

Mysql Comprehensive Assessment

Due on 15th July 24

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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
6. ReturnStatus

The screenshot shows the MySQL Workbench interface. The top pane displays the SQL script for creating the database and tables. The bottom pane shows the 'Result Grid' with the list of tables created in the database.

```
1 • CREATE DATABASE library;
2 • USE library;
3 • CREATE TABLE Branch (Branch_no INT PRIMARY KEY, Manager_Id INT, Branch_address VARCHAR(255), Contact_no VARCHAR(20));
4 • CREATE TABLE Employee (Emp_Id INT PRIMARY KEY, Emp_name VARCHAR(50), Position VARCHAR(50), Salary INT, Branch_no INT, FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no));
5 • CREATE TABLE Books (ISBN INT PRIMARY KEY, Book_title VARCHAR(100), Category VARCHAR(50), Rental_Price DECIMAL(10,2), Status VARCHAR(3), Author VARCHAR(50), Publisher VARCHAR(50));
6 • CREATE TABLE Customer (Customer_Id INT PRIMARY KEY, Customer_name VARCHAR(50), Customer_address VARCHAR(255), Reg_date DATE);
7 • CREATE TABLE IssueStatus (Issue_Id INT PRIMARY KEY, Issued_cust INT, Issued_book_name VARCHAR(100), Issue_date DATE, Isbn_book INT, FOREIGN KEY (Issued_cust) REFERENCES Customer(Customer_Id),
8   FOREIGN KEY (Isbn_book) REFERENCES Books(ISBN))
9   );
10 • CREATE TABLE ReturnStatus (Return_Id INT PRIMARY KEY, Return_cust INT, Return_book_name VARCHAR(100), Return_date DATE, Isbn_book2 INT,
11   FOREIGN KEY (Return_cust) REFERENCES Customer(Customer_Id),
12   FOREIGN KEY (Isbn_book2) REFERENCES Books(ISBN))
13   );
14 • SHOW TABLES;
```

The 'Result Grid' shows the following tables in the 'library' database:

Tables_in_library
books
branch
customer
employee
issuestatus
returnstatus

Attributes for the tables:

1. Branch

- Branch_no -Set as PRIMARY KEY
- Manager_Id
- Branch_address
- Contact_no

```
15 • INSERT INTO Branch (Branch_no, Manager_Id, Branch_address, Contact_no) VALUES
16     (1, 101, '123 Main St', '123-456-7890'),
17     (2, 102, '456 Oak St', '987-654-3210'),
18     (3, 103, '789 Pine St', '456-789-0123'),
19     (4, 104, '101 Maple St', '222-333-4444'),
20     (5, 105, '202 Birch St', '555-666-7777');
21 • SELECT * FROM Branch;
```

Result Grid	Filter Rows:	Edit:	Export/Import:	Wrap Cell Content
Branch_no	Manager_Id	Branch_address	Contact_no	
1	101	123 Main St	123-456-7890	
2	102	456 Oak St	987-654-3210	
3	103	789 Pine St	456-789-0123	
4	104	101 Maple St	222-333-4444	
5	105	202 Birch St	555-666-7777	
*	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

```
34     (111, 'Linda Martin', 'Clerk', 43000, 2),
35     (112, 'Kevin Moore', 'Manager', 62000, 1),
36     (113, 'Anna Taylor', 'Assistant', 46000, 3)
37     (114, 'Brian Walker', 'Clerk', 41000, 2),
38     (115, 'Megan White', 'Manager', 76000, 3);
39 • SELECT * FROM Employee;
40
41 • INSERT INTO Books (ISBN, Book_title, Category,
```

Result Grid	Filter Rows:	Edit:	Export/Import:	Wrap Cell Content
Emp_Id	Emp_name	Position	Salary	Branch_no
1	John Doe	Manager	60000	1
2	Jane Smith	Assistant	45000	1
3	Bob Johnson	Manager	70000	2
4	Alice Brown	Clerk	40000	2
5	Chris Davis	Manager	75000	3
6	Nancy Wilson	Clerk	42000	3
7	Michael Lee	Clerk	35000	1
8	Sarah Clark	Assistant	50000	2
9	Emily Davis	Manager	80000	3
10	David Harris	Assistant	47000	1
11	Linda Martin	Clerk	43000	2
12	Kevin Moore	Manager	62000	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

```

48 (1007, 'The Odyssey', 'Epic', 25.00, 'Yes', 'Homer', 'Ancient Greece'),
49 (1008, 'Ulysses', 'Modernist', 22.00, 'No', 'James Joyce', 'Sylvia Beach'),
50 (1009, 'Hamlet', 'Tragedy', 5.00, 'Yes', 'William Shakespeare', 'N/A'),
51 (1010, 'The Divine Comedy', 'Epic', 30.00, 'Yes', 'Dante Alighieri', 'John Murray'),
52 (1011, 'Great Expectations', 'Novel', 15.00, 'No', 'Charles Dickens', 'Chapman & Hall'),
53 (1012, 'The Catcher in the Rye', 'Novel', 12.00, 'Yes', 'J.D. Salinger', 'Little, Brown and Company'),
54 (1013, 'Brave New World', 'Dystopian', 14.00, 'Yes', 'Aldous Huxley', 'Chatto & Windus'),
55 (1014, 'Don Quixote', 'Adventure', 16.00, 'Yes', 'Miguel de Cervantes', 'Francisco de Robles'),
56 (1015, 'Crime and Punishment', 'Psychological', 17.00, 'Yes', 'Fyodor Dostoevsky', 'The Russian Messenger');
57 • SELECT * FROM Books;

```

ISBN	Book_title	Category	Rental_Price	Status	Author	Publisher
1001	The Great Gatsby	Fiction	15.00	Yes	F. Scott Fitzgerald	Scribner
1002	To Kill a Mockingbird	Fiction	12.00	Yes	Harper Lee	J.B. Lippincott & Co.
1003	1984	Dystopian	10.00	No	George Orwell	Secker & Warburg
1004	Pride and Prejudice	Romance	8.00	Yes	Jane Austen	T. Egerton
1005	Moby Dick	Adventure	18.00	No	Herman Melville	Harper & Brothers
1006	War and Peace	Historical	20.00	Yes	Leo Tolstoy	The Russian Messenger
1007	The Odyssey	Epic	25.00	Yes	Homer	Ancient Greece
1008	Ulysses	Modernist	22.00	No	James Joyce	Sylvia Beach
1009	Hamlet	Tragedy	5.00	Yes	William Shakespeare	N/A

4. Customer

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

```

66 (7, 'Mike Ross', '777 Willow St', '2023-02-11'),
67 (8, 'Rachel Zane', '888 Poplar St', '2022-08-19'),
68 (9, 'Harry Potter', '999 Chestnut St', '2021-09-25'),
69 (10, 'Ron Weasley', '101 Maple St', '2023-06-30'),
70 (11, 'Hermione Granger', '202 Oak St', '2020-11-16'),
71 (12, 'Ginny Weasley', '303 Pine St', '2023-06-15'),
72 (13, 'Neville Longbottom', '404 Birch St', '2022-12-21'),
73 (14, 'Luna Lovegood', '505 Cedar St', '2019-03-05'),
74 (15, 'Draco Malfoy', '606 Elm St', '2021-07-14');
75 • SELECT * FROM Customer;

```

Customer_Id	Customer_name	Customer_address	Reg_date
1	Tom Clark	111 Elm St	2021-01-01
2	Jerry Lee	222 Maple St	2020-01-01
3	Lucy Hale	333 Cedar St	2023-01-15
4	Mark Spencer	444 Walnut St	2022-03-12
5	Sara Evans	555 Spruce St	2021-05-22
6	Nancy Drew	666 Ash St	2019-07-10
7	Mike Ross	777 Willow St	2023-02-11
8	Rachel Zane	888 Poplar St	2022-08-19
9	Harry Potter	999 Chestnut St	2021-09-25

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

```

84 (7, 7, 'Brave New World', '2023-07-01', 1013),
85 (8, 8, 'Don Quixote', '2023-07-05', 1014),
86 (9, 9, 'Crime and Punishment', '2023-07-10', 1015),
87 (10, 10, 'The Catcher in the Rye', '2023-06-30', 1012),
88 (11, 11, 'To Kill a Mockingbird', '2023-07-15', 1002),
89 (12, 12, 'Ulysses', '2023-07-20', 1008),
90 (13, 13, 'Moby Dick', '2023-07-25', 1005),
91 (14, 14, 'Great Expectations', '2023-07-30', 1011),
92 (15, 15, '1984', '2023-06-01', 1003);
93 • SELECT * FROM IssueStatus;

```

Issue_Id	Issued_cust	Issued_book_name	Issue_date	Isbn_book
1	1	The Great Gatsby	2023-06-01	1001
2	2	1984	2023-06-05	1003
3	3	Pride and Prejudice	2023-06-10	1004
4	4	War and Peace	2023-06-15	1006
5	5	Hamlet	2023-06-20	1009
6	6	The Divine Comedy	2023-06-25	1010
7	7	Brave New World	2023-07-01	1013
8	8	Don Quixote	2023-07-05	1014
9	9	Crime and Punishment	2023-07-10	1015

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 :

```

102 (7, 7, 'Brave New World', '2023-08-01', 1013),
103 (8, 8, 'Don Quixote', '2023-08-05', 1014),
104 (9, 9, 'Crime and Punishment', '2023-08-10', 1015),
105 (10, 10, 'The Catcher in the Rye', '2023-07-30', 1012),
106 (11, 11, 'To Kill a Mockingbird', '2023-08-15', 1002),
107 (12, 12, 'Ulysses', '2023-08-20', 1008),
108 (13, 13, 'Moby Dick', '2023-08-25', 1005),
109 (14, 14, 'Great Expectations', '2023-08-30', 1011),
110 (15, 15, '1984', '2023-07-01', 1003);
111 • SELECT * FROM ReturnStatus;

```

Return_Id	Return_cust	Return_book_name	Return_date	Isbn_book2
1	1	The Great Gatsby	2023-07-01	1001
2	2	1984	2023-07-05	1003
3	3	Pride and Prejudice	2023-07-10	1004
4	4	War and Peace	2023-07-15	1006
5	5	Hamlet	2023-07-20	1009
6	6	The Divine Comedy	2023-07-25	1010
7	7	Brave New World	2023-08-01	1013
8	8	Don Quixote	2023-08-05	1014
9	9	Crime and Punishment	2023-08-10	1015

ReturnStatus 7 ×

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

```
113 • SELECT Book_title, Category, Rental_Price FROM Books WHERE Status = 'Yes';
```

	Book_title	Category	Rental_Price
▶	The Great Gatsby	Fiction	15.00
	To Kill a Mockingbird	Fiction	12.00
	Pride and Prejudice	Romance	8.00
	War and Peace	Historical	20.00
	The Odyssey	Epic	25.00
	Hamlet	Tragedy	5.00
	The Divine Comedy	Epic	30.00
	The Catcher in the Rye	Novel	12.00
	Brave New World	Dystopian	14.00
	Don Quixote	Adventure	16.00
	Crime and Punishment	Psycholog...	17.00

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

```
115 • SELECT Emp_name, Salary FROM Employee ORDER BY Salary DESC;
```

	Emp_name	Salary
▶	Emily Davis	80000
	Megan White	76000
	Chris Davis	75000
	Bob Johnson	70000
	Kevin Moore	62000
	John Doe	60000
	Sarah Clark	50000
	David Harris	47000
	Anna Taylor	46000
	Jane Smith	45000
	Linda Martin	43000

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

117 • `SELECT B.Book_title, C.Customer_name FROM IssueStatus I JOIN Books B ON I.Isbn_book = B.ISBN JOIN Customer C ON I.Issued_cust = C.Customer_Id;`

Book_title	Customer_name
The Great Gatsby	Tom Clark
1984	Jerry Lee
Pride and Prejudice	Lucy Hale
War and Peace	Mark Spencer
Hamlet	Sara Evans
The Divine Comedy	Nancy Drew
Brave New World	Mike Ross
Don Quixote	Rachel Zane
Crime and Punishment	Harry Potter
The Catcher in the Rye	Ron Weasley
To Kill a Mockingbird	Hermione Granger
1984	Ginny Weasley

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

119 • `SELECT Category, COUNT(*) AS Total_Books FROM Books GROUP BY Category;`

Category	Total_Books
Fiction	2
Dystopian	2
Romance	1
Adventure	2
Historical	1
Epic	2
Modernist	1
Tragedy	1
Novel	2
Psychological	1

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

121 • `SELECT Emp_name, Position FROM Employee WHERE Salary > 50000;`

Emp_name	Position
John Doe	Manager
Bob Johnson	Manager
Chris Davis	Manager
Emily Davis	Manager
Kevin Moore	Manager
Megan White	Manager

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

```
123 • SELECT Customer_name FROM Customer C LEFT JOIN IssueStatus I ON C.Customer_Id = I.Issued_cust WHERE C.Reg_date < '2022-01-01' AND I.Issue_Id IS NULL;
```

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

Customer_name

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

```
125 • SELECT Branch_no, COUNT(*) AS Total_Employees FROM Employee GROUP BY Branch_no;
```

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

Branch_no	Total_Employees
1	5
2	5
3	5

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

```
127 • SELECT DISTINCT C.Customer_name FROM IssueStatus I JOIN Customer C ON I.Issued_cust = C.Customer_Id WHERE I.Issue_date BETWEEN '2023-06-01' AND '2023-06-30';
```

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

Customer_name
Tom Clark
Jerry Lee
Lucy Hale
Mark Spencer
Sara Evans
Nancy Drew
Ron Weasley
Draco Malfoy

9. Retrieve book_title from book table containing history.

```
129 • SELECT Book_title FROM Books WHERE Category LIKE '%history%';
```

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

Book_title

```
129 • SELECT Book_title FROM Books WHERE Category LIKE '%historical%';
```

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

Book_title
War and Peace

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

```
131 • SELECT Branch_no, COUNT(*) AS Total_Employees FROM Employee GROUP BY Branch_no HAVING COUNT(*) > 5;
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
Branch_no	Total_Employees		

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

```
133 • SELECT E.Emp_name, B.Branch_address FROM Employee E JOIN Branch B ON E.Emp_Id = B.Manager_Id;
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
Emp_name	Branch_address		
John Doe	123 Main St		
Jane Smith	456 Oak St		
Bob Johnson	789 Pine St		
Alice Brown	101 Maple St		
Chris Davis	202 Birch St		

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

```
135 • SELECT DISTINCT C.Customer_name FROM IssueStatus I JOIN Books B ON I.Isbn_book = B.ISBN JOIN Customer C ON I.Issued_cust = C.Customer_Id WHERE B.Rental_Price > 25;
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
Customer_name			
Nancy Drew			