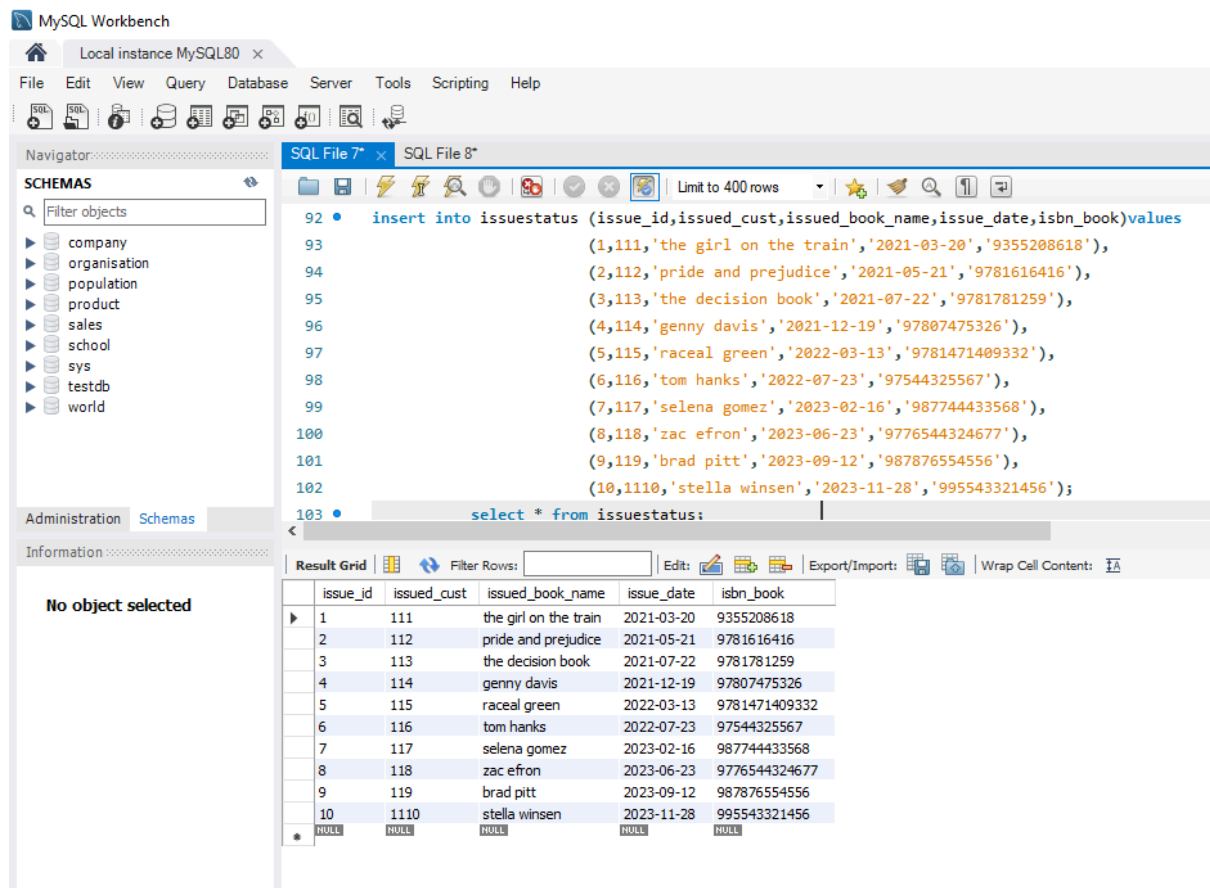
*Issued_id-Set as PRIMARY KEY

*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



STEP 6

Creating table name 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 BOOK TABLE

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- company
- organisation
- population
- product
- sales
- school
- sys
- testdb
- world

Administration Schemas

Information

No object selected

SQL File 9* x

Limit to 2000 rows

```

106
107
108 • create table returnstatus(return_id int primary key,
109                               return_cust int,
110                               return_book_name varchar(30),
111                               return_date date,
112                               isbn_book2 VARCHAR(20),
113                               foreign key(return_cust) references customer(customer_id) on delete cascade,
114                               foreign key(isbn_book2) references books(ISBN)on delete cascade);
115 • desc returnstatus;
116
117
118
119
120

```

Result Grid

Field	Type	Null	Key	Default	Extra
return_id	int	NO	PRI	NULL	
return_cust	int	YES	MUL	NULL	
return_book_name	varchar(30)	YES		NULL	
return_date	date	YES		NULL	
isbn_book2	varchar(20)	YES	MUL	NULL	

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- company
- organisation
- population
- product
- sales
- school
- sys
- testdb
- world

Administration Schemas

Information

No object selected

SQL File 9* x

Limit to 2000 rows

```

122 • insert into returnstatus(return_id,return_cust,return_book_name,return_date,Isbn_book2)values
123                               (1,111,'the girl on the train','2021-03-30','9355208618'),
124                               (2,112,'pride and prejudice','2021-06-10','9781616416'),
125                               (3,113,'the decision book','2021-08-15','9781781259'),
126                               (4,114,'genny davis','2021-12-31','97807475326'),
127                               (5,115,'raceal green','2022-03-25','9781471409332'),
128                               (6,116,'tom hanks','2022-08-16','97544325567'),
129                               (7,117,'selena gomez','2023-03-05','987744433568'),
130                               (8,118,'zac efron','2023-07-10','9776544324677'),
131                               (9,119,'brad pitt','2023-09-29','987876554556'),
132                               (10,1110,'stella winsen','2023-12-15','995543321456');
133
134 • select * from returnstatus;
135
136

```

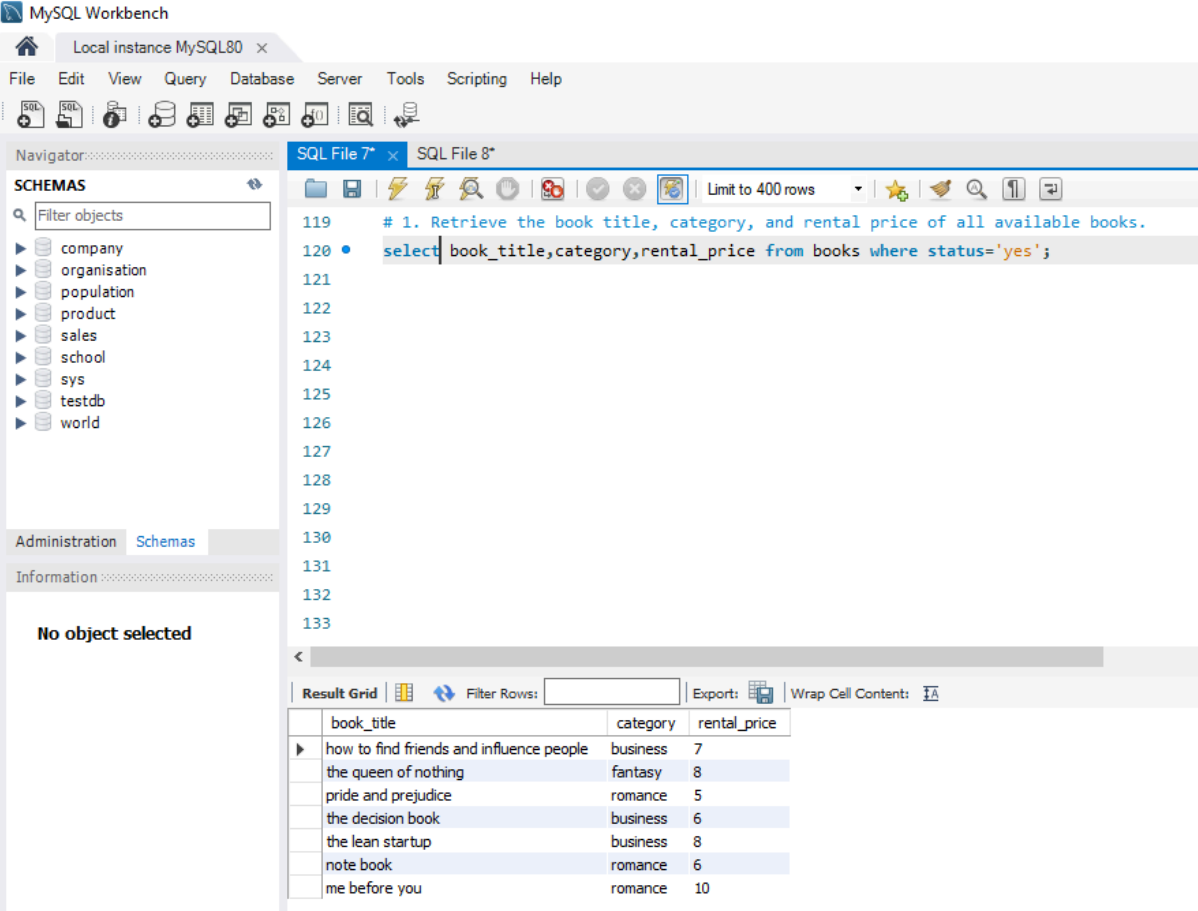
Result Grid

	return_id	return_cust	return_book_name	return_date	isbn_book2
1	111	111	the girl on the train	2021-03-30	9355208618
2	112	112	pride and prejudice	2021-06-10	9781616416
3	113	113	the decision book	2021-08-15	9781781259
4	114	114	genny davis	2021-12-31	97807475326
5	115	115	raceal green	2022-03-25	9781471409332
6	116	116	tom hanks	2022-08-16	97544325567
7	117	117	selena gomez	2023-03-05	987744433568
8	118	118	zac efron	2023-07-10	9776544324677
9	119	119	brad pitt	2023-09-29	987876554556
10	1110	1110	stella winsen	2023-12-15	995543321456

Object Info Session returnstatus 15 x

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

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



The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' panel with a list of databases: company, organisation, population, product, sales, school, sys, testdb, and world. The main editor window shows a SQL query in 'SQL File 7*' and 'SQL File 8*'. The query is: `select book_title,category,rental_price from books where status='yes';`. The bottom panel shows the 'Result Grid' with the following data:

book_title	category	rental_price
how to find friends and influence people	business	7
the queen of nothing	fantasy	8
pride and prejudice	romance	5
the decision book	business	6
the lean startup	business	8
note book	romance	6
me before you	romance	10

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

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- company
- organisation
- population
- product
- sales
- school
- sys
- testdb
- world

Administration Schemas

Information

No object selected

SQL File 7* x SQL File 8*

Limit to 400 rows

```
121 # 2. List the employee names and their respective salaries in descending order of salary.
122 • select employee_name,salary from employee order by salary desc;
123
124
125
126
127
128
129
130
131
132
133
134
135
```

Result Grid

Filter Rows:

Export: Wrap Cell Content:

	employee_name	salary
▶	shiva prasad	75000
	anu mohan	66000
	rohith sundar	66000
	keerthana menon	63000
	stefen mathew	60000
	ajay raj	50000
	khalid rahman	48000
	manu madhav	38000
	athulaya krishna	36000

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

.80 x

Database Server Tools Scripting Help

SQL File 7* x SQL File 8*

Limit to 400 rows

```
125
126 # 3. Retrieve the book titles and the corresponding customers who have issued those books.
127 • select i.issued_book_name,c.customer_name from issuestatus i join customer c on i.issued_cust=c.customer_id;
128
129
130
131
132
133
134
135
136
137
138
139
```

Result Grid

issued_book_name	customer_name
the girl on the train	jack parkin
pride and prejudice	monica peter
the decision book	ross antony
genny davis	genny davis
raceal green	raceal green
tom hanks	tom hanks
selen gomez	selen gomez
zac efron	zac efron
brad pitt	brad pitt
stella wiseman	stella wiseman

Result 18 x

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

SQL80 x

Database Server Tools Scripting Help

SQL File 7* x SQL File 8*

Limit to 400 rows

```
134 # 4. Display the total count of books in each category.
135 • select category,count(category) as count from books group by category;
136
137
138
139
140
141
142
143
144
145
146
147
148
```

Result Grid

	category	count
►	thriller	2
	business	3
	fantasy	2
	romance	3

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

Database Server Tools Scripting Help

SQL File 7* x SQL File 8*

Limit to 400 rows

```

137 # 5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.
138 • select employee_name,position from employee where salary>50000;
139
140
141
142
143
144
145
146
147
148
149
150
151

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

employee_name	position
stefen mathew	manager
keerthana menon	manager
shiva prasad	manager
anu mohan	assist.manager
rohith sundar	assist.manager

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

Database Server Tools Scripting Help

SQL File 10* x SQL File 11*

Limit to 2000 rows

```

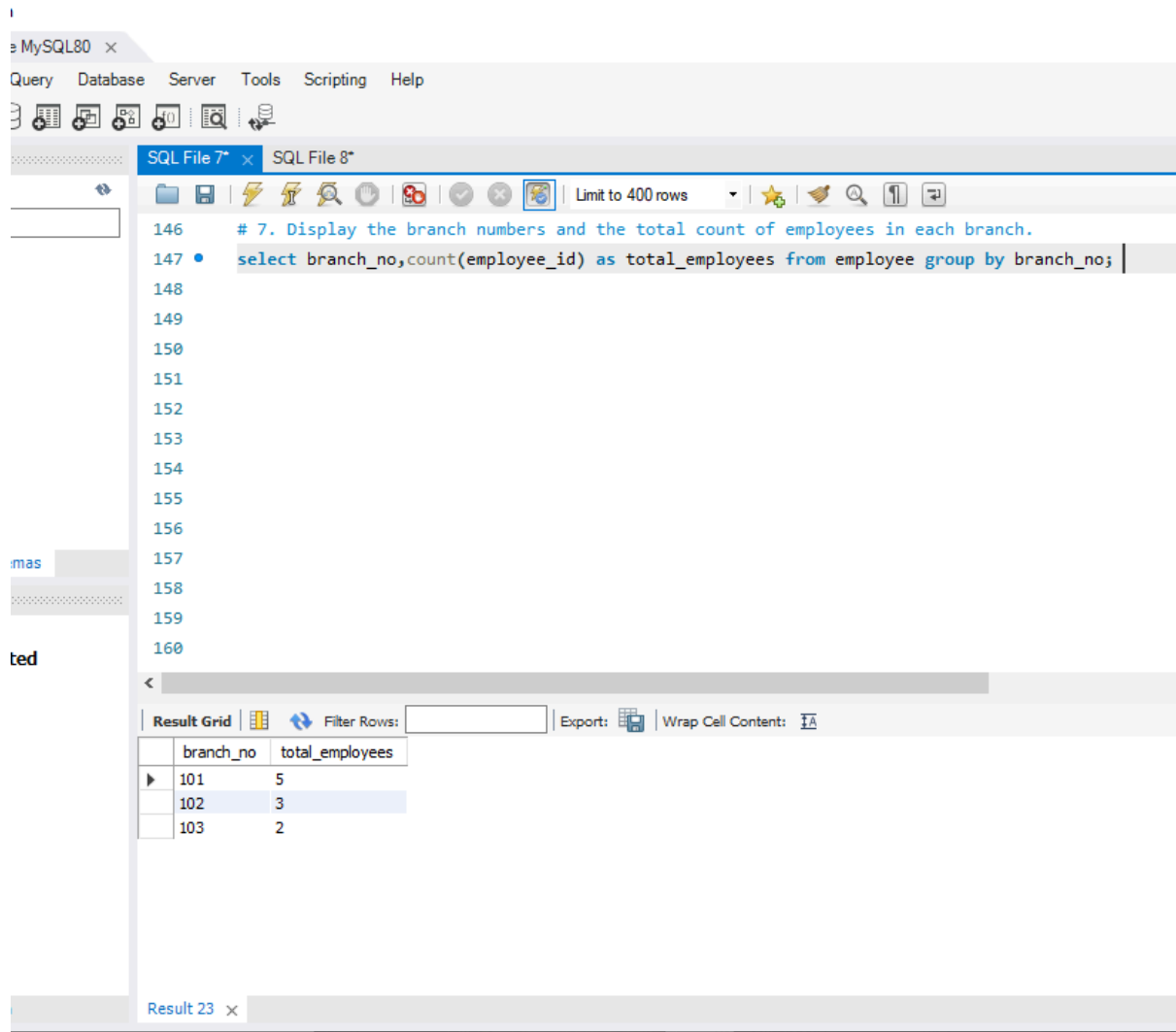
165 # 6. List the customer names who registered before 2022-01-01 and have not issued any books yet.
166 • select customer_name,reg_date from customer where reg_date<'2022-01-01' and customer_id not in (select issued_cust from issuestatus);
167
168
169
170
171
172
173
174
175
176

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

customer_name	reg_date
jack parkin	2021-01-22

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



The screenshot shows the MySQL 8.0 graphical user interface. The main window displays a SQL query in a text editor:

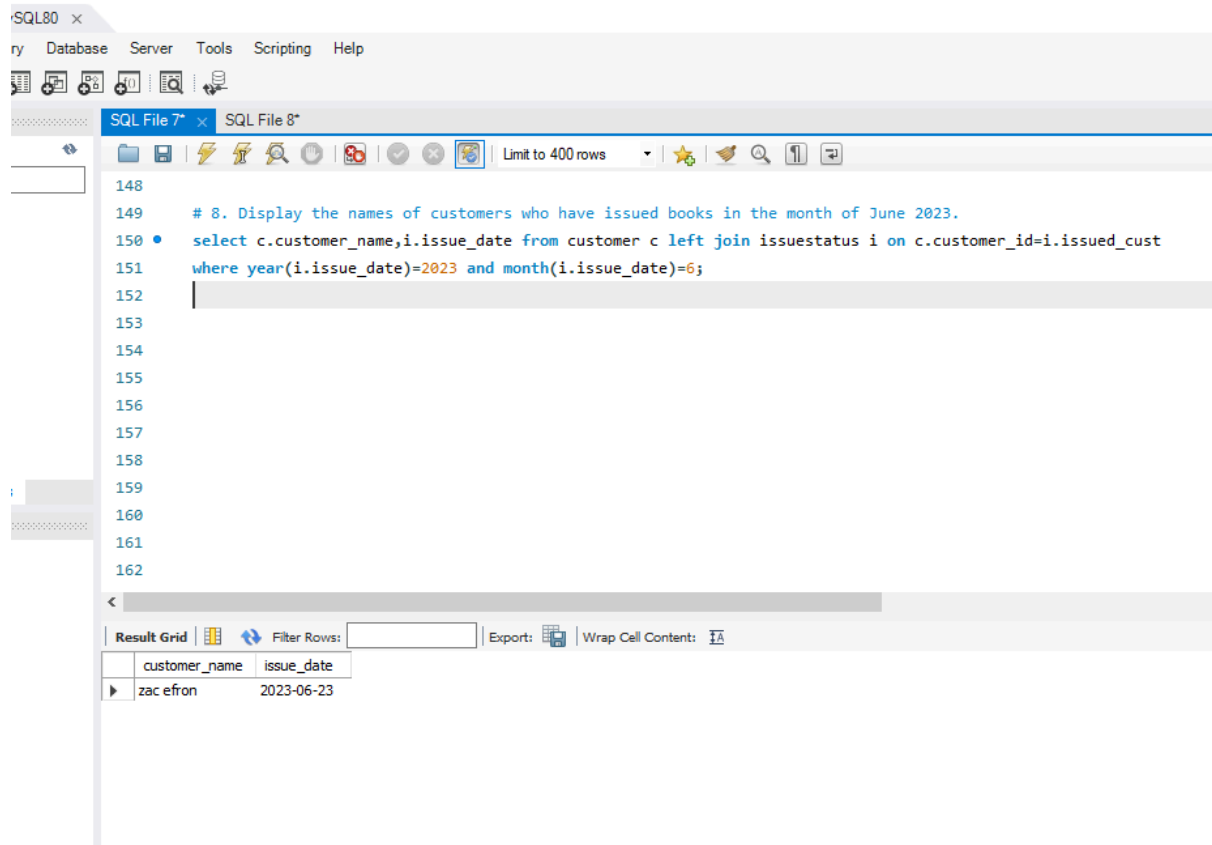
```
# 7. Display the branch numbers and the total count of employees in each branch.  
select branch_no, count(employee_id) as total_employees from employee group by branch_no;
```

Below the query editor, the results are displayed in a table grid. The table has two columns: `branch_no` and `total_employees`. The results are as follows:

branch_no	total_employees
101	5
102	3
103	2

The interface also shows a sidebar on the left with a tree view and a bottom status bar indicating 'Result 23'.

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



9. Retrieve book_title from book table containing history.

80 x

Database Server Tools Scripting Help

SQL File 7* x SQL File 8*

Limit to 400 rows

```
154
155
156 # 9. Retrieve book_title from book table containing business
157 • select book_title from books where category='business';
158
159
160
161
162
163
164
165
166
167
168
```

<

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	book_title
▶	how to find friends and influence people
	the decision book
	the lean startup

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

MySQL Workbench

Local instance MySQL80

FileEditViewQueryDatabaseServerToolsScriptingHelp

Navigator

SQL File 7"SQL File 8"

Limit to 400 rows

SCHEMAS

Filter objects

companyorganisationpopulationproductsalesschoolsys testdbworld

AdministrationSchemas

Information

No object selected

154155156157158159160161162163164165166167168

10.Retrieve the branch numbers along with the count of employees for branches having more than 5 employees.
select b.branch_no,count(e.employee_id) as total_employees from branch b
left join employee e on b.branch_no=e.branch_no group by b.branch_no having count(e.employee_id)>2;

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	branch_no	total_employees
	101	5
	102	3