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 • CREATE DATABASE library;
2 • USE library;
```

- 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

```
20 • ○ CREATE TABLE Books (
21
           ISBN INT PRIMARY KEY,
22
           Book title VARCHAR(100),
23
           Category VARCHAR(50),
24
           Rental_Price DECIMAL(10, 2),
25
           Status VARCHAR(10),
           Author VARCHAR(100),
26
           Publisher VARCHAR(100)
27
28
       );
```

4. Customer

- Customer_Id Set as PRIMARY KEY
- Customer_name
- Customer_address
- Reg_date

```
30 • CREATE TABLE Customer (
Customer_id INT PRIMARY KEY,
Customer_name VARCHAR(100),
Customer_address VARCHAR(200),
Reg_date 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

```
37 • ○ CREATE TABLE IssueStatus (
           Issue Id INT PRIMARY KEY,
38
39
           Issued cust INT,
           Issued book name VARCHAR(100),
40
           Issue date DATE,
41
           Isbn book INT,
42
           FOREIGN KEY (Issued_cust) REFERENCES Customer(Customer_id),
43
           FOREIGN KEY (Isbn book) REFERENCES Books(ISBN)
44
45
     ٤( ک
```

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

```
47 • ○ CREATE TABLE ReturnStatus (

48 Return_Id INT PRIMARY KEY,

49 Return_cust INT,

50 Return_book_name VARCHAR(100),

51 Return_date DATE,

52 Isbn_book2 INT,

53 FOREIGN KEY (Isbn_book2) REFERENCES Books(ISBN)

54 );
```

Insert values into tables:

Branch

```
INSERT INTO branch (Branch_no, Manger_id, Branch_address, Contact_no)
 59 •
 60
         VALUES
         (1, 101, '123 Main Street, City A', 9496957511),
 61
         (2, 102, '456 Oak Avenue, City B', 9876543210),
 62
         (3, 103, '789 Pine Lane, City C', 9497947511),
 63
         (4, 104, '101 Maple Drive, City A', 9896941175),
         (5, 105, '567 Oak Avenue, City B', 9847511475);
 65
 66
 67 •
         SELECT * FROM Branch;
 68
 69
                                          Edit: 🚣 📆 🖶 | Export/Import: 📳 🐻 | Wrap Cell Content: 🔣
Branch_no Manger_id Branch_address
                                           Contact_no
             101
                                           9496957511
   1
                       123 Main Street, City A
   2
             102
                       456 Oak Avenue, City B 9876543210
   3
             103
                       789 Pine Lane, City C
                                           9497947511
   4
             104
                       101 Maple Drive, City A
                                          9896941175
                       567 Oak Avenue, City B
             105
                                           9847511475
NULL
            NULL
                                          NULL
```

• Employee

```
INSERT INTO Employee (Emp_id, Emp_name, Position, Salary, Branch_no)
 69 •
         VALUES
 70
 71
         (201, 'John Doe', 'Librarian', 50000, 1),
         (202, 'Jane Smith', 'Assistant Librarian', 40000, 2),
 72
         (203, 'Michael Johnson', 'Bookkeeper', 35000, 3),
 73
         (204, 'Emily Davis', 'Librarian', 50000, 1),
 74
         (205, 'David Lee', 'Assistant Librarian', 40000, 3),
 75
         (206, 'Sarah Brown', 'Librarian', 55000, 2),
 76
         (207, 'Thomas Miller', 'Assistant Librarian', 45000, 4),
 77
         (208, 'Olivia Taylor', 'Bookkeeper', 38000, 5),
 78
         (209, 'Ethan Johnson', 'Librarian', 52000, 5),
 79
         (210, 'Ava Lee', 'Assistant Librarian', 43000, 1);
 80
 81
         SELECT * FROM Employee;
 82 •
 83
                                           | Edit: 🚄 📆 🖶 | Export/Import: 🏣 👸 | Wrap Cell Content: 🔣
Salary
                                                    Branch_no
   Emp_id
          Emp_name
                          Position
  201
          John Doe
                         Librarian
                                         50000.00
                         Assistant Librarian
  202
          Jane Smith
                                         40000.00
                                                   2
  203
          Michael Johnson
                         Bookkeeper
                                         35000.00
                                                   3
  204
          Emily Davis
                         Librarian
                                         50000.00 1
  205
          David Lee
                         Assistant Librarian
                                         40000.00
  206
          Sarah Brown
                         Librarian
                                         55000.00 2
  207
           Thomas Miller
                         Assistant Librarian
                                         45000.00
          Olivia Taylor
  208
                         Bookkeeper
                                         38000.00
                                                   5
  209
          Ethan Johnson
                         Librarian
                                         52000.00
                                                   5
  210
          Ava Lee
                         Assistant Librarian
                                         43000.00
                                                   1
NULL
          NULL
                                         NULL
                                                   NULL
```

Books

```
84 •
        INSERT INTO Books (ISBN, Book_title, Category, Rental_Price, Status, Author, Publisher)
 85
        (97800081, 'To Kill a Mockingbird', 'Fiction', 10, 'Yes', 'Harper Lee', 'HarperCollins'),
 86
        (97801431, '1984', 'Fiction', 10, 'No', 'George Orwell', 'Penguin Books'),
 87
        (97800608, 'Pride and Prejudice', 'Fiction', 8, 'Yes', 'Jane Austen', 'Penguin Classics'),
 88
 89
         (97805900, 'The Lord of the Rings', 'Fantasy', 15, 'No', 'J.R.R. Tolkien', 'HarperCollins'),
        (97803167, "The Hitchhiker's Guide to the Galaxy", 'Science Fiction', 11, 'Yes', ' Douglas Adams', 'Pan Books'),
        (97800074, "The Great Gatsby", 'Fiction', 9, 'Yes', 'F. Scott Fitzgerald', 'Scribner'),
 91
        (97800065, 'The Catcher in the Rye', 'Fiction', 10, 'No', 'J.D. Salinger', 'Little, Brown'),
 92
        (97800072, 'The Harry Potter Series', 'Fantasy', 12, 'Yes', 'J.K. Rowling', 'Bloomsbury'),
 93
 94
        (97800064, 'The Hunger Games', 'Science Fiction', 11, 'No', 'Suzanne Collins', 'Scholastic'),
 95
       (97800070, 'The Chronicles of Narnia', 'Fantasy', 13, 'Yes', 'C.S. Lewis', 'HarperCollins');
 97 • SELECT * FROM Books;
| Edit: 🚄 🖶 🖶 | Export/Import: 🏣 👸 | Wrap Cell Content: 🖽
   ISBN
            Book_title
                                        Category
                                                    Rental_Price Status Author
 97800064 The Hunger Games
                                        Science Fiction 11.00
                                                                No
                                                                       Suzanne Collins
                                                                                      Scholastic
                                                              No J.D. Salinger
  97800065 The Catcher in the Rye
                                       Fiction
                                                    10.00
                                                                                    Little, Brown
  97800070 The Chronicles of Narnia
                                                    13.00
                                       Fantasy
                                                                Yes
                                                                      C.S. Lewis
                                                                                      HarperCollins
                                                              Yes J.K. Rowling
  97800072 The Harry Potter Series
                                       Fantasy
                                                    12.00
                                                                                      Bloomsbury
  97800074 The Great Gatsby
                                                                     F. Scott Fitzgerald Scribner
                                       Fiction
                                                    9.00
                                                                Yes
  97800081 To Kill a Mockingbird
                                       Fiction
                                                   10.00
                                                             Yes Harper Lee
                                                                                  HarperCollins
  97800608
           Pride and Prejudice
                                        Fiction
                                                    8.00
                                                                Yes
                                                                       Jane Austen
                                                                                      Penguin Classics
                                                             No George Orwell Penguin Books
  97801431 1984
                                       Fiction
                                                  10.00
                                                           Yes Douglas Adams
  97803167 The Hitchhiker's Guide to the Galaxy Science Fiction 11.00
                                                                                      Pan Books
```

Customer

```
INSERT INTO Customer (Customer_id, Customer_name, Customer_address, Reg_date)
 99
         VALUES
100
101
         (301, 'Alice Johnson', '789 Pine Lane, City A', '2023-01-01'),
         (302, 'Bob Brown', '101 Maple Drive, City B', '2023-02-15'),
102
         (303, 'Charlie Green', '567 Oak Avenue, City C', '2023-03-20'),
103
         (304, 'Danielle Harris', '456 Main Street, City A', '2023-04-10'),
104
         (305, 'Emily Wilson', '123 Main Street, City B', '2023-05-25'),
105
         (306, 'Frank Johnson', '789 Pine Lane, City C', '2023-06-15'),
106
         (307, 'Grace Miller', '101 Maple Drive, City A', '2023-07-20'),
107
         (308, 'Henry Taylor', '567 Oak Avenue, City B', '2023-08-10'),
108
         (309, 'Isabella Lee', '123 Main Street, City C', '2023-09-25'),
109
         (310, 'Jacob Wilson', '789 Pine Lane, City A', '2023-10-15');
110
                                             Edit: 🚄 🖶 Export/Import: 📳 🐻 Wrap Cell Content: 🔣
Result Grid
               Filter Rows:
   Customer_id
                Customer_name
                               Customer_address
                                                    Reg_date
  301
                              789 Pine Lane, City A
                                                    2023-01-01
               Alice Johnson
   302
               Bob Brown
                              101 Maple Drive, City B
                                                    2023-02-15
   303
               Charlie Green
                              567 Oak Avenue, City C
                                                    2023-03-20
   304
                                                    2023-04-10
               Danielle Harris
                              456 Main Street, City A
   305
               Emily Wilson
                              123 Main Street, City B
                                                    2023-05-25
   306
                                                    2023-06-15
               Frank Johnson
                              789 Pine Lane, City C
   307
               Grace Miller
                              101 Maple Drive, City A
                                                    2023-07-20
   308
                              567 Oak Avenue, City B
                                                    2023-08-10
               Henry Taylor
   309
               Isabella Lee
                              123 Main Street, City C
                                                    2023-09-25
   310
               Jacob Wilson
                              789 Pine Lane, City A
                                                    2023-10-15
  NULL
                              NULL
```

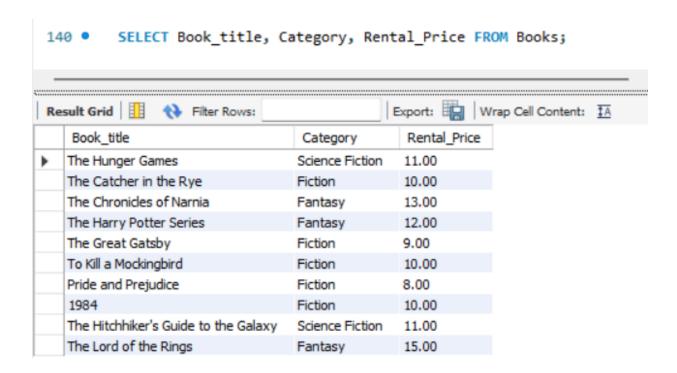
IssueStatus

```
114 •
         INSERT INTO Issuestatus (Issue_Id, Issued_cust, Issued_book_name, Issue_date, Isbn_book)
115
        VALUES
116
         (401, 301, 'To Kill a Mockingbird', '2023-03-10', 97800081),
         (402, 302, '1984', '2023-04-05', 97801431),
117
         (403, 303, 'Pride and Prejudice', '2023-05-15', 97800608),
118
         (404, 301, 'The Lord of the Rings', '2023-06-20', 97805900),
119
         (405, 304, "The Hitchhiker's Guide to the Galaxy", '2023-07-10', 97803167),
120
         (406, 305, 'The Great Gatsby', '2023-08-15', 97800074),
121
         (407, 306, 'The Catcher in the Rye', '2023-09-20', 97800065),
122
         (408, 307, 'The Harry Potter Series', '2023-10-10', 97800072),
123
         (409, 308, 'The Hunger Games', '2023-11-15', 97800064),
124
         (410, 309, 'The Chronicles of Narnia', '2023-12-20', 97800070);
125
126
127 •
        SELECT * FROM IssueStatus;
                                           Edit: 🚄 🖶 Export/Import: 🏭 👸 Wrap Cell Content: 🖽
Issue_Id Issued_cust Issued_book_name
                                                    Issue_date
                                                               Isbn_book
                      To Kill a Mockingbird
                                                    2023-03-10
                                                              97800081
  401
  402
           302
                      1984
                                                   2023-04-05 97801431
  403
           303
                      Pride and Prejudice
                                                    2023-05-15 97800608
  404
           301
                      The Lord of the Rings
                                                    2023-06-20 97805900
           304
                       The Hitchhiker's Guide to the Galaxy 2023-07-10 97803167
   405
                                                    2023-08-15 97800074
  406
           305
                      The Great Gatsby
  407
           306
                      The Catcher in the Rye
                                                    2023-09-20 97800065
  408
           307
                      The Harry Potter Series
                                                   2023-10-10 97800072
  409
           308
                      The Hunger Games
                                                    2023-11-15 97800064
                      The Chronicles of Narnia
                                                   2023-12-20 97800070
  410
           309
NULL
           NULL
                                                   NULL
                                                              NULL
```

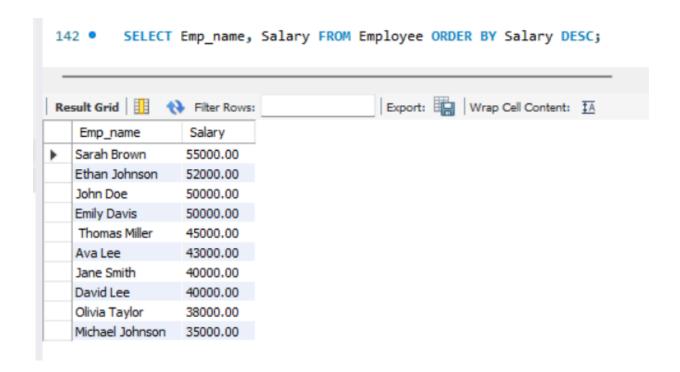
ReturnStatus

```
129 •
        INSERT INTO Returnstatus (Return_Id, Return_cust, Return_book_name, Return_date, Isbn_book2)
        VALUES
130
        (501, 301, 'To Kill a Mockingbird', '2023-03-25', 97800081),
131
        (502, 302, '1984', '2023-04-20', 97801431),
132
        (503, 303, 'Pride and Prejudice', '2023-06-01', 97800608),
133
        (504, 301, 'The Lord of the Rings', '2023-08-05', 97805900),
134
        (505, 304, "The Hitchhiker's Guide to the Galaxy", '2023-09-10', 97803167);
135
136
        SELECT * FROM Returnstatus;
137 •
138
Edit: 🚄 🖶 Export/Import: 🙀 🦝 Wrap Cell Content: 🟗
   Return_Id Return_cust Return_book_name
                                                    Return_date Isbn_book2
 501
            301
                       To Kill a Mockingbird
                                                   2023-03-25
                                                               97800081
                                                   2023-04-20
  502
            302
                       1984
                                                               97801431
  503
            303
                       Pride and Prejudice
                                                   2023-06-01
                                                               97800608
  504
            301
                       The Lord of the Rings
                                                   2023-08-05
                                                              97805900
  505
            304
                       The Hitchhiker's Guide to the Galaxy 2023-09-10
                                                               97803167
```

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



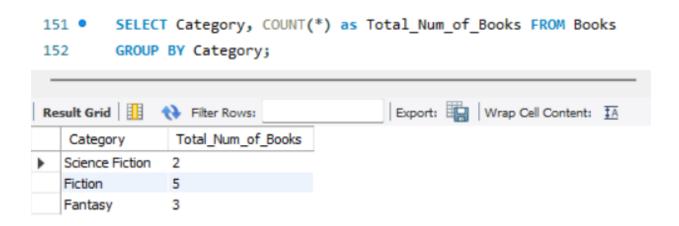
2. List the employee names and their respective salaries in descending order of salary.



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

```
146
          SELECT b.Book_title, c.Customer_name FROM issuestatus i
          JOIN Customer c ON c.Customer id = i.Issued cust
147
          JOIN books b ON b.ISBN = i.Isbn book
148
149
Result Grid
               Filter Rows:
                                                 Export: Wrap Cell Content: IA
   Book title
                                     Customer name
  To Kill a Mockingbird
                                    Alice Johnson
   1984
                                    Bob Brown
   Pride and Prejudice
                                    Charlie Green
   The Lord of the Rings
                                    Alice Johnson
   The Hitchhiker's Guide to the Galaxy
                                    Danielle Harris
   The Great Gatsby
                                    Emily Wilson
   The Catcher in the Rye
                                    Frank Johnson
   The Harry Potter Series
                                    Grace Miller
   The Hunger Games
                                    Henry Taylor
   The Chronides of Narnia
                                    Isabella Lee
```

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.

```
SELECT Emp_name, Position, Salary FROM Employee
154 •
         WHERE Salary > 50000;
155
                                             Export: Wrap Cell Content: TA
Result Grid
               Filter Rows:
   Emp name
                 Position
                           Salary
  Sarah Brown
                          55000.00
                 Librarian
  Ethan Johnson
                Librarian
                          52000.00
```

6. List the customer names who registered before 2024-01-01 and have not issued any books yet.

```
SELECT c.Customer_name, c.Reg_date FROM Customer c

LEFT JOIN issuestatus i ON c.Customer_id = i.Issued_cust

WHERE c.reg_date < '2024-01-01' AND i.Issued_cust IS NULL;

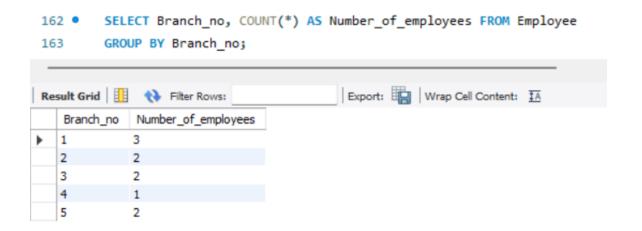
Result Grid  Filter Rows:

Export: Wrap Cell Content: A

Customer_name Reg_date

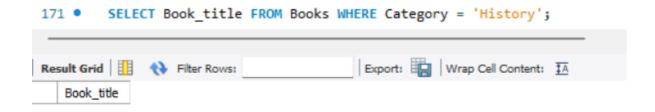
Jacob Wilson 2023-10-15
```

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



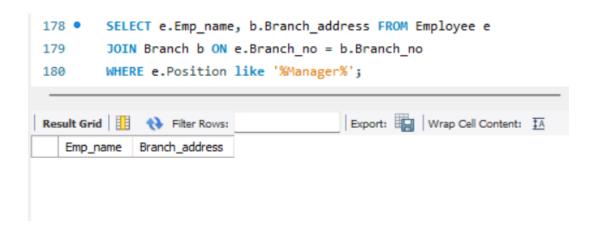
8. Display the names of customers who have issued books in the month of June 2023.

9. Retrieve book_title from book table containing history.



10.Retrieve the branch numbers along with the count of employees for branches having more than 2 employees

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. 10.

