Mysql Comprehensive Assessment

Topic : Library Management System
You 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 following TABLES in the database:

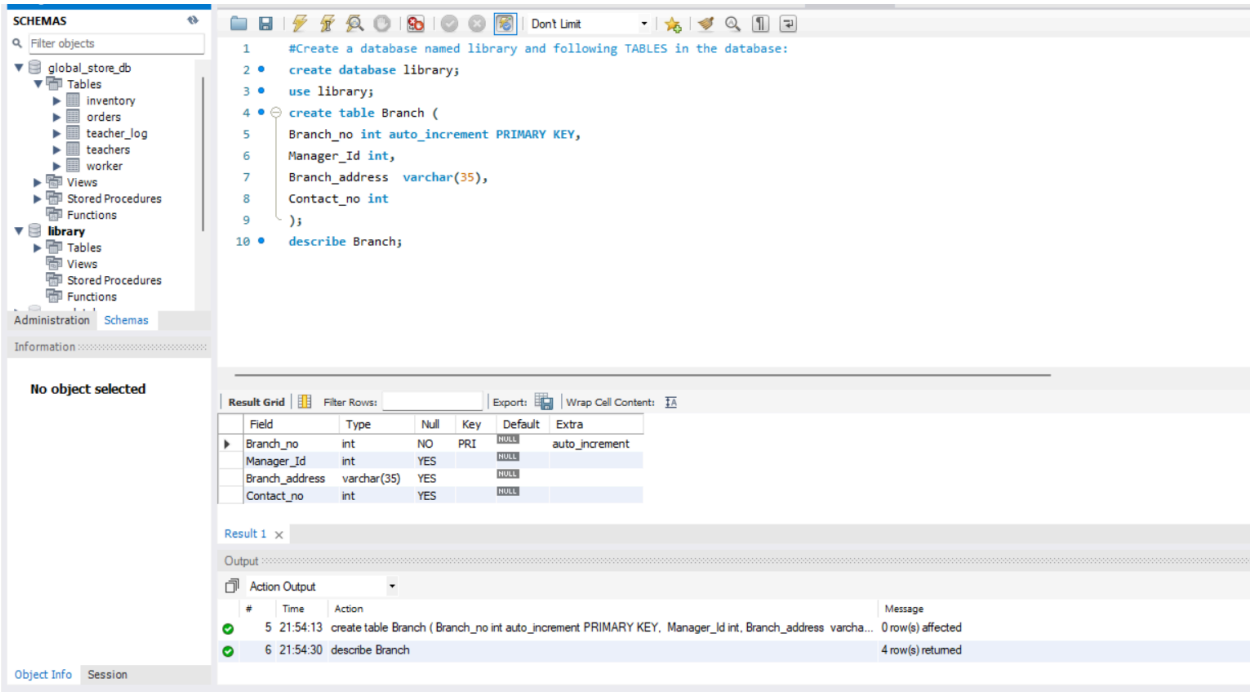
1. Branch
2. Employee
3. Books
4. Customer
5. IssueStatus
6. ReturnStatus

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

```
12  create table Employee(
13  Emp_Id int auto_increment PRIMARY KEY,
14  Emp_name varchar(25),
15  Position  varchar(25),
16  Salary float,
17  Branch_no int,
18  FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no)
19  );
20  describe Employee;
```

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

Field	Type	Null	Key	Default	Extra
Emp_Id	int	NO	PRI	NULL	auto_increment
Emp_name	varchar(25)	YES		NULL	
Position	varchar(25)	YES		NULL	
Salary	float	YES		NULL	
Branch_no	int	YES	MUL	NULL	

Result 2

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

```
21
22  create table Books(
23   ISBN int auto_increment PRIMARY KEY,
24   Book_title varchar(50),
25   Category varchar(25),
26   Rental_Price float,
27   Status VARCHAR(3) CHECK (Status IN ('yes', 'no')),
28   Author VARCHAR(35),
29   Publisher VARCHAR(35)
30  );
31  describe Books;
```

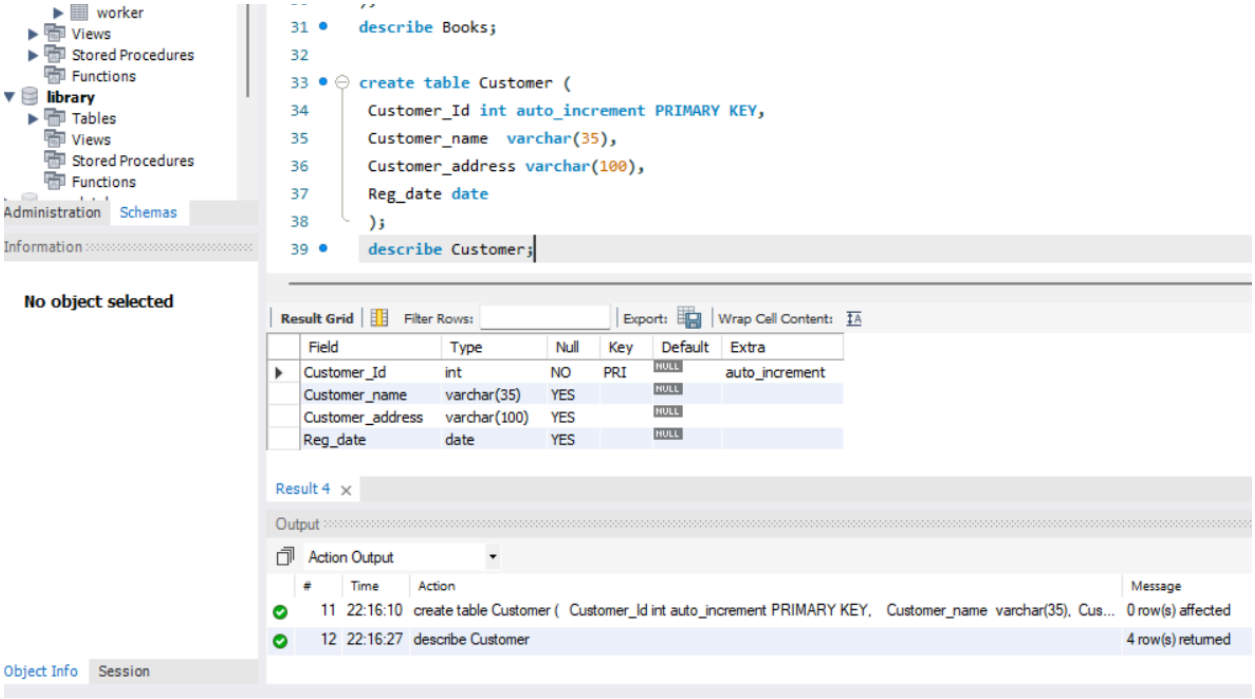
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
ISBN	int	NO	PRI	NULL	auto_increment
Book_title	varchar(50)	YES		NULL	
Category	varchar(25)	YES		NULL	
Rental_Price	float	YES		NULL	
Status	varchar(3)	YES		NULL	

4. Customer

• Customer_Id

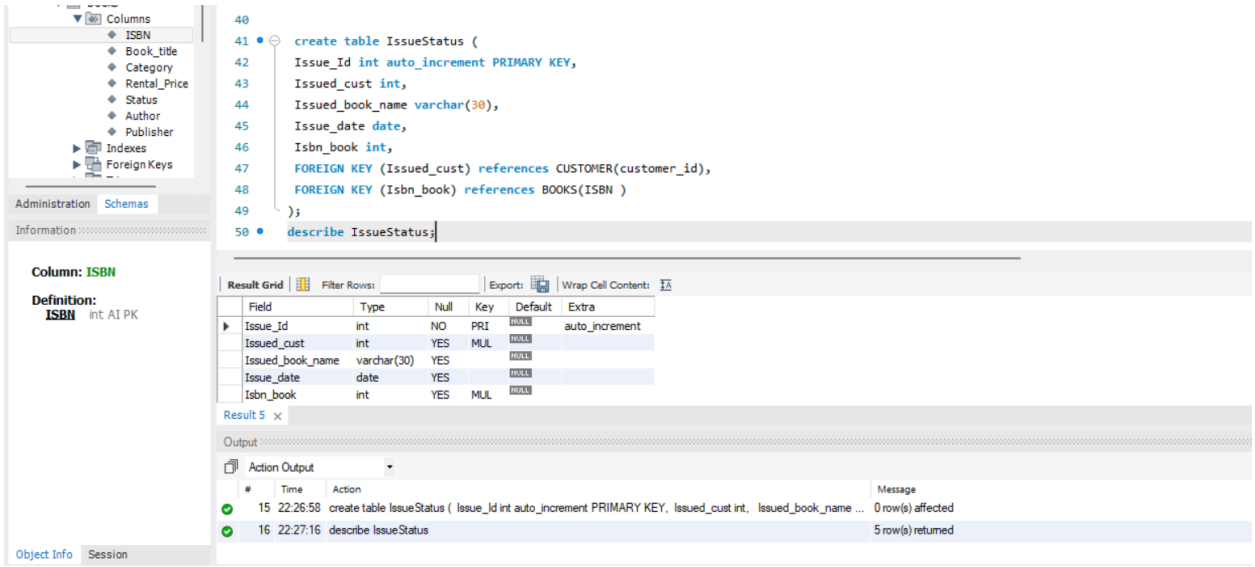
- Set as PRIMARY KEY
  • Customer_name
  • Customer_address
  • Reg_date



5. IssueStatus

• Issue_Id

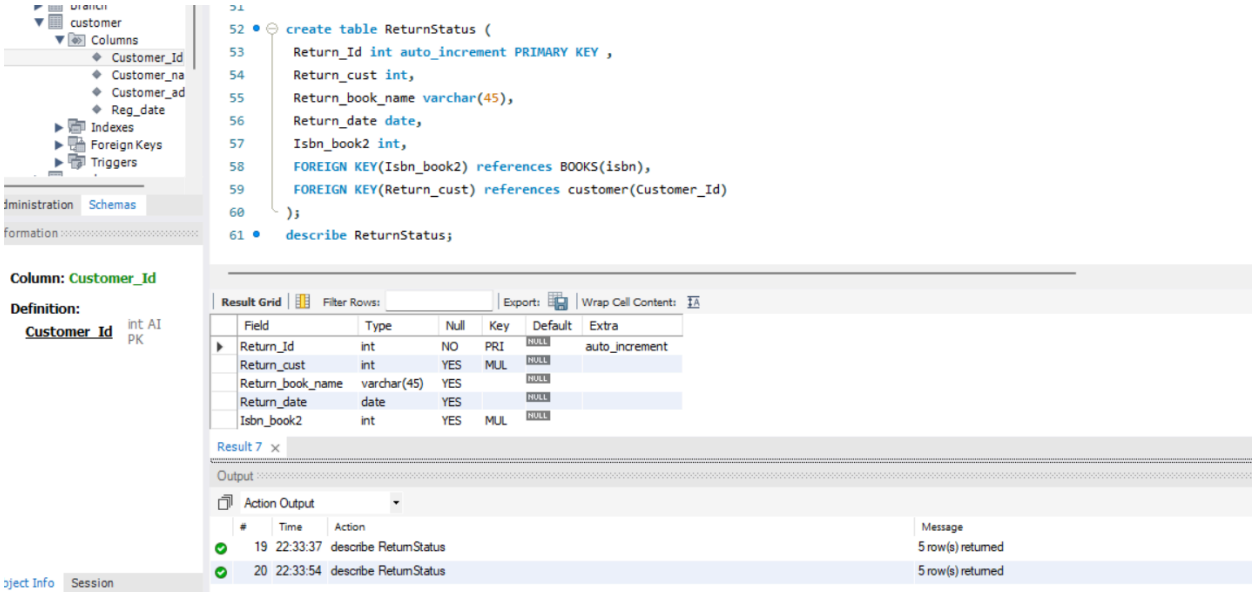
- Set as PRIMARY KEY
  • Issued_cust – Set as FOREIGN KEY and it refer customer_id in CUSTOMER table
  Issued_book_name
  • Issue_date
  • Isbn_book – Set as FOREIGN KEY and it should refer isbn in BOOKS table



6. ReturnStatus

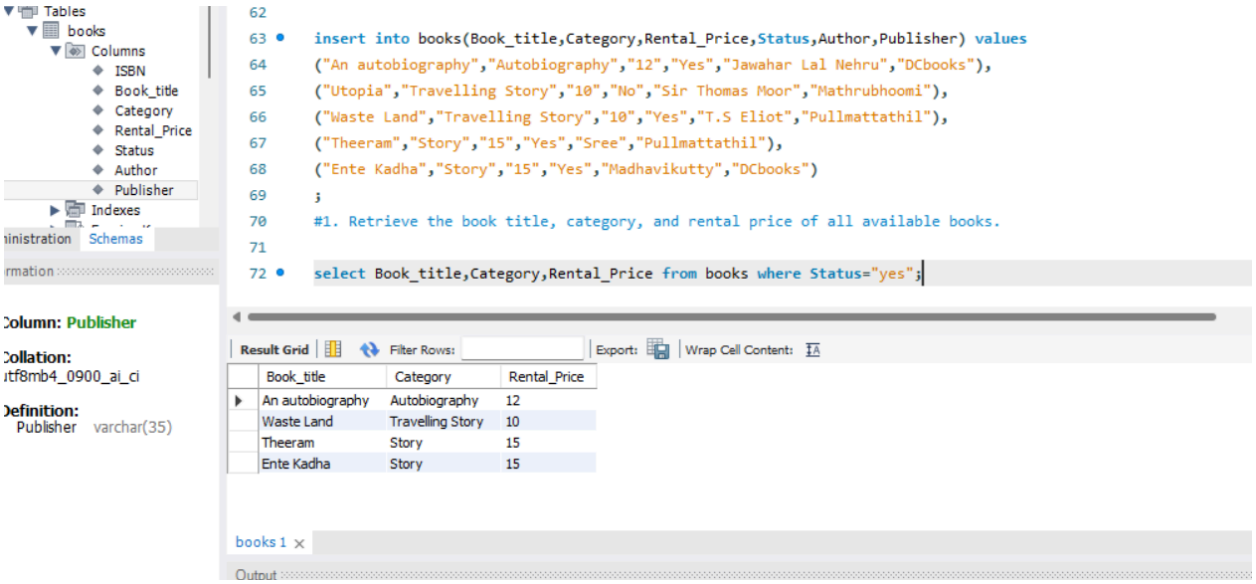
• Return_Id

- 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

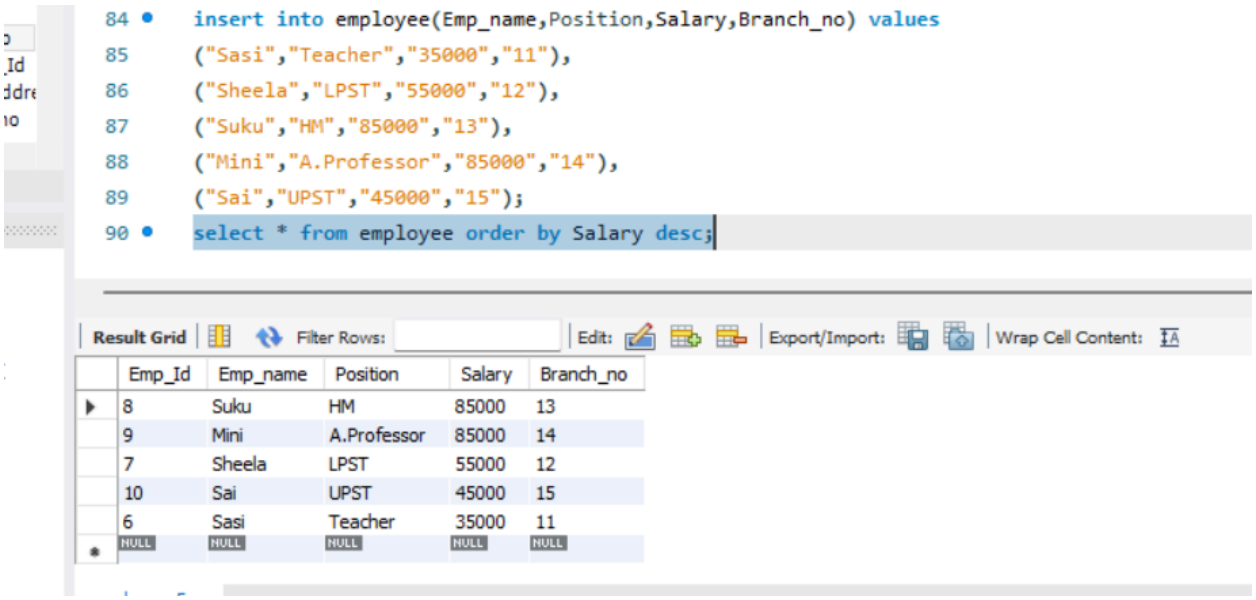


Display all the tables and Write the queries for the following :

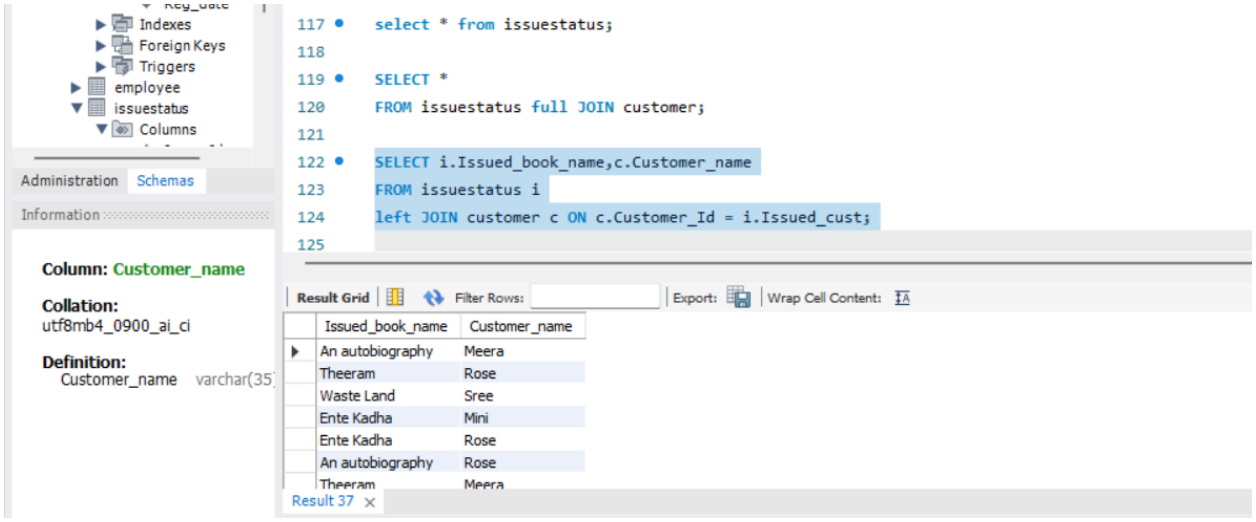
1. Retrieve the book title, category, and rental price of all available books.

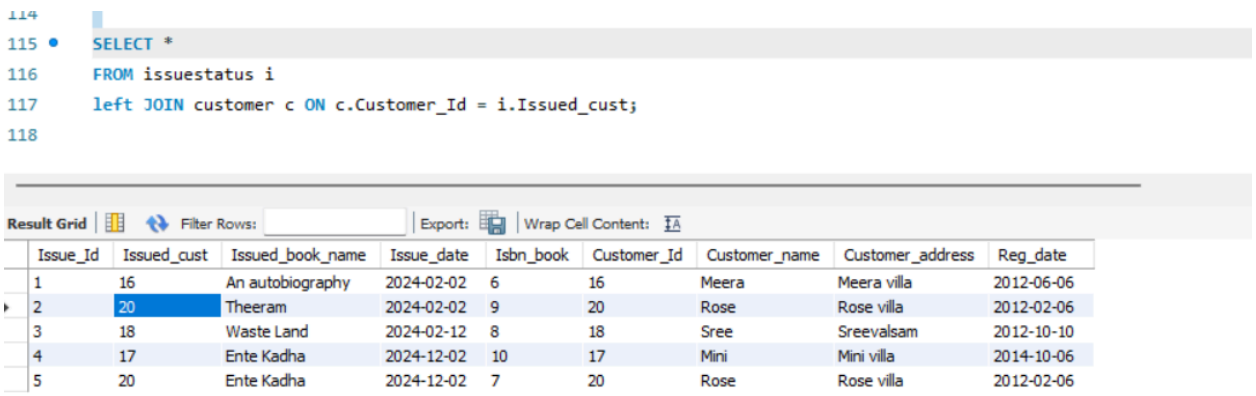


2. List the employee names and their respective salaries in descending order of salary.

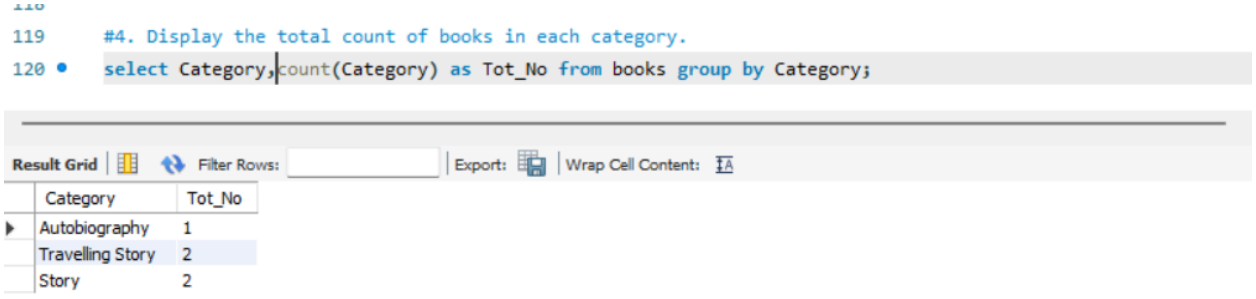


3. Retrieve the book titles and the corresponding customers who have issued those books.





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



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

```
122     #5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.
123 •   select Emp_Id,Emp_name,Position,Salary from  employee where Salary > 50000 order by salary desc;
```

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

Emp_Id	Emp_name	Position	Salary
8	Suku	HM	85000
9	Mini	A.Professor	85000
7	Sheela	LPST	55000
NULL	NULL	NULL	NULL

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

```
125     #6. List the customer names who registered before 2022-01-01 and have not issued any books yet.
126
127 •   select * from customer c where c.Reg_date < "2022-01-01" and (select count(*) from issuestatus d where d.Issued_cust= c.Customer_Id) =0;
128
129
```

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

Customer_Id	Customer_name	Customer_address	Reg_date
19	Ami	Aami villa	2017-07-08
NULL	NULL	NULL	NULL

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

```
133
134     #7. Display the branch numbers and the total count of employees in each branch.
135
136 •   SELECT b.Branch_no, COUNT(e.Emp_Id) AS total_employees
137     FROM branch b
138     LEFT JOIN employee e ON b.Branch_no = e.Branch_no
139     GROUP BY b.Branch_no;
140
```

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

Branch_no	total_employees
11	2
12	2
13	1
14	1
15	1

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

```
140
141  #8. Display the names of customers who have issued books in the month of June 2023.
142
143  insert into issuestatus(Issued_cust,Issued_book_name,Issue_date,Isbn_book) values
144  (20,"An autobiography","2023-06-02",6),
145  (16,"Theeram","2023-06-02",9),
146  (19,"Waste Land","2023-06-12",8);
147
148  SELECT DISTINCT c.Customer_name
149  FROM customer c
150  JOIN issuestatus i ON c.Customer_Id = i.Issued_cust
151  WHERE MONTH(i.Issue_date) = 6 AND YEAR(i.Issue_date) = 2023;
152
153
```

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

Customer_name
Meera
Ami
Rose

9. Retrieve book_title from a book table containing history.

```
163
164  #History of book issueing
165  select b.Book_title,i.Issue_date,c.Customer_name from
166  books b inner join issuestatus i on b.ISBN=i.Isbn_book
167  left join customer c  on c.Customer_Id=i.Issued_cust;
```

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

Book_title	Issue_date	Customer_name
Theeram	2023-06-02	Meera
Waste Land	2023-06-12	Ami
English	2023-06-02	Rose
Maths	2023-06-02	Meera
Maths	2023-06-12	Ami

Result 5

```
155
156     #9. Retrieve book_title from a book table containing history.
157
158 •   insert into books(Book_title,Category,Rental_Price,Status,Author,Publisher) values
159     ("Utopia2","History","10","No","Sir Thomas Moor","Mathrubhoomi"),
160     ("Columbus","History","10","Yes","T.S Eliot","Pullmattathil");
161
162 •   select Book_title from books where Category="History";
163
```

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

Book_title
Utopia2
Columbus

Title name containing word history.

```
168
169 •   select Book_title from books where Book_title like '%history%';
```

k_title

)_ai_ci

varchar(50)

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

Book_title
History

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

- branch
  - Columns
    - Branch_no
    - Manager_Id
    - Branch_addre
    - Contact_no
  - Indexes
  - Foreign Keys
  - Triggers
- customer
- employee
- issuestatus
- returnstatus

ration | Schemas

mn: Branch_address

tion:
nb4_0900_ai_ci

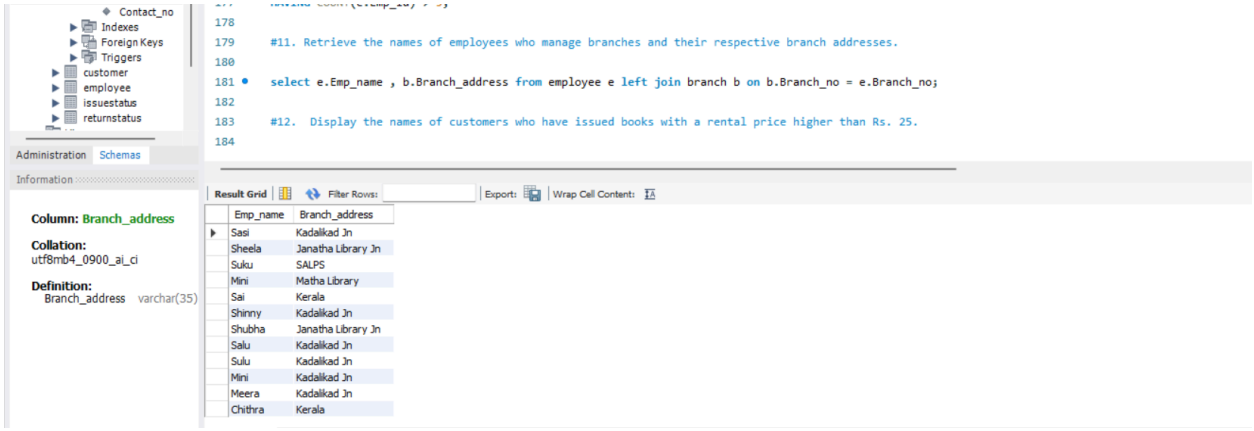
ition:
anch_address varchar(35)

```
165
166 •   insert into employee(Emp_name,Position,Salary,Branch_no) values
167     ("Salu","Teacher","35000","11"),
168     ("Sulu","LPST","55000","11"),
169     ("Mini","HM","85000","11"),
170     ("Meera","A.Professor","85000","1"),
171     ("Chithra","UPST","45000","15");
172
173 •   SELECT b.Branch_no,b.Branch_address, COUNT(e.Emp_Id) AS employee_count
174     FROM branch b
175     JOIN employee e ON b.Branch_no = e.Branch_no
176     GROUP BY b.Branch_no
177     HAVING COUNT(e.Emp_Id) > 5;
178
179     #11. Retrieve the names of employees who manage branches and their respective branch addresses.
```

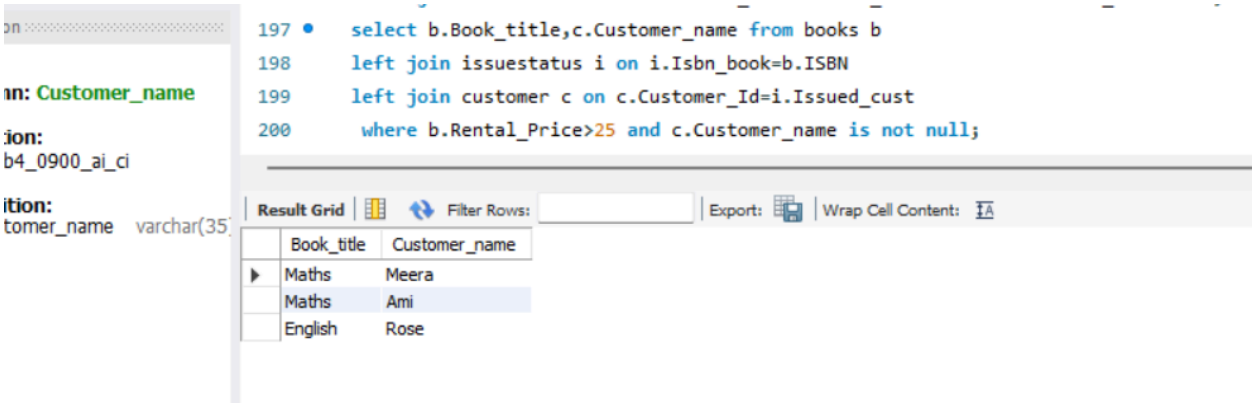
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Branch_no	Branch_address	employee_count
11	Kadalikad Jn	6

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



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



Score Distribution:
1 point for correctly formulating the query of each question (12 x 1 = 12).
1 point for providing screenshots of the output for each question (12 x 1 = 12).
1 point for timely submission.
Total = 25.

PS : After completing the project upload your project with screenshots in the github and share the link.

Queries Used

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

```
create database library;
use library;
create table Branch (
Branch_no int auto_increment PRIMARY KEY,
```

```
Manager_Id int,
Branch_address  varchar(35),
Contact_no int
);
describe Branch;

create table Employee(
Emp_Id int auto_increment PRIMARY KEY,
Emp_name varchar(25),
Position  varchar(25),
Salary float,
Branch_no int,
FOREIGN KEY (Branch_no) REFERENCES
Branch(Branch_no)
);
describe Employee;

create table Books(
 ISBN int auto_increment PRIMARY KEY,
 Book_title varchar(50),
 Category varchar(25),
 Rental_Price float,
 Status VARCHAR(3) CHECK (Status IN ('yes', 'no')),
 Author VARCHAR(35),
 Publisher VARCHAR(35)
);
describe Books;

create table Customer (
 Customer_Id int auto_increment PRIMARY KEY,
```

```
 Customer_name  varchar(35),
 Customer_address varchar(100),
 Reg_date date
 );
 describe Customer;

 create table IssueStatus (
 Issue_Id int auto_increment PRIMARY KEY,
 Issued_cust int,
 Issued_book_name varchar(30),
 Issue_date date,
 Isbn_book int,
 FOREIGN KEY (Issued_cust) references
CUSTOMER(customer_id),
 FOREIGN KEY (Isbn_book) references BOOKS(ISBN )
);
describe IssueStatus;

create table ReturnStatus (
 Return_Id int auto_increment PRIMARY KEY ,
 Return_cust int,
 Return_book_name varchar(45),
 Return_date date,
 Isbn_book2 int,
 FOREIGN KEY(Isbn_book2) references BOOKS(isbn),
 FOREIGN KEY(Return_cust) references
customer(Customer_Id)
);
describe ReturnStatus;
```

```
insert into
books(Book_title,Category,Rental_Price,Status,Author,Publis
her) values
("An autobiography","Autobiography","12","Yes","Jawahar
Lal Nehru","DCbooks"),
("Utopia","Travelling Story","10","No","Sir Thomas
Moor","Mathrubhoomi"),
("Waste Land","Travelling Story","10","Yes","T.S
Eliot","Pullmattathil"),
("Theeram","Story","15","Yes","Sree","Pullmattathil"),
("Ente
Kadha","Story","15","Yes","Madhavikutty","DCbooks")
;
```

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

```
select Book_title,Category,Rental_Price from books where
Status="yes";
```

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

```
insert into branch(Manager_Id,Branch_address,Contact_no)
values
(101,"Kadalikad Jn",1234567810),
(102,"Janatha Library Jn",1111111111),
(103,"SALPS",222222222),
(104,"Matha Library",333333333),
```

("105","Kerala",444444444);
select * from branch;
delete from branch where Branch_no>15;
insert into employee(Emp_name,Position,Salary,Branch_no)
values
("Sasi","Teacher","35000","11"),
("Sheela","LPST","55000","12"),
("Suku","HM","85000","13"),
("Mini","A.Professor","85000","14"),
("Sai","UPST","45000","15");

insert into employee(Emp_name,Position,Salary,Branch_no)
values
("Shinny","Teacher","35000","11"),
("Shubha","LPST","55000","12");

select * from employee order by Salary desc;

#3. Retrieve the book titles and the corresponding customers who have issued those books.
describe issuestatus;
insert into
customer(Customer_name,Customer_address,Reg_date)
values
("Meera","Meera villa","2012-06-06"),
("Mini","Mini villa","2014-10-06"),
("Sree","Sreevalsam","2012-10-10"),
("Ami","Aami villa","2017-07-08"),
("Rose","Rose villa","2012-02-06");
select * from customer;

```
insert into
issuestatus(Issued_cust,Issued_book_name,Issue_date,Isbn
_book) values
(16,"An autobiography","2024-02-02",6),
(20,"Theeram","2024-02-02",9),
(18,"Waste Land","2024-02-12",8),
(17,"Ente Kadha","2024-12-02",10),
(20,"Ente Kadha","2024-12-02",7);

select * from issuestatus;

SELECT *
FROM issuestatus full JOIN customer;

SELECT i.Issued_book_name,c.Customer_name
FROM issuestatus i
left JOIN customer c ON c.Customer_Id = i.Issued_cust;
```

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

```
select Category,count(Category) as Tot_No from books group
by Category;
```

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

```
select Emp_Id,Emp_name,Position,Salary from  employee
where Salary > 50000 order by salary desc;
```

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

```
select * from customer c where c.Reg_date < "2022-01-01" and (select count(*) from issuestatus d where d.Issued_cust= c.Customer_Id) =0;
```

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

```
SELECT b.Branch_no, COUNT(e.Emp_Id) AS total_employees
FROM branch b
LEFT JOIN employee e ON b.Branch_no = e.Branch_no
GROUP BY b.Branch_no;
```

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

```
insert into issuestatus(Issued_cust,Issued_book_name,Issue_date,Isbn_book) values
(20,"An autobiography","2023-06-02",6),
(16,"Theeram","2023-06-02",9),
(19,"Waste Land","2023-06-12",8);

SELECT DISTINCT c.Customer_name
FROM customer c
cross JOIN issuestatus i ON c.Customer_Id = i.Issued_cust
```

```
WHERE MONTH(i.Issue_date) = 6 AND YEAR(i.Issue_date) =
2023;


#9. Retrieve book_title from a book table containing history.

insert into
books(Book_title,Category,Rental_Price,Status,Author,Publis
her) values
("Utopia2","History","10","No","Sir Thomas
Moor","Mathrubhoomi"),
("Columbus","History","10","Yes","T.S Eliot","Pullmattathil");

#History of book issueing
select b.Book_title,i.Issue_date,c.Customer_name from
books b inner join issuestatus i on b.ISBN=i.Isbn_book
left join customer c  on c.Customer_Id=i.Issued_cust;

select Book_title from books where Book_title like
'%history%';



select Book_title from books where Category="History";

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

insert into employee(Emp_name,Position,Salary,Branch_no)
values
```

("Salu","Teacher","35000","11"),
("Sulu","LPST","55000","11"),
("Mini","HM","85000","11"),
("Meera","A.Professor","85000","1"),
("Chithra","UPST","45000","15");

SELECT b.Branch_no,b.Branch_address, COUNT(e.Emp_Id)
AS employee_count
FROM branch b
JOIN employee e ON b.Branch_no = e.Branch_no
GROUP BY b.Branch_no
HAVING COUNT(e.Emp_Id) > 5;

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

select e.Emp_name , b.Branch_address from employee e left join branch b on b.Branch_no = e.Branch_no;

#12. Display the names of customers who have issued books with a rental price higher than Rs. 25.
insert into
books(Book_title,Category,Rental_Price,Status,Author,Publisher) values
("English","Sbject","25","Yes","Jawahar Lal Nehru","DCbooks"),
("Maths","Subject","25","No","Sir Thomas Moor","Mathrubhoomi"),
("History","History","25","Yes","T.S Eliot","Pullmattathil");

```
insert into
issuestatus(Issued_cust,Issued_book_name,Issue_date,Isbn
_book) values
(20,"English","2023-06-02",13),
(16,"Maths","2023-06-02",14),
(19,"Maths","2023-06-12",14);
update books set Rental_Price=30 where Rental_Price=25;
SET SQL_SAFE_UPDATES = 0;
select
b.Book_title,b.Rental_Price,i.Issued_cust,c.Customer_name
from books b
 left join issuestatus i on i.Isbn_book=b.ISBN
 left join customer c on c.Customer_Id=i.Issued_cust  where
b.Rental_Price>25 ;
select b.Book_title,c.Customer_name from books b
left join issuestatus i on i.Isbn_book=b.ISBN
left join customer c on c.Customer_Id=i.Issued_cust
 where b.Rental_Price>25 and c.Customer_name is not null;
```