

The screenshot shows a MySQL Workbench interface with the following details:

- Session:** Local instance MySQL8
- Tab:** SQL Editor
- Query:**

```
180 -- UPDATE Books SET available_copies = available_copies - 1 WHERE book_id = 3
181 -- UPDATE Books SET available_copies = available_copies + 1 WHERE book_id = 3
182
183 -- DELETE Members who haven't borrowed in the last 1 year
184
185 -- DELETE FROM Members
186 WHERE member_id NOT IN (
187   SELECT DISTINCT member_id FROM Transactions
188   WHERE borrow_date >= DATE_SUB(CURDATE(), INTERVAL 1 YEAR)
189 )
190
191 -- 2. Basic queries with filtering
192
193 -- SELECT * FROM Books WHERE available_copies > 0
194
195 -- SELECT * FROM Books WHERE YEAR(published_date) = 2015
196
197 -- SELECT * FROM Books ORDER BY price DESC LIMIT 5
198
199 -- SELECT * FROM Readers WHERE membership_date < '2022-01-01'
```
- Results Grid:**

Book ID	Title	Author ID	Category	published_date	price	available_copies
7	New Book 1	Petron	Science	2020-01-01	350.00	1
8	New Book 3	Science	Science	2018-01-01	450.00	2
9	New Book 2	Science	Science	2019-01-01	350.00	2
10	Old Book 1	Science	Science	2017-01-01	250.00	1
11	Old Book 2	Science	Science	2018-01-01	250.00	1
12	Old Book 3	Science	Science	2019-01-01	250.00	1
- Status Bar:** Duration / Fetch: 0.000 sec / 0.000 sec, Date: 26/11/2023

The screenshot shows the MySQL Workbench interface with the following details:

- MySQL Workbench** - Local instance MySQL 8.0
- File**, **Edit**, **User**, **Query**, **Database**, **Server**, **Tools**, **Scripting**, **Help**
- Management** sidebar: Server, Client Connectors, User and Privileges, Schema, System Variables, Data泵, Import/Restore.
- INSTANCE**: Startup / Shutdown, Server Logs, Optimizer.
- PERFORMANCE**: Dashboard, Performance Reports, Performance Schema Setup.
- SQL Editor** (Title: SQL File 12):

```
121 -- 2. Books Published AFTER 2015
122 • SELECT * FROM Books WHERE YEAR(published_date) > 2015;
123
124 -- Top 5 most expensive books
125 • SELECT * FROM Books ORDER BY price DESC;
126
127 -- Members who joined BEFORE 2022
128 • SELECT * FROM Members WHERE membership_date < '2022-01-01';
129
130 -- 3. Science books with price < 500
131 • SELECT * FROM Books WHERE category = 'Science' AND price < 500;
132
133 -- Books NOT available for borrowing
134 • SELECT * FROM Books WHERE available_copies = 0;
135
136 • SELECT * FROM Books WHERE available_copies = 0;
137
```
- Result Grid**: Shows the results of the last query (Books NOT available for borrowing). The table has columns: book\_id, title, author\_id, category, price, published\_date, and available\_copies. One row is shown: book\_id 1, title 'Book 1', author\_id 1, category 'Fiction', price 100.00, published\_date 2019-01-01, and available\_copies 0.
- Books 94** pane: Shows the results of the last query (Books NOT available for borrowing). The table has columns: book\_id, title, author\_id, category, price, published\_date, and available\_copies. One row is shown: book\_id 1, title 'Book 1', author\_id 1, category 'Fiction', price 100.00, published\_date 2019-01-01, and available\_copies 0.
- Object Info** and **Session** panes.
- SQLAdditions**: Automatic context help is disabled. It includes a link to "How to manually get help for the current caret position or to toggle automatic help."

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

MANAGEMENT

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

INSTANCE

- Startup & Shutdown
- Server Logs
- Options File

PERFORMANCE

- Dashboard
- Performance Reports
- Performance Schema Setup

Administration Schemas Information

No object selected

Books 55 x

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

book_id	title	author_id	category	isbn	published_date	price	available_copies
6	A Suitable Boy	6	Fiction	978-0-06-27652-4	1993-01-01	600.00	4
2	Five Point Someone	2	Fiction	978-8-1291860-0	2004-01-01	200.00	12
8	New Book	3	Science	ISBN008	2016-01-01	450.00	2
9	New Book	1	Science	ISBN009	2016-01-01	550.00	2
7	New Book2	2	Fiction	ISBN010	2016-01-01	550.00	0

Output

Action Output

Time	Action	Message	Duration / Fetch
173 10:06:39	SELECT * FROM Books ORDER BY title ASC;	Error Code: 1054. Unknown column 'in' membership_date' in having clause'	0.000 sec
174 10:06:45	SELECT * FROM Books ORDER BY title LIMIT 0, 1000	9 rows(s) returned.	0.000 sec / 0.000 sec
175 10:07:13	SELECT * FROM Books WHERE available_copies = 0 LIMIT 0, 1000	1 rows(s) returned.	0.000 sec / 0.000 sec
176 10:07:58	SELECT * FROM Books ORDER BY title ASC LIMIT 0, 1000	9 rows(s) returned.	0.000 sec / 0.000 sec
177 10:07:58	SELECT * FROM Books ORDER BY title ASC LIMIT 0, 1000	9 rows(s) returned.	0.000 sec / 0.000 sec

Object Info Session

28°C Mostly sunny

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

MANAGEMENT

- Server Status
- Client Connections
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- Data Export
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INSTANCE

- Startup & Shutdown
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- Options File

PERFORMANCE

- Dashboard
- Performance Reports
- Performance Schema Setup

Administration Schemas Information

No object selected

Books 55 x

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

member_id	name	total_borrowed
1	Priya Sharma	1
2	Rishi Patel	1
3	Ananya Patel	1
4	Arjun Singh	1
5	Sneha Reddy	1

Output

Action Output

Time	Action	Message	Duration / Fetch
174 10:06:45	SELECT * FROM Books ORDER BY title LIMIT 0, 1000	9 rows(s) returned.	0.000 sec / 0.000 sec
175 10:07:13	SELECT * FROM Books WHERE available_copies = 0 LIMIT 0, 1000	1 rows(s) returned.	0.000 sec / 0.000 sec
176 10:07:58	SELECT * FROM Books ORDER BY title ASC LIMIT 0, 1000	9 rows(s) returned.	0.000 sec / 0.000 sec
177 10:08:23	SELECT m.member_id, m.name, COUNT(t.transaction_id) AS total_borrowed FROM Members m LEFT JOIN Transactions t ON m.member_id = t.member_id GROUP BY m.member_id, m.name;	7 rows(s) returned.	0.000 sec / 0.000 sec

Object Info Session

28°C Mostly sunny

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

MANAGEMENT

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INSTANCE

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- Options File

PERFORMANCE

- Dashboard
- Performance Reports
- Performance Schema Setup

Administration Schemas Information

No object selected

Books 57 x

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

category	total_books
Fiction	5
Mythology	1
Children	1
Science	2

Output

Action Output

Time	Action	Message	Duration / Fetch
175 10:07:13	SELECT * FROM Books WHERE available_copies = 0 LIMIT 0, 1000	9 rows(s) returned.	0.000 sec / 0.000 sec
176 10:07:58	SELECT * FROM Books ORDER BY title ASC LIMIT 0, 1000	9 rows(s) returned.	0.000 sec / 0.000 sec
177 10:08:23	SELECT m.member_id, m.name, COUNT(t.transaction_id) AS total_borrowed FROM Members m LEFT JOIN Transactions t ON m.member_id = t.member_id GROUP BY m.member_id, m.name;	7 rows(s) returned.	0.000 sec / 0.000 sec
178 10:08:48	SELECT category, COUNT(*) AS total_books FROM Books GROUP BY category LIMIT 0, 1000	4 rows(s) returned.	0.000 sec / 0.000 sec

Object Info Session

28°C Mostly sunny

MySQL Workbench

Local Instance MySQL80

Navigation: Library\_management - SQL File 12\*

```

MANAGEMENT
  Server Status
  Client Connections
  Users and Privileges
  Status and System Variables
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  Options File

INSTANCE
  Startup / Shutdown
  Server Logs
  Options File

PERFORMANCE
  Dashboard
  Performance Reports
  Performance Schema Setup

Administration Schemas Information
No object selected

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid
avg_price | 400.00000 | Read Only | Context Help | Snippets

Result 58 x
Output
Action Output
Time Action Message Duration / Fetch
176 18:07:58 SELECT `avg(price)` AS avg_price FROM Books; 0 rows(s) returned 0.000 sec / 0.000 sec
166 -- Most borrowed book
167 | |
168 • SELECT `b.book_id`, `b.title`, COUNT(`t.transaction_id`) AS borrow_count
169 FROM Books `b`
170 JOIN Transactions `t` ON `b.book_id` = `t.book_id`
171 GROUP BY `b.book_id`, `b.title`
172 ORDER BY borrow_count DESC
173 LIMIT 1;
174
175
176 --- Total fines collected
177 • SELECT SUM(fine_amount) AS total_fines FROM Transactions;
178
179 -- 6. Foreign Keys

```

Result 59 x

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid
book\_id | title | borrow\_count
1 | The God of Small Things | 1 | Read Only | Context Help | Snippets

Action Output

Time Action Message Duration / Fetch

177 18:08:23 SELECT `m.member\_id`, `m.name`, COUNT(`t.transaction\_id`) AS total\_borrowed FROM Members `m` LEFT JOIN Transactions `t` ON `m.member\_id` = `t.member\_id` 7 rows(s) returned 0.000 sec / 0.000 sec
178 18:08:48 SELECT category, COUNT(\*) AS total\_books FROM Books GROUP BY category LIMIT 0, 1000 4 rows(s) returned 0.000 sec / 0.000 sec
179 18:09:00 SELECT AVG(price) AS avg\_price FROM Books LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
180 18:09:29 SELECT `b.book\_id`, `b.title`, COUNT(`t.transaction\_id`) AS borrow\_count FROM Books `b` JOIN Transactions `t` ON `b.book\_id` = `t.book\_id` 1 row(s) returned 0.000 sec / 0.000 sec

Result 59 x

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid
total\_fines | 115.00 | Read Only | Context Help | Snippets

Action Output

Time Action Message Duration / Fetch

178 18:08:48 SELECT category, COUNT(\*) AS total\_books FROM Books GROUP BY category LIMIT 0, 1000 4 rows(s) returned 0.000 sec / 0.000 sec
179 18:09:00 SELECT AVG(price) AS avg\_price FROM Books LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
180 18:09:29 SELECT `b.book\_id`, `b.title`, COUNT(`t.transaction\_id`) AS borrow\_count FROM Books `b` JOIN Transactions `t` ON `b.book\_id` = `t.book\_id` 1 row(s) returned 0.000 sec / 0.000 sec
181 18:10:14 SELECT SUM(fine\_amount) AS total\_fines FROM Transactions LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec

MySQL Workbench

Local Instance MySQL80

Navigation: Library\_management - SQL File 12\*

```

MANAGEMENT
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  Status and System Variables
  Data Export
  Data Import/Restore
  Options File

INSTANCE
  Startup / Shutdown
  Server Logs
  Options File

PERFORMANCE
  Dashboard
  Performance Reports
  Performance Schema Setup

Administration Schemas Information
No object selected

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid
book_id | title | borrow_count
1 | The God of Small Things | 1 | Read Only | Context Help | Snippets

Result 58 x
Output
Action Output
Time Action Message Duration / Fetch
176 18:07:58 SELECT `avg(price)` AS avg_price FROM Books; 0 rows(s) returned 0.000 sec / 0.000 sec
166 -- Most borrowed book
167 | |
168 • SELECT `b.book_id`, `b.title`, COUNT(`t.transaction_id`) AS borrow_count
169 FROM Books `b`
170 JOIN Transactions `t` ON `b.book_id` = `t.book_id`
171 GROUP BY `b.book_id`, `b.title`
172 ORDER BY borrow_count DESC
173 LIMIT 1;
174
175
176 --- Total fines collected
177 • SELECT SUM(fine_amount) AS total_fines FROM Transactions;
178
179 -- 6. Foreign Keys

```

Result 59 x

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid
book\_id | title | borrow\_count
1 | The God of Small Things | 1 | Read Only | Context Help | Snippets

Action Output

Time Action Message Duration / Fetch

177 18:08:23 SELECT `m.member\_id`, `m.name`, COUNT(`t.transaction\_id`) AS total\_borrowed FROM Members `m` LEFT JOIN Transactions `t` ON `m.member\_id` = `t.member\_id` 7 rows(s) returned 0.000 sec / 0.000 sec
178 18:08:48 SELECT category, COUNT(\*) AS total\_books FROM Books GROUP BY category LIMIT 0, 1000 4 rows(s) returned 0.000 sec / 0.000 sec
179 18:09:00 SELECT AVG(price) AS avg\_price FROM Books LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
180 18:09:29 SELECT `b.book\_id`, `b.title`, COUNT(`t.transaction\_id`) AS borrow\_count FROM Books `b` JOIN Transactions `t` ON `b.book\_id` = `t.book\_id` 1 row(s) returned 0.000 sec / 0.000 sec

Result 59 x

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid
total\_fines | 115.00 | Read Only | Context Help | Snippets

Action Output

Time Action Message Duration / Fetch

178 18:08:48 SELECT category, COUNT(\*) AS total\_books FROM Books GROUP BY category LIMIT 0, 1000 4 rows(s) returned 0.000 sec / 0.000 sec
179 18:09:00 SELECT AVG(price) AS avg\_price FROM Books LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
180 18:09:29 SELECT `b.book\_id`, `b.title`, COUNT(`t.transaction\_id`) AS borrow\_count FROM Books `b` JOIN Transactions `t` ON `b.book\_id` = `t.book\_id` 1 row(s) returned 0.000 sec / 0.000 sec
181 18:10:14 SELECT SUM(fine\_amount) AS total\_fines FROM Transactions LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec

MySQL Workbench

Local Instance MySQL80

Navigation: Library\_management - SQL File 12\*

```

MANAGEMENT
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  Client Connections
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  Status and System Variables
  Data Export
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  Options File

INSTANCE
  Startup / Shutdown
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  Options File

PERFORMANCE
  Dashboard
  Performance Reports
  Performance Schema Setup

Administration Schemas Information
No object selected

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid
total_fines | 115.00 | Read Only | Context Help | Snippets

Result 58 x
Output
Action Output
Time Action Message Duration / Fetch
178 18:08:48 SELECT category, COUNT(*) AS total_books FROM Books GROUP BY category LIMIT 0, 1000 4 rows(s) returned 0.000 sec / 0.000 sec
179 18:09:00 SELECT AVG(price) AS avg_price FROM Books LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
180 18:09:29 SELECT `b.book_id`, `b.title`, COUNT(`t.transaction_id`) AS borrow_count FROM Books `b` JOIN Transactions `t` ON `b.book_id` = `t.book_id` 1 row(s) returned 0.000 sec / 0.000 sec
181 18:10:14 SELECT SUM(fine_amount) AS total_fines FROM Transactions LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec

```

Result 59 x

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid
total\_fines | 115.00 | Read Only | Context Help | Snippets

Action Output

Time Action Message Duration / Fetch

178 18:08:48 SELECT category, COUNT(\*) AS total\_books FROM Books GROUP BY category LIMIT 0, 1000 4 rows(s) returned 0.000 sec / 0.000 sec
179 18:09:00 SELECT AVG(price) AS avg\_price FROM Books LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
180 18:09:29 SELECT `b.book\_id`, `b.title`, COUNT(`t.transaction\_id`) AS borrow\_count FROM Books `b` JOIN Transactions `t` ON `b.book\_id` = `t.book\_id` 1 row(s) returned 0.000 sec / 0.000 sec
181 18:10:14 SELECT SUM(fine\_amount) AS total\_fines FROM Transactions LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec

The screenshot shows the MySQL Workbench interface with the following details:

- File**: Local instance MySQL80
- Database**: Books
- Server**: Localhost
- Tools**: Scripting, Help

**Management** tab selected.

**Query Editor (SQL File 12\*)**:

```
189 FOREIGN KEY (member_id) REFERENCES Members(member_id);
190
191 -- Link Transactions to Books
192 • ALTER TABLE Transactions
193 ADD CONSTRAINT fk_transactions_books
194 FOREIGN KEY (book_id) REFERENCES Books(book_id);
195
196 -- ?_ INNER JOIN books with their author names
197 • SELECT b.book_id, b.title, a.name AS author_name
198 FROM Books b
199 INNER JOIN Authors a ON b.author_id = a.author_id
200
201 -- LEFT JOIN members and any books they borrowed
202 • SELECT m.member_id, m.name, t.transaction_id, b.book_id
203 FROM Members m
```

**Result Grid** (Results of the last query):

book_id	title	author_name
1	The God of Small Things	Arundhati Roy
2	Five Point Someone	Chetan Bhagat
3	The Immortals of Meluha	Anup Tripathi
4	The Blue Umbrella	Ruskin Bond
5	The Namesake	Shamita Lahiri

**Output** pane:

Action	Time	Action	Message	Duration / Fetch
180	10:09:29	SELECT * book_id, b.title, COUNT(transaction_id) AS borrow_count FROM Books b JOIN Transactions t ON ...	1 row(s) returned	0.000 sec / 0.000 sec
181	10:10:14	SELECT SUM(borrow_count) AS total_brows FROM Transactions LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
182	10:10:41	ALTER TABLE Books ADD CONSTRAINT fk_books_authors FOREIGN KEY (author_id) REFERENCES Authors (author_id)	9 row(s) affected; Records: 9 Duplicates: 0 Warnings: 0	0.047 sec
183	10:10:52	SELECT * book_id, b.title, a.name AS author_name FROM Books b INNER JOIN Authors a ON b.author_id = a.author_id	9 row(s) returned	0.000 sec / 0.000 sec

Bottom status bar: 28°C Mostly sunny, ENG, 6:06 PM, 26-11-2025

The screenshot shows the MySQL Workbench interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, Help, and a toolbar with various icons. The left sidebar has sections for MANAGEMENT (Server Status, Connections, Logs and Images, Status and System Variables, Data Export, Import/Restore), INSTANCE (Status / Shutdown, Server Logs, Options File), and PERFORMANCE (Dashboard, Performance Reports, Schema Setups). The bottom left shows 'No object selected' and tabs for Object Info and Session.

The main area displays a query editor titled 'SQL File 12\*' containing the following SQL code:

```
198 FROM Books b
199     INNER JOIN Authors a ON b.author_id = a.author_id;
200
201 -- LEFT JOIN: members and any books they borrowed
202 * SELECT m.member_id, m.name, t.transaction_id, b.book_id
203 FROM Members m
204     LEFT JOIN Transactions t ON m.member_id = t.member_id;
205
206 -- RIGHT JOIN: books that haven't been borrowed
207 * SELECT b.book_id, b.title
208     FROM Transactions t;
209     RIGHT JOIN Books b ON t.book_id = b.book_id
210 WHERE t.transaction_id IS NULL;
211
212 -- FULL OUTER JOIN equivalent: members who NEVER borrowed
```

Below the query editor is a result grid titled 'Result Grid' with columns: member\_id, name, transaction\_id, book\_id. The data is as follows:

member_id	name	transaction_id	book_id
1	Priya Sharma	1	3
2	Rahul Verma	2	3
3	Ananya	3	5
4	Arjan Singh	4	2
5	Sneha Reddy	5	6

The bottom status bar shows the date and time as 06:11 PM, and the bottom right corner shows 'ENG IN' and '26-11-2025'.

The screenshot shows the MySQL Workbench interface. The main window displays a query editor with the following SQL code:

```
110 WHERE t.transaction_id IS NULL;
111
112 -- FULL OUTER JOIN equivalent: members who NEVER borrowed
113
114 SELECT m.*
115 FROM Members m
116 LEFT JOIN Transactions t ON m.member_id = t.member_id
117 WHERE t.transaction_id IS NULL;
118
119 -- B. Books borrowed by members who registered AFTER 2022
120 SELECT DISTINCT b.*
121 FROM Books b
122 JOIN Transactions t ON b.book_id = t.book_id
123 WHERE t.member_id IN (
124     SELECT member_id
125     FROM Member
```

The results grid shows one row:

member_id	name	email	phone_number	membership_date
7	New Member	newmember@example.com	9999999999	2024-08-01

The status bar at the bottom indicates the duration of the execution was 0.000 sec / 0.000 sec.

MySQL Workbench Local instance MySQL80

```

216 WHERE t.transaction_id IS NULL;
217
218 -- Books borrowed by members who registered AFTER 2022
219
220 SELECT DISTINCT b.title
221 FROM Books b
222 JOIN Transactions t ON b.book_id = t.book_id
223 WHERE member_id IN (
224     SELECT member_id
225     FROM Members
226     WHERE membership_date > '2022-12-31'
227 )
228
229 -- Most borrowed book using a subquery
230
231 SELECT *
232
Result Grid | Filter Rows: Export: Wrap Cell Content: Result Grid
book_id title author_id category isbn published_date price available_copies
6 A Suitable Boy 6 Fiction 978-0-06-078552-6 1993-01-01 60.00 4
4 The Blue Umbrella 4 Children 978-0-12-011490-0 1980-01-01 15.00 15

```

Action Output

```

154 18:11:07 SELECT * FROM Members LEFT JOIN Transactions t ON member_id = t.member_id
155 18:11:20 SELECT b.title FROM Books b JOIN Transactions t ON book_id = t.book_id WHERE t.member_id = 6
156 18:11:24 SELECT m.* FROM Members m LEFT JOIN Transactions t ON m.member_id = t.member_id WHERE t.member_id = 6
157 18:12:45 SELECT DISTINCT b.* FROM Books b JOIN Transactions t ON b.book_id = t.book_id WHERE t.member_id = 6
158 18:13:45 SELECT COUNT(*) AS borrow_count FROM Books b JOIN Transactions t ON b.book_id = t.book_id WHERE t.member_id = 6

```

Object Info Session

28°C Mostly sunny

MySQL Workbench Local instance MySQL80

```

228
229 -- Most borrowed book using a subquery
230
231 SELECT *
232
233
234
235
236
237
238
239
240
241
242
Result Grid | Filter Rows: Export: Wrap Cell Content: Result Grid
book_id title borrow_count
1 The God of Small Things 1

```

Action Output

```

154 18:11:20 SELECT t.book_id, b.title FROM Transactions t RIGHT JOIN Books b ON t.book_id = b.book_id WHERE t.member_id = 6
155 18:11:24 SELECT m.* FROM Members m LEFT JOIN Transactions t ON m.member_id = t.member_id WHERE t.member_id = 6
156 18:12:45 SELECT DISTINCT b.* FROM Books b JOIN Transactions t ON b.book_id = t.book_id WHERE t.member_id = 6
157 18:13:45 SELECT COUNT(*) AS borrow_count FROM Books b JOIN Transactions t ON b.book_id = t.book_id WHERE t.member_id = 6

```

Object Info Session

28°C Mostly sunny

MySQL Workbench Local instance MySQL80

```

259
260 -- Trim whitespace from author names
261 SELECT TRIM(name) AS trimmed_name FROM Authors;
262
263 -- Replace missing email with 'Not Provided'
264 SELECT name, IFNULL(email, 'Not Provided') AS email_display FROM Members;
265
266 -- 11. Rank books by number of times borrowed
267
268
269
270
271
272
273
Result Grid | Filter Rows: Export: Wrap Cell Content: Result Grid
book_id title borrow_count borrow_rank
1 The God of Small Things 1 1
2 Five Point Someone 1 1
3 The Reluctant Fundamentalist 1 1
4 The Blue Umbrella 1 1
5 The Namesake 1 1

```

Action Output

```

152 18:16:13 SELECT m.member_id, CASE WHEN EXISTS ( SELECT 1 FROM Transactions t WHERE t.member_id = m.member_id ) THEN 1 ELSE 0 END AS borrowed
153 18:16:39 SELECT sum(borrowed) AS total_borrowed, AVG(total_borrowed) OVER () AS avg_borrowed
154 18:16:48 SELECT member_id, borrow_date, daily_count, SUM(daily_count) OVER (PARTITION BY member_id ORDER BY borrow_date DESC) AS borrow_count
155 18:17:11 SELECT book_id, title, borrow_count, RANK() OVER (ORDER BY borrow_count DESC) AS borrow_rank

```

Object Info Session

28°C Mostly sunny

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

MANAGEMENT

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

INSTANCE

- Startup / Shutdown
- Server Logs
- Options File

PERFORMANCE

- Dashboard
- Performance Reports
- Performance Schema Setup

library\_management SQL File 12\*

```

268   FROM (
269     SELECT b.book_id, b.title, COUNT(t.transaction_id) AS borrow_count
270     FROM Books b
271     LEFT JOIN Transactions t ON b.book_id = t.book_id
272   GROUP BY b.book_id, b.title
273 ) AS x
274
275 -- Cumulative number of books borrowed per member (over time)
276   SELECT member_id, borrow_date, daily_count, SUM(daily_count) OVER (PARTITION BY member_id ORDER BY borrow_date) AS cumulative_borrowed
277   FROM (
278     SELECT member_id, borrow_date, COUNT(*) AS daily_count
279       FROM Transactions
280      GROUP BY member_id, borrow_date
281   ) AS t
282   INDEX BY member_id, borrow_date

```

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

member_id	borrow_date	daily_count	cumulative_borrowed
1	2024-01-15	1	1
2	2024-01-15	1	1
3	2024-01-12	1	1
4	2024-01-18	1	1
5	2024-01-20	1	1

Result 71 x

Action Output

Time Action Message Duration / Fetch

- 191 18:15:50 SELECT b.book\_id, b.title, b.published\_date, CASE WHEN YEAR(published\_date) > 2020 THEN 'New' ELSE 'Classic' END AS Book\_Cat FROM Books b WHERE t.member\_id = m.member\_id AND t.borrow\_date = DATE\_SUB(CURDATE(), INTERVAL 6 MONTH) THEN 'Active' ELSE 'Inactive' END AS Membership\_Status
- 192 18:16:13 SELECT transaction\_id, DATE\_FORMAT(borrow\_date, '%d-%m-%Y') AS borrow\_date\_formated FROM Transaction
- 193 18:16:39 SELECT m.member\_id, m.name, CASE WHEN EXISTS (SELECT 1 FROM Transactions t WHERE t.member\_id = m.member\_id AND t.borrow\_date >= DATE\_SUB(CURDATE(), INTERVAL 6 MONTH)) THEN 'Active' ELSE 'Inactive' END AS Membership\_Status
- 194 18:16:48 SELECT member\_id, borrow\_date, daily\_count, SUM(daily\_count) OVER (PARTITION BY member\_id ORDER BY borrow\_date)

Object Info Session

28°C Mostly sunny

MySQL Workbench

Local instance MySQL80

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library\_management SQL File 12\*

```

298
299 -- Membership_Status: Active if borrowed in last 6 months, else Inactive
300   SELECT m.member_id, m.name,
301     CASE
302       WHEN EXISTS (
303         SELECT 1
304           FROM Transactions t
305          WHERE t.member_id = m.member_id
306          AND t.borrow_date >= DATE_SUB(CURDATE(), INTERVAL 6 MONTH)
307       ) THEN 'Active'
308       ELSE 'Inactive'
309     END AS Membership_Status
310   FROM Members m
311
312 -- Categorize books by publication year

```

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

member_id	name	Membership_Status
1	Ramya Sharma	Active
2	Rakesh Kumar	Active
3	Ananya Patel	Active
4	Arun Singh	Inactive
5	Sneha Reddy	Active

Result 70 x

Action Output

Time Action Message Duration / Fetch

- 189 18:16:09 SELECT \* FROM Members WHERE member\_id NOT IN ( SELECT DISTINCT member\_id FROM Transaction ) 1 rows(0) returned 0.000 sec / 0.000 sec
- 190 18:16:10 SELECT transaction\_id, DATE\_FORMAT(borrow\_date, '%d-%m-%Y') AS borrow\_date\_formated FROM Transaction
- 191 18:16:13 SELECT book\_id, b.title, b.published\_date, CASE WHEN YEAR(published\_date) > 2020 THEN 'New Arrival' WHEN YEAR(published\_date) < 2000 THEN 'Classic' ELSE 'Regular'
- 192 18:16:13 SELECT m.member\_id, m.name, CASE WHEN EXISTS (SELECT 1 FROM Transactions t WHERE t.member\_id = m.member\_id AND t.borrow\_date >= DATE\_SUB(CURDATE(), INTERVAL 6 MONTH)) THEN 'Active' ELSE 'Inactive' END AS Membership\_Status

Object Info Session

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library\_management SQL File 12\*

```

383
384   SELECT 1
385     FROM Transactions t
386    WHERE t.member_id = m.member_id
387      AND t.borrow_date >= DATE_SUB(CURDATE(), INTERVAL 6 MONTH)
388   THEN 'Active'
389   ELSE 'Inactive'
390 END AS Membership_Status
391   FROM Members m
392
393 -- Categorize books by publication year
394   SELECT b.book_id, b.title, b.published_date,
395     CASE
396       WHEN YEAR(published_date) > 2020 THEN 'New Arrival'
397       WHEN YEAR(published_date) < 2000 THEN 'Classic'
398       ELSE 'Regular'
399     END AS Book_Cat

```

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

book_id	title	published_date	Book_Cat
1	The God of Small Things	1997-01-01	Classic
2	The Lives of Others	2007-01-01	Regular
3	The Immortal's Notebook	2010-01-01	Regular
4	The Blue Umbrella	1980-01-01	Classic
5	The Namesake	2003-01-01	Regular

Result 69 x

Action Output

Time Action Message Duration / Fetch

- 188 18:14:49 SELECT \* FROM Books b WHERE COUNT(transaction\_id) AS borrow\_count FROM Books b
- 189 18:14:50 SELECT \* FROM Members WHERE member\_id NOT IN ( SELECT DISTINCT member\_id FROM Transaction ) 1 rows(0) returned 0.000 sec / 0.000 sec
- 190 18:15:01 SELECT transaction\_id, DATE\_FORMAT(borrow\_date, '%d-%m-%Y') AS borrow\_date\_formated FROM Transaction
- 191 18:15:50 SELECT b.book\_id, b.title, b.published\_date, CASE WHEN YEAR(published\_date) > 2020 THEN 'New Arrival'

Object Info Session

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