

The background is a deep blue gradient with a starry space pattern. On the left side, there are several overlapping circular elements. These include concentric circles, some with dashed lines, and others with solid lines. Some of these circles have tick marks and numbers, resembling a protractor or a circular scale. The numbers visible include 40, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, and 260. There are also curved arrows indicating a clockwise or counter-clockwise direction.

# LIBRARY MANAGEMENT SYSTEM

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# 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

# TABLE : BRANCH

Attributes for the tables

*Branch\_no - Set as PRIMARY KEY, Manager\_Id, Branch\_address, Contact\_no*

```
CREATE TABLE Branch( Branch_no VARCHAR(20) PRIMARY KEY, Manager_Id VARCHAR(20) UNIQUE,  
Branch_address VARCHAR(50), Contact_no BIGINT UNIQUE);
```

INSERT INTO Branch values

```
('LIB-001',1001,'BANK ROAD, KANNUR',914972300001),  
('LIB-002',2001,'NETAJI ROAD, KANNUR',914972500001);
```

| Branch_no | Manager_Id | Branch_address      | Contact_no   |
|-----------|------------|---------------------|--------------|
| LIB-001   | 1001       | BANK ROAD, KANNUR   | 914972300001 |
| LIB-002   | 2001       | NETAJI ROAD, KANNUR | 914972500001 |
| NULL      | NULL       | NULL                | NULL         |

# TABLE : EMPLOYEE

Attributes for the tables

*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 Employee( Emp_Id INT PRIMARY KEY,  Emp_name VARCHAR(40),  Position VARCHAR(40),  
Salary INT,  Branch_no VARCHAR(20),  FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no));
```

INSERT INTO Employee VALUES

```
(1001,'AJAY VIJAYAN','MANAGER',55000,'LIB-001'),  
(1002,'VISHNU VIJAYAN','LIBRARIAN',47000,'LIB-001'),  
(2001,'ATHIRA P','MANAGER',55000,'LIB-002'),  
(1003,'JISHNU C K','ASSISTANT LIBRARIAN',35000,'LIB-001'),  
(1004,'AKSHAY K','ASSISTANT LIBRARIAN',35000,'LIB-001'),  
(1005,'BINDHU T K','COMPUTER OPERATOR',30000,'LIB-001'),  
(1006,'SINDHU T K','COMPUTER OPERATOR',30000,'LIB-001'),  
(2002,'MRIDHULA P','LIBRARIAN',47000,'LIB-002'),  
(2003,'SAYOOJ A','LIBRARIAN',47000,'LIB-002');
```

| Emp_Id | Emp_name       | Position            | Salary | Branch_no |
|--------|----------------|---------------------|--------|-----------|
| 1001   | AJAY VIJAYAN   | MANAGER             | 55000  | LIB-001   |
| 1002   | VISHNU VIJAYAN | LIBRARIAN           | 47000  | LIB-001   |
| 1003   | JISHNU C K     | ASSISTANT LIBRARIAN | 35000  | LIB-001   |
| 1004   | AKSHAY K       | ASSISTANT LIBRARIAN | 35000  | LIB-001   |
| 1005   | BINDHU T K     | COMPUTER OPERATOR   | 30000  | LIB-001   |
| 1006   | SINDHU T K     | COMPUTER OPERATOR   | 30000  | LIB-001   |
| 2001   | ATHIRA P       | MANAGER             | 55000  | LIB-002   |
| 2002   | MRIDHULA P     | LIBRARIAN           | 47000  | LIB-002   |
| 2003   | SAYOOJ A       | LIBRARIAN           | 47000  | LIB-002   |
| NULL   | NULL           | NULL                | NULL   | NULL      |



# TABLE : BOOKS

Attributes for the tables

*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 Books( ISBN VARCHAR(20) PRIMARY KEY, Book_title VARCHAR(100) NOT NULL, Category VARCHAR(50) NOT NULL, Rental_Price INT NOT NULL, Status VARCHAR(3) DEFAULT 'YES', Author VARCHAR(50), Publisher VARCHAR(50));
```

```
INSERT INTO Books (ISBN , Book_title , Category , Rental_Price,Author,Publisher ) VALUES  
( 'BOOK-000001','TWILIGHT','Fantasy / Romance', 80,'Stephenie Meyer','Little, Brown and Company'),  
( 'BOOK-000002','To Kill a Mockingbird','Fiction / Classic', 22,'Harper Lee','Charles Scribner\'s Sons'),  
( 'BOOK-000003','A Brief History of Humankind','Non-Fiction / History', 100,'Yuval Noah Harari','Harper'),  
( 'BOOK-000004','The Silent Patient','Thriller / Mystery', 70,'Alex Michaelides','Celadon Books'),  
( 'BOOK-000005','The Great Gatsby','Fiction / Classic', 90,'F. Scott Fitzgerald','Random House'),  
( 'BOOK-000006','Educated','Memoir / Non-Fiction', 15,'Tara Westover','Doubleday'),  
( 'BOOK-000007','Guns, Germs, and Steel','History', 80,'Jared Diamond','Celadon Books');
```

| ISBN        | Book_title                   | Category              | Rental_Price | Status | Author              | Publisher                 |
|-------------|------------------------------|-----------------------|--------------|--------|---------------------|---------------------------|
| BOOK-000001 | TWILIGHT                     | Fantasy / Romance     | 80           | YES    | Stephenie Meyer     | Little, Brown and Company |
| BOOK-000002 | To Kill a Mockingbird        | Fiction / Classic     | 22           | YES    | Harper Lee          | Charles Scribner's Sons   |
| BOOK-000003 | A Brief History of Humankind | Non-Fiction / History | 100          | YES    | Yuval Noah Harari   | Harper                    |
| BOOK-000004 | The Silent Patient           | Thriller / Mystery    | 70           | YES    | Alex Michaelides    | Celadon Books             |
| BOOK-000005 | The Great Gatsby             | Fiction / Classic     | 90           | YES    | F. Scott Fitzgerald | Random House              |
| BOOK-000006 | Educated                     | Memoir / Non-Fiction  | 15           | YES    | Tara Westover       | Doubleday                 |
| BOOK-000007 | Guns, Germs, and Steel       | History               | 80           | YES    | Jared Diamond       | Celadon Books             |
| NULL        | NULL                         | NULL                  | NULL         | NULL   | NULL                | NULL                      |

# TABLE : CUSTOMER

Attributes for the tables

*Customer\_Id - Set as PRIMARY KEY, Customer\_name, Customer\_address, Reg\_date*

```
CREATE TABLE Customer( Customer_Id VARCHAR(20) PRIMARY KEY, Customer_name VARCHAR(40) NOT NULL, Customer_address VARCHAR(100) NOT NULL, Reg_date DATE DEFAULT (CURRENT_DATE));
```

INSERT INTO Customer VALUES

```
('CUST-000001','SANTHOSH A','HOUSE-1, KOTTAYAM', '2008-12-05'),  
( 'CUST-000002','SANTHOSH B','HOUSE-2, KOTTAYAM', '2018-12-05'),  
( 'CUST-000003','SANTHOSH C','HOUSE-3, KOTTAYAM', '2021-12-05'),  
( 'CUST-000004','SANTHOSH D','HOUSE-4, KOTTAYAM', '2022-12-05'),  
( 'CUST-000005','SANTHOSH E','HOUSE-5, KOTTAYAM', '2023-12-05'),  
( 'CUST-000006','SANTHOSH F','HOUSE-6, KOTTAYAM', '2024-01-05'),  
( 'CUST-000007','SANTHOSH G','HOUSE-7, KOTTAYAM', '2024-03-05');
```

| Customer_Id | Customer_name | Customer_address  | Reg_date   |
|-------------|---------------|-------------------|------------|
| CUST-000001 | SANTHOSH A    | HOUSE-1, KOTTAYAM | 2008-12-05 |
| CUST-000002 | SANTHOSH B    | HOUSE-2, KOTTAYAM | 2018-12-05 |
| CUST-000003 | SANTHOSH C    | HOUSE-3, KOTTAYAM | 2021-12-05 |
| CUST-000004 | SANTHOSH D    | HOUSE-4, KOTTAYAM | 2022-12-05 |
| CUST-000005 | SANTHOSH E    | HOUSE-5, KOTTAYAM | 2023-12-05 |
| CUST-000006 | SANTHOSH F    | HOUSE-6, KOTTAYAM | 2024-01-05 |
| CUST-000007 | SANTHOSH G    | HOUSE-7, KOTTAYAM | 2024-03-05 |
| NULL        | NULL          | NULL              | NULL       |



# TABLE : ISSUESTATUS

| Issue_Id     | Issued_cust | Issued_book_name   | Issue_date | Isbn_book   |
|--------------|-------------|--------------------|------------|-------------|
| ISSUE-000001 | CUST-000001 | TWILIGHT           | 2022-06-05 | BOOK-000001 |
| ISSUE-000002 | CUST-000001 | Educated           | 2023-06-05 | BOOK-000006 |
| ISSUE-000003 | CUST-000002 | TWILIGHT           | 2023-06-25 | BOOK-000001 |
| ISSUE-000004 | CUST-000005 | The Silent Patient | 2023-06-28 | BOOK-000004 |
| ISSUE-000005 | CUST-000007 | Educated           | 2023-09-05 | BOOK-000006 |
| ISSUE-000006 | CUST-000004 | The Silent Patient | 2023-06-05 | BOOK-000004 |
| NULL         | NULL        | NULL               | NULL       | NULL        |

Attributes for the tables

*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 IssueStatus( Issue_Id VARCHAR(20) PRIMARY KEY,   Issued_cust VARCHAR(20),   FOREIGN KEY (Issued_cust) REFERENCES Customer(customer_id),   Issued_book_name VARCHAR(50),   Issue_date DATE DEFAULT (CURRENT_DATE),   Isbn_book VARCHAR(20),   FOREIGN KEY (Isbn_book) REFERENCES Books(isbn));
```

INSERT INTO IssueStatus VALUES

```
('ISSUE-000001','CUST-000001','TWILIGHT','2022-06-05','BOOK-000001'),
('ISSUE-000002','CUST-000001','Educated','2023-06-05','BOOK-000006'),
('ISSUE-000003','CUST-000002','TWILIGHT','2023-06-25','BOOK-000001'),
('ISSUE-000004','CUST-000005','The Silent Patient','2023-06-28','BOOK-000004'),
('ISSUE-000005','CUST-000007','Educated','2023-09-05','BOOK-000006'),
('ISSUE-000006','CUST-000004','The Silent Patient','2023-06-05','BOOK-000004');
```



# TABLE : RETURNSTATUS

Attributes for the tables

*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*

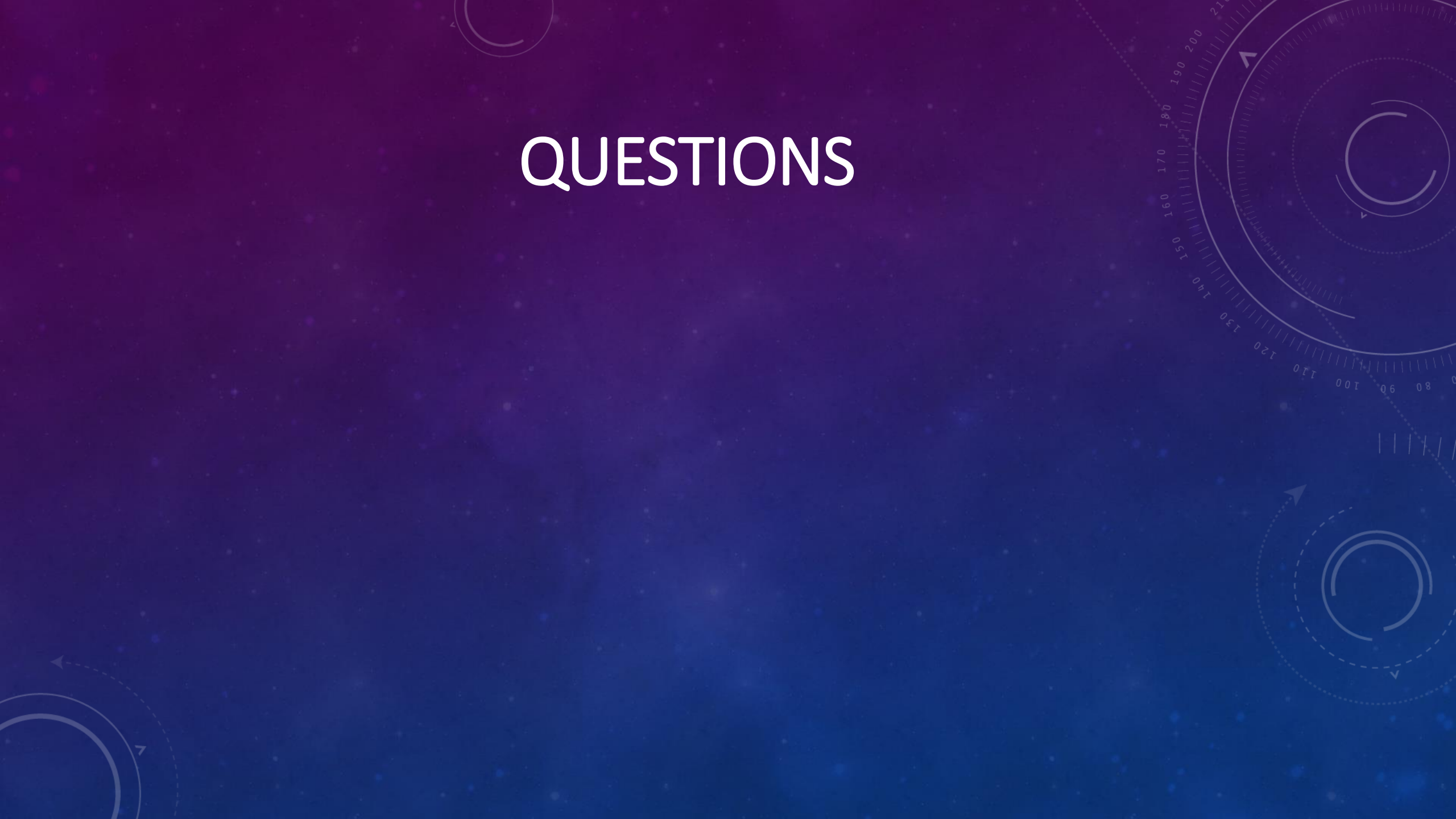
```
CREATE TABLE ReturnStatus( Return_Id VARCHAR(20) PRIMARY KEY, Return_cust VARCHAR(20), FOREIGN KEY (Return_cust) REFERENCES Customer(customer_id), Return_book_name VARCHAR(50), Return_date DATE DEFAULT (CURRENT_DATE), Isbn_book2 VARCHAR(20), FOREIGN KEY (Isbn_book2) REFERENCES Books(isbn));
```

INSERT INTO ReturnStatus VALUES

```
('RET-000001','CUST-000001','TWILIGHT','2022-06-25','BOOK-000001'),  
('RET-000002','CUST-000001','Educated','2023-06-15','BOOK-000006'),  
('RET-000003','CUST-000002','TWILIGHT','2023-07-05','BOOK-000001'),  
('RET-000004','CUST-000005','The Silent Patient','2023-07-25','BOOK-000004'),  
('RET-000005','CUST-000007','Educated','2023-10-25','BOOK-000006'),  
('RET-000006','CUST-000004','The Silent Patient','2023-08-25','BOOK-000004');
```

| Return_Id  | Return_cust | Return_book_name   | Return_date | Isbn_book2  |
|------------|-------------|--------------------|-------------|-------------|
| RET-000001 | CUST-000001 | TWILIGHT           | 2022-06-25  | BOOK-000001 |
| RET-000002 | CUST-000001 | Educated           | 2023-06-15  | BOOK-000006 |
| RET-000003 | CUST-000002 | TWILIGHT           | 2023-07-05  | BOOK-000001 |
| RET-000004 | CUST-000005 | The Silent Patient | 2023-07-25  | BOOK-000004 |
| RET-000005 | CUST-000007 | Educated           | 2023-10-25  | BOOK-000006 |
| RET-000006 | CUST-000004 | The Silent Patient | 2023-08-25  | BOOK-000004 |
| NULL       | NULL        | NULL               | NULL        | NULL        |

# QUESTIONS



# 1. RETRIEVE THE BOOK TITLE, CATEGORY, AND RENTAL PRICE OF ALL AVAILABLE BOOKS.

```
SELECT Book_title,Category,Rental_Price FROM Books;
```

| Book_title                   | Category              | Rental_Price |
|------------------------------|-----------------------|--------------|
| TWILIGHT                     | Fantasy / Romance     | 80           |
| To Kill a Mockingbird        | Fiction / Classic     | 22           |
| A Brief History of Humankind | Non-Fiction / History | 100          |
| The Silent Patient           | Thriller / Mystery    | 70           |
| The Great Gatsby             | Fiction / Classic     | 90           |
| Educated                     | Memoir / Non-Fiction  | 15           |
| Guns, Germs, and Steel       | History               | 80           |



## 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 |
|----------------|--------|
| AJAY VIJAYAN   | 55000  |
| ATHIRA P       | 55000  |
| VISHNU VIJAYAN | 47000  |
| MRIDHULA P     | 47000  |
| SAYOOJ A       | 47000  |
| JISHNU C K     | 35000  |
| AKSHAY K       | 35000  |
| BINDHU T K     | 30000  |
| SINDHU T K     | 30000  |

### 3. RETRIEVE THE BOOK TITLES AND THE CORRESPONDING CUSTOMERS WHO HAVE ISSUED THOSE BOOKS.

```
SELECT Issued_book_name, Customer_name FROM IssueStatus LEFT JOIN Customer ON  
Issued_cust=customer_id;
```

| Issued_book_name   | Customer_name |
|--------------------|---------------|
| TWILIGHT           | SANTHOSH A    |
| Educated           | SANTHOSH A    |
| TWILIGHT           | SANTHOSH B    |
| The Silent Patient | SANTHOSH E    |
| Educated           | SANTHOSH G    |
| The Silent Patient | SANTHOSH D    |

## 4. DISPLAY THE TOTAL COUNT OF BOOKS IN EACH CATEGORY.

```
SELECT Category, COUNT(*) FROM Books GROUP BY Category;
```

| Category              | COUNT(*) |
|-----------------------|----------|
| Fantasy / Romance     | 1        |
| Fiction / Classic     | 2        |
| Non-Fiction / History | 1        |
| Thriller / Mystery    | 1        |
| Memoir / Non-Fiction  | 1        |
| History               | 1        |



## 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 |
|--------------|----------|
| AJAY VIJAYAN | MANAGER  |
| ATHIRA P     | MANAGER  |

## 6. LIST THE CUSTOMER NAMES WHO REGISTERED BEFORE 2022-01-01 AND HAVE NOT ISSUED ANY BOOKS YET.

```
SELECT Customer_name FROM Customer WHERE Customer_Id NOT IN (SELECT Issued_cust FROM IssueStatus) AND Reg_date < '2022-01-01';
```

| Customer_name |
|---------------|
| SANTHOSH C    |

## 7. DISPLAY THE BRANCH NUMBERS AND THE TOTAL COUNT OF EMPLOYEES IN EACH BRANCH.

```
SELECT Branch_no, COUNT(*) AS 'Employee Count' FROM Employee GROUP BY Branch_no;
```

| Branch_no | Employee Count |
|-----------|----------------|
| LIB-001   | 6              |
| LIB-002   | 3              |



## 8. DISPLAY THE NAMES OF CUSTOMERS WHO HAVE ISSUED BOOKS IN THE MONTH OF JUNE 2023.

```
SELECT Customer_name, Customer_Id FROM IssueStatus LEFT JOIN Customer ON Issued_cust=customer_id  
WHERE Issue_date BETWEEN '2023-06-01' AND '2023-06-30';
```

| Customer_name | Customer_Id |
|---------------|-------------|
| SANTHOSH A    | CUST-000001 |
| SANTHOSH B    | CUST-000002 |
| SANTHOSH E    | CUST-000005 |
| SANTHOSH D    | CUST-000004 |

## 9. RETRIEVE BOOK\_TITLE FROM BOOK TABLE CONTAINING HISTORY.

```
SELECT Book_title FROM Books WHERE Book_title LIKE '%history%';
```

| Book_title                   |
|------------------------------|
| A Brief History of Humankind |

```
SELECT Book_title FROM Books WHERE category LIKE '%history%';
```

| Book_title                   |
|------------------------------|
| A Brief History of Humankind |
| Guns, Germs, and Steel       |

## 10.RETRIEVE THE BRANCH NUMBERS ALONG WITH THE COUNT OF EMPLOYEES FOR BRANCHES HAVING MORE THAN 5 EMPLOYEES .

```
SELECT Branch_no, COUNT(*) as 'Employee Count' FROM Employee GROUP BY Branch_no HAVING COUNT(*)>5;
```

| Branch_no | Employee Count |
|-----------|----------------|
| LIB-001   | 6              |



## 11. RETRIEVE THE NAMES OF EMPLOYEES WHO MANAGE BRANCHES AND THEIR RESPECTIVE BRANCH ADDRESSES.

```
SELECT Emp_name,Branch_address FROM Branch LEFT JOIN Employee ON Manager_Id=Emp_Id;
```

| Emp_name     | Branch_address      |
|--------------|---------------------|
| AJAY VIJAYAN | BANK ROAD, KANNUR   |
| ATHIRA P     | NETAJI ROAD, KANNUR |

## 12. DISPLAY THE NAMES OF CUSTOMERS WHO HAVE ISSUED BOOKS WITH A RENTAL PRICE HIGHER THAN RS. 25.

```
SELECT Customer_name,Issued_cust FROM Customer  
RIGHT JOIN IssueStatus ON Issued_cust = Customer_Id  
LEFT JOIN Books ON IssueStatus.Isbn_book=Books.ISBN  
WHERE Rental_Price>25;
```

| Customer_name | Issued_cust |
|---------------|-------------|
| SANTHOSH A    | CUST-000001 |
| SANTHOSH B    | CUST-000002 |
| SANTHOSH E    | CUST-000005 |
| SANTHOSH D    | CUST-000004 |

THANK YOU....