

LIBRARY RELATIONAL DATABASE

DBMS ASSIGNMENT-4

USING MySQL RDBMS

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1. List all the books in the library sorting them by author and title

```
4  --1
5  SELECT Author_name,title FROM book
6  JOIN Book_authors
7  ON Book.Book_id=Book_authors.Book_id
8  ORDER BY author_name,title;
9
10 --2
```

Rectangular Snip

PROBLEMS

OUTPUT

TERMINAL

DEBUG CONSOLE

```
mysql> SELECT Author_name,title FROM book
-> JOIN Book_authors
-> ON Book.Book_id=Book_authors.Book_id
-> ORDER BY author_name,title;
```

Author_name	title
Algor	Data Structures
Channa Bankapur	Algorithm
Henry patterson	Digital design
J.K. Rowling	Harry Potter
Kavi Mahesh	Theory of Computation
Mandela	War and Peace
Raghu BA Rao	Fundamentals of DBMS
RP Umashankar	Linear Algebra

8 rows in set (0.00 sec)

2.List all the books in the library by publisher and title.

```
10  --2
11  SELECT title,name FROM book
12  JOIN Publisher
13  ON Book.Publisher_name=Publisher.name;
14
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

```
mysql> clear;
mysql> SELECT title,name FROM book
      -> JOIN Publisher
      -> ON Book.Publisher_name=Publisher.name;
```

title	name
Harry Potter	Bloomsbury
Linear Algebra	Cengage_Learning
War and Peace	Macmillan
Algorithm	Macmillan
Data Structures	McGraw-Hill
Fundamentals of DBMS	Pearson
Theory of Computation	Wiley
Digital design	Wiley

8 rows in set (0.00 sec)

3. For each branch print the number of copies of each book. Sort by branch id, publisher then book title.

```
18  --3
19  SELECT Book.Title,library_branch.branch_name,book_copies.no_of_copies
20  From Book,library_branch,book_copies
21  WHERE library_branch.Branch_id=Book_copies.Branch_id AND Book_copies.book_id = book.book_id
22  ORDER BY library_branch.branch_id,book.Publisher_name,Book.title;
23
```

PROBLEMS

OUTPUT

TERMINAL

DEBUG CONSOLE

2: mysql

```
mysql> SELECT Book.Title,library_branch.branch_name,book_copies.no_of_copies
-> From Book,library_branch,book_copies
-> WHERE library_branch.Branch_id=Book_copies.Branch_id AND Book_copies.book_id = book.book_id
-> ORDER BY library_branch.branch_id,book.Publisher_name,Book.title;
```

Title	branch_name	no_of_copies
Algorithm	Shivajinagar	14
War and Peace	JP Nagar	16
Fundamentals of DBMS	JP Nagar	12
Linear Algebra	Hebbal	11
Harry Potter	Central	10
Harry Potter	Vijayanagar	9
War and Peace	Vijayanagar	18
Data Structures	Vijayanagar	15
Digital design	Hoskerekhalli	8
Theory of Computation	Hoskerekhalli	16

10 rows in set (0.00 sec)

4.How many copies of the book titled Harry Potter are owned by the library branch whose name is 'Vijayanagar'?


```
21  --4
22  SELECT No_of_copies
23  FROM book_copies WHERE Branch_id IN (SELECT Branch_id FROM library_branch WHERE Branch_name = "Vijayanagar")
24  AND Book_id IN (SELECT Book_id FROM book WHERE Title = "Harry Potter");
25
26
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

2: mysql

```
mysql> SELECT No_of_copies
-> FROM book_copies WHERE Branch_id IN (SELECT Branch_id FROM library_branch WHERE Branch_name = "Vijayanagar")
-> AND Book_id IN (SELECT Book_id FROM book WHERE Title = "Harry Potter");
+-----+
| No_of_copies |
+-----+
|          9 |
+-----+
1 row in set (0.00 sec)
```

5. How many copies of the book titled War and Peace are owned by each library branch?

```
27 
28 SELECT lb.Branch_name, bc.No_of_copies
29 FROM book_copies as bc, library_branch as lb
30 WHERE bc.Book_id IN (SELECT Book_id FROM book WHERE Title = "War and Peace") AND bc.Branch_id=lb.Branch_id;
31
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

2: mysql

```
mysql> SELECT lb.Branch_name, bc.No_of_copies
-> FROM book_copies as bc, library_branch as lb
-> WHERE bc.Book_id IN (SELECT Book_id FROM book WHERE Title = "War and Peace") AND bc.Branch_id=lb.Branch_id;
```

```
+-----+-----+
| Branch_name | No_of_copies |
+-----+-----+
| JP Nagar    |          16 |
| Vijayanagar |          18 |
+-----+-----+
```

2 rows in set (0.00 sec)

6. For each book authored (or co-authored) by J. K. Rowling, retrieve the title and the number of copies owned by the library branch whose name is Central

```
31
32 --6
33 SELECT b.Title, bc.No_of_copies
34 FROM book AS b, book_copies as bc
35 WHERE bc.Branch_id IN (SELECT Branch_id
36                        FROM library_branch
37                        WHERE Branch_name = "Central")
38 AND
39      b.Book_id IN (SELECT Book_id
40                  FROM book_authors
41                  WHERE Author_name = "J.K. Rowling")
42 AND
43      bc.Book_id = b.Book_id;
44
45
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

```
mysql>
mysql>
mysql>
mysql> SELECT b.Title, bc.No_of_copies
-> FROM book AS b, book_copies as bc
-> WHERE bc.Branch_id IN (SELECT Branch_id
->                        FROM library_branch
->                        WHERE Branch_name = "Central")
-> AND
->      b.Book_id IN (SELECT Book_id
->                  FROM book_authors
->                  WHERE Author_name = "J.K. Rowling")
-> AND
->      bc.Book_id = b.Book_id;
```

```
+-----+-----+
| Title      | No_of_copies |
+-----+-----+
| Harry Potter |          10 |
+-----+-----+
1 row in set (0.00 sec)
```

7. For each library branch, retrieve the branch name and the total number of books loaned out from that branch. Sort it in descending order of total number of books and branch name

```
43  --7
44  SELECT lb.Branch_name, COUNT(b1.Book_id) AS "No_of_books"
45  FROM library_branch AS lb, book_loans AS b1
46  WHERE lb.Branch_id = b1.Branch_id
47  GROUP BY lb.Branch_name
48  ORDER BY 2 DESC, 1 DESC;
49
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

```
mysql> SELECT lb.Branch_name, COUNT(b1.Book_id) AS "No_of_books"
-> FROM library_branch AS lb, book_loans AS b1
-> WHERE lb.Branch_id = b1.Branch_id
-> GROUP BY lb.Branch_name
-> ORDER BY 2 DESC, 1 DESC;
```

```
+-----+-----+
| Branch_name | No_of_books |
+-----+-----+
| Hebbal      | 6           |
| Central     | 4           |
| Vijayanagar | 1           |
| JP Nagar    | 1           |
+-----+-----+
4 rows in set (0.00 sec)
```


8. Retrieve the names, addresses, and number of books checked out for all borrowers who have more than five books checked out. Sort the output.

```
51  --8|
52  SELECT borr.Name, borr.Address, COUNT(b1.Book_id) AS No_of_books
53  FROM borrower AS borr, book_loans AS b1
54  WHERE borr.Card_no=b1.Card_no
55  GROUP BY borr.Name, borr.Address
56  HAVING COUNT(b1.Book_id) > 5
57  ORDER BY No_of_books;
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

4 rows in set (0.00 sec)

```
mysql> SELECT borr.Name, borr.Address, COUNT(b1.Book_id) AS No_of_books
-> FROM borrower AS borr, book_loans AS b1
-> WHERE borr.Card_no=b1.Card_no
-> GROUP BY borr.Name, borr.Address
-> HAVING COUNT(b1.Book_id) > 5
-> ORDER BY No_of_books;
```

Name	Address	No_of_books
Sumukha MK	Lalbagh Siddapura	6

1 row in set (0.00 sec)

9. For each book that is loaned out from the Vijayanagar branch and whose Due_date is today, retrieve the book title, the borrower's name, and the borrower's address.

```
59
60  --9
61  SELECT bor.Name,bor.Address,b.Title
62  FROM borrower AS bor,book_loans AS bl,book AS b
63  WHERE bor.Card_no=bl.Card_no
64  AND bl.Branch_id IN (SELECT Branch_id
65  |   |   |   | FROM library_branch
66  |   |   |   | WHERE Branch_name = "Vijayanagar")
67  AND bl.Due_date=CURRENT_DATE
68  AND b.Book_id=bl.Book_id;|
69
70
71
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

```
mysql> SELECT bor.Name,bor.Address,b.Title
-> FROM borrower AS bor,book_loans AS bl,book AS b
-> WHERE bor.Card_no=bl.Card_no
-> AND bl.Branch_id IN (SELECT Branch_id
-> FROM library_branch
-> WHERE Branch_name = "Vijayanagar")
-> AND bl.Due_date=CURRENT_DATE
-> AND b.Book_id=bl.Book_id;
```

```
+-----+-----+-----+
| Name   | Address                               | Title                               |
+-----+-----+-----+
| Manish | Banashankari 3rd stage | Fundamentals of DBMS |
+-----+-----+-----+
1 row in set (0.00 sec)
```

10. Retrieve the names of all borrowers who do not have any books checked out.

```
67  
68 |--10  
69 SELECT Name  
70 FROM borrower  
71 WHERE Card_no NOT IN (SELECT Card_no FROM book_loans);  
72  
73
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

```
mysql> SELECT Name  
-> FROM borrower  
-> WHERE Card_no NOT IN (SELECT Card_no FROM book_loans);  
+-----+  
| Name   |  
+-----+  
| Abhishek |  
| Sagar   |  
+-----+  
2 rows in set (0.00 sec)
```



THANK YOU

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4 I
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