MYSQL PROJECT-1

LIBRARY MANAGEMENT SYSTEM

LIBRARY MANAGEMENT SYSTEM – PROJECT SCENARIOS

- SCENARIO 1: VIEW ALL LIBRARY MEMBERS
- SCENARIO 2: VIEW AVAILABLE BOOKS ONLY
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- SCENARIO 5: TOTAL NUMBER OF BOOKS
- SCENARIO 6: CATEGORY-WISE BOOK COUNT
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- SCENARIO 8: BOOK WITH MAXIMUM COPIES

LIBRARY MANAGEMENT SYSTEM – PROJECT SCENARIOS

- SCENARIO 9: MEMBERS WHO ISSUED BOOKS (SUBQUERY)
- SCENARIO 10: VIEW – LIBRARY REPORT
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SCENARIO 1: VIEW ALL LIBRARY MEMBERS

```
-- All members

select * from members;
```

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

member_id	name	email	phone	membership_date
1	Arun Kumar	arun.kumar@gmail.com	9876543210	2023-01-05
2	Bala Murugan	bala.m@gmail.com	9876543211	2023-01-10
3	Chandru Raj	chandru.raj@gmail.com	9876543212	2023-01-15
4	Deepak S	deepak.s@gmail.com	9876543213	2023-01-20
5	Elango V	elango.v@gmail.com	9876543214	2023-02-01
6	Far	farooq.ali@gmail.com	9876543215	2023-02-05
7	Ganesh Prasad	ganesh.p@gmail.com	9876543216	2023-02-10
8	Hari Krishnan	hari.k@gmail.com	9876543217	2023-02-15
9	Irfan Khan	irfan.k@gmail.com	9876543218	2023-02-20
10	Jeeva Kumar	jeeva.k@gmail.com	9876543219	2023-03-01
11	Karthik M	karthik.m@gmail.com	9876543220	2023-03-05
12	Lokesh R	lokesh.r@gmail.com	9876543221	2023-03-10
13	Manoj Kumar	manoj.k@gmail.com	9876543222	2023-03-15
14	Naveen S	naveen.s@gmail.com	9876543223	2023-03-20
15	Om Prakash	om.prakash@gmail.com	9876543224	2023-04-01

Elango V

members 1

SCENARIO 2: VIEW AVAILABLE BOOKS ONLY

```
select *from books where available_copies > 0;
```

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

book_id	title	author	category	available_copies
1	Clean Code	Robert C. Martin	Programming	4
2	Effective Java	Joshua Bloch	Programming	4
3	Java: The Complete Reference	Herbert Schildt	Programming	6
4	Head First Java	Kathy Sierra	Programming	3
5	Spring in Action	Craig Walls	Programming	2
6	Introduction to Algorithms	Thomas H. Cormen	Computer Science	2
7	Database System Concepts	Abraham Silberschatz	Database	4
8	Learning SQL	Alan Beaulieu	Database	5
9	SQL Cookbook	Anthony Molinaro	Database	3
10	Operating System Concepts	Abraham Silberschatz	Computer Science	4
11	Computer Networks	Andrew S. Tanenbaum	Networking	3
12	Data Structures Using C	Reema Thareja	Programming	6
13	Artificial Intelligence	Stuart Russell	AI	2
14	Machine Learning	Tom Mitchell	AI	3
15	Deep Learning	Ian Goodfellow	AI	1

books 2

SCENARIO 3: ISSUE DETAILS (INNER JOIN)

```
select m.name, b.title, i.issue_date
    from book_issue i
        inner join members m on i.member_id = m.member_id
        inner join books b on i.book_id = b.book_id;
```

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

name	title	issue_date
Arun Kumar	Java: The Complete Reference	2023-01-06
Bala Murugan	Spring in Action	2023-01-12
Chandru Raj	Clean Code	2023-01-18
Deepak S	Database System Concepts	2023-01-22
Elango V	SQL Cookbook	2023-02-03
Farooq Ali	Effective Java	2023-02-07
Ganesh Prasad	Operating System Concepts	2023-02-12
Hari Krishnan	Head First Java	2023-02-18
Irfan Khan	Introduction to Algorithms	2023-02-21
Jeeva Kumar	Learning SQL	2023-03-02
Karthik M	Data Structures Using C	2023-03-06
Lokesh R	Machine Learning	2023-03-10
Manoj Kumar	Computer Networks	2023-03-14
Naveen S	Artificial Intelligence	2023-03-18
Om Prakash	Deep Learning	2023-04-01

Result 3

SCENARIO 4: MEMBERS WITH / WITHOUT BOOKS (LEFT JOIN)

```
select m.name, b.title
    from members m
        left join book_issue i on m.member_id = i.member_id
        left join books b on i.book_id = b.book_id;
```

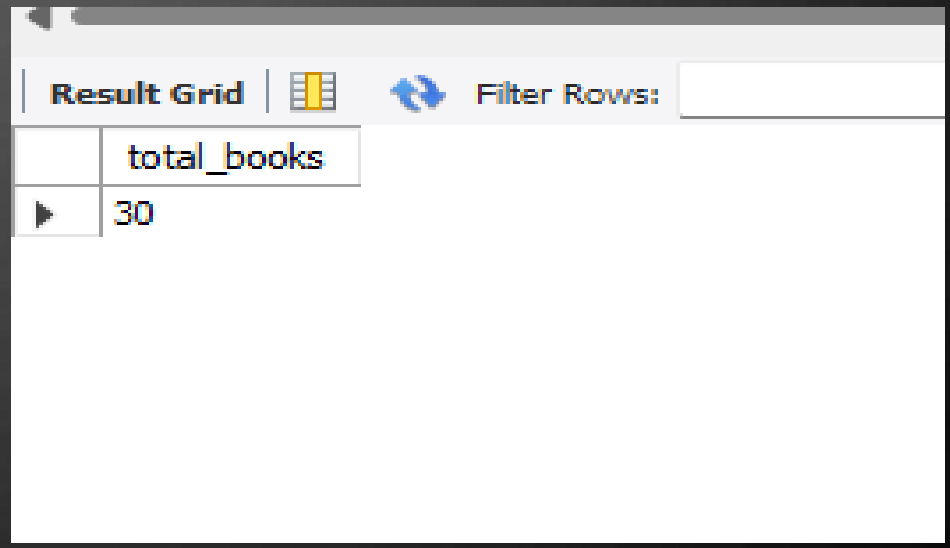
Result Grid | Filter Rows: | Export: | Wrap Cell Co

name	title
Arun Kumar	Java: The Complete Reference
Bala Murugan	Spring in Action
Chandru Raj	Clean Code
Deepak S	Database System Concepts
Elango V	SQL Cookbook
Farooq Ali	Effective Java
Ganesh Prasad	Operating System Concepts
Hari Krishnan	Head First Java
Irfan Khan	Introduction to Algorithms
Jeeva Kumar	Learning SQL
Karthik M	Data Structures Using C
Lokesh R	Machine Learning
Manoj Kumar	Computer Networks
Naveen S	Artificial Intelligence
Om Prakash	Deep Learning

Result 4

SCENARIO 5: TOTAL NUMBER OF BOOKS

```
select count(*) as total_books
    from books;
```



SCENARIO 6: CATEGORY-WISE BOOK COUNT

```
select category, count(*)
    from books
        group by category;
```

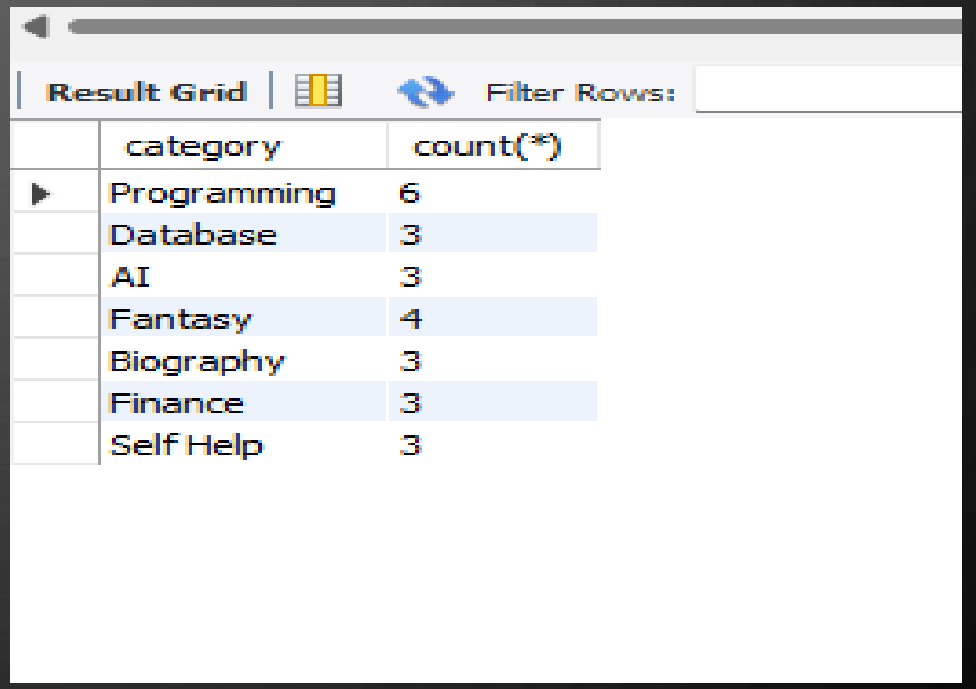
Result Grid | Filter Rows: | Export

category	count(*)
Programming	6
Computer Science	2
Database	3
Networking	1
AI	3
Fiction	1
Fantasy	4
Biography	3
Finance	3
Self Help	3
Business	1

Result 6

SCENARIO 7: CATEGORIES HAVING MORE THAN 2 BOOKS

```
select category, count(*)
    from books
        group by category
        having count(*) > 2;
```

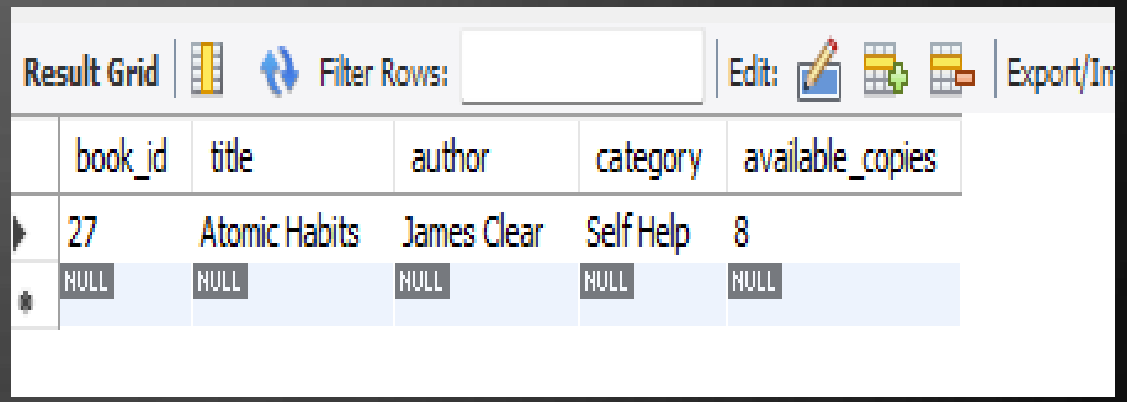


Result Grid | Filter Rows:

category	count(*)
Programming	6
Database	3
AI	3
Fantasy	4
Biography	3
Finance	3
Self Help	3

SCENARIO 8: BOOK WITH MAXIMUM COPIES

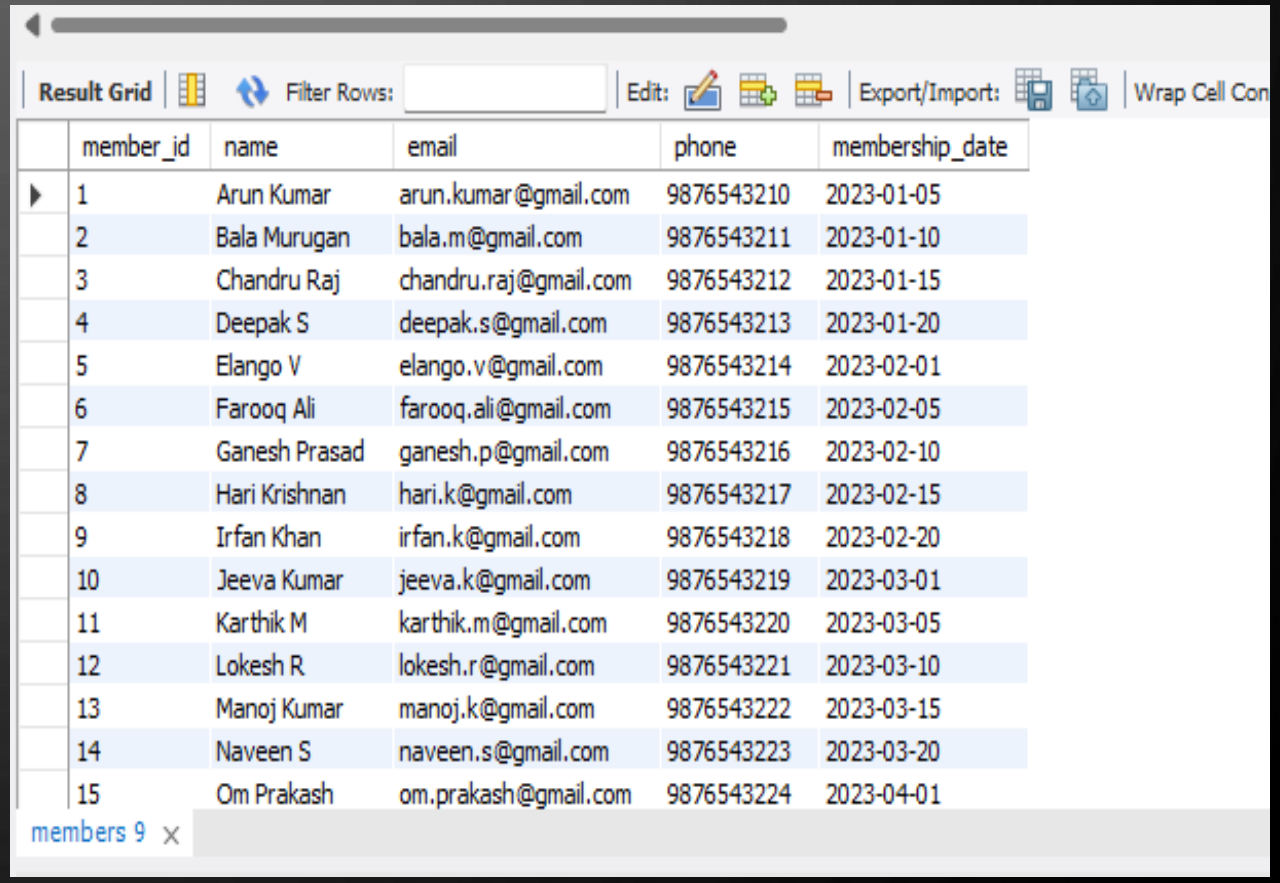
```
select * from books
    where available_copies = (
        select max(available_copies)
            from books);
```



book_id	title	author	category	available_copies
27	Atomic Habits	James Clear	Self Help	8
NULL	NULL	NULL	NULL	NULL

SCENARIO 9: MEMBERS WHO ISSUED BOOKS (SUBQUERY)

```
select * from members
    where member_id in (select member_id from book_issue);
```



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

member_id	name	email	phone	membership_date
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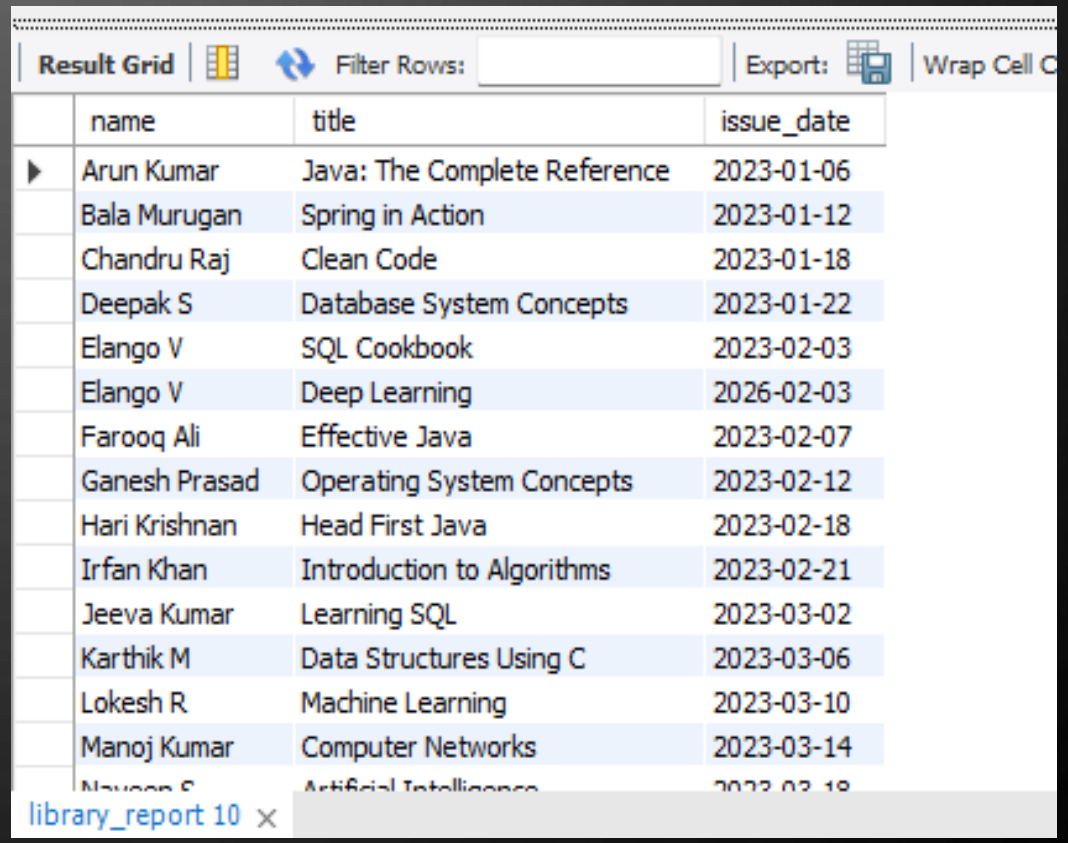
2	Bala Murugan	bala.m@gmail.com	9876543211	2023-01-10
3	Chandru Raj	chandru.raj@gmail.com	9876543212	2023-01-15
4	Deepak S	deepak.s@gmail.com	9876543213	2023-01-20
5	Elango V	elango.v@gmail.com	9876543214	2023-02-01
6	Farooq Ali	farooq.ali@gmail.com	9876543215	2023-02-05
7	Ganesh Prasad	ganesh.p@gmail.com	9876543216	2023-02-10
8	Hari Krishnan	hari.k@gmail.com	9876543217	2023-02-15
9	Irfan Khan	irfan.k@gmail.com	9876543218	2023-02-20
10	Jeeva Kumar	jeeva.k@gmail.com	9876543219	2023-03-01
11	Karthik M	karthik.m@gmail.com	9876543220	2023-03-05
12	Lokesh R	lokesh.r@gmail.com	9876543221	2023-03-10
13	Manoj Kumar	manoj.k@gmail.com	9876543222	2023-03-15
14	Naveen S	naveen.s@gmail.com	9876543223	2023-03-20
15	Om Prakash	om.prakash@gmail.com	9876543224	2023-04-01

members 9

SCENARIO 10: VIEW – LIBRARY REPORT

```sql
CREATE VIEW library_report AS
    SELECT m.name, b.title, i.issue_date
    FROM book_issue i
        JOIN members m ON i.member_id = m.member_id
        JOIN books b ON i.book_id = b.book_id;

SELECT * FROM library_report;
```



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

name	title	issue_date
Arun Kumar	Java: The Complete Reference	2023-01-06
Bala Murugan	Spring in Action	2023-01-12
Chandru Raj	Clean Code	2023-01-18
Deepak S	Database System Concepts	2023-01-22
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Hari Krishnan	Head First Java	2023-02-18
Irfan Khan	Introduction to Algorithms	2023-02-21
Jeeva Kumar	Learning SQL	2023-03-02
Karthik M	Data Structures Using C	2023-03-06
Lokesh R	Machine Learning	2023-03-10
Manoj Kumar	Computer Networks	2023-03-14

library_report 10

SCENARIO 11: DERIVED TABLE – AVERAGE COPIES PER CATEGORY

```sql
SELECT category, avg_copies
FROM (
  SELECT category, AVG(available_copies) AS avg_copies
  FROM books
  GROUP BY category
) AS result;
```

Result Grid | Filter Rows:

category	avg_copies
Programming	4.1667
Computer Science	3.0000
Database	4.0000
Networking	3.0000
AI	2.0000
Fiction	7.0000
Fantasy	3.5000
Biography	3.6667
Finance	5.0000
Self Help	6.0000
Business	2.0000

THANK YOU