

# Library Database – DQL & DML Tasks

## DQL

## 1. Display all book records.

The screenshot shows the Microsoft SQL Server Management Studio interface. The title bar indicates the connection is to DESKTOP-GILBFIO\librarybase (DESKTOP-GILBFIO\inouva (60)). The Object Explorer on the left shows the database structure, including the librarydb database which contains tables like book, bookinfo, member, and review. The SQL Query window displays two queries: an INSERT INTO statement for the review table and a SELECT \* FROM book query. The results of the SELECT query are shown in a grid:

	bookid	ISBN	title	genre	price	shelflocation	isavailable	libraryid
1	1	978-111	Data Structures	reference	300.00	A1	1	1
2	2	978-222	Database Systems	non-fiction	280.00	A2	1	1
3	3	978-333	Python Basics	fiction	180.00	B1	1	1
4	4	978-444	Children Stories	children	120.00	C1	1	2
5	5	978-555	Advanced Data Analysis	reference	450.00	A3	1	2

At the bottom, a status bar shows "Query executed successfully." and the system tray indicates it's 12:27 PM on 12/17/2025.

2. Display each book's title, genre, and availability.

SQLQuery2.sql - DESKTOP-GILBFJ0.librarybase (DESKTOP-GILBFJ0\inouva (60)) - Microsoft SQL Server Management Studio (Administrator)

File Edit View Query Project Tools Window Help

Quick Launch (Ctrl+Q)

Object Explorer

librarybase

SQLQuery2.sql - DESKTOP-GILBFJ0\inouva (60)

SELECT \* FROM book;

SELECT title, genre, isavailable FROM book;

ISO %

id	title	genre	isavailable
1	Data Structures	reference	1
2	Database Systems	non-fiction	1
3	Python Basics	fiction	1
4	Children Stories	children	1
5	Advanced Data Analysis	reference	1

Query executed successfully.

DESKTOP-GILBFJ0 (15.0 RTM) | DESKTOP-GILBFJ0\inouva ... librarybase 00:00:00 5 rows

Ready 12/17/2025

Ln 176 Col 44 Ch 44 INS

3. Display all member names, email, and membership start date.

```

SELECT * FROM book;

SELECT title, genre, isavailable FROM book;

SELECT fullname, email, membershipstartdate FROM member;

```

The screenshot shows the Microsoft SQL Server Management Studio interface. In the center, there is a query window titled "SQLQuery2.sql - DESKTOP-GILBFJO\librarybase (DESKTOP-GILBFJO\ouara (60))". It contains three SQL queries. Below the queries, the results pane displays a table with three rows. The columns are "fullname", "email", and "membershipstartdate". The data is as follows:

fullname	email	membershipstartdate
All Hassan	ali@gmail.com	2022-06-10
Sara Hasser	sara@gmail.com	2023-01-01
Huda Khalid	huda@gmail.com	2024-01-15

At the bottom of the screen, the taskbar shows the system status: 29°C, Mostly cloudy, and the date/time: 12/17/2025.

#### 4. Display each book's title and price as BookPrice.

```

SELECT * FROM book;

SELECT title, genre, isavailable FROM book;

SELECT fullname, email, membershipstartdate FROM member;

SELECT title, price AS BookPrice FROM book;

```

The screenshot shows the Microsoft SQL Server Management Studio interface. In the center, there is a query window titled "SQLQuery2.sql - DESKTOP-GILBFJO\librarybase (DESKTOP-GILBFJO\ouara (60))". It contains four SQL queries. Below the queries, the results pane displays a table with five rows. The columns are "title" and "BookPrice". The data is as follows:

title	BookPrice
Data Structures	300.00
Database Systems	280.00
Python Basics	180.00
Children Stories	120.00
Advanced Data Analysis	450.00

At the bottom of the screen, the taskbar shows the system status: 29°C, Mostly cloudy, and the date/time: 12/17/2025.

#### 5. List books priced above 250 LE.

SQLQuery2.sql - DESKTOP-GILBFJO\librarybase (DESKTOP-GILBFJO\ouara (60)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT title, genre, isavailable FROM book;

SELECT fullname, email, membershipstartdate FROM member;

SELECT title, price AS BookPrice FROM book;

SELECT * FROM book WHERE price > 250;

```

Results

bookid	ISBN	title	genre	price	shelflocation	isavailable	libraryid
1	978-111	Data Structures	reference	300.00	A1	1	1
2	978-222	Database Systems	non-fiction	280.00	A2	1	1
3	978-555	Advanced Data Analysis	reference	450.00	A3	1	2

Query executed successfully.

## 6. List members who joined before 2023.

SQLQuery2.sql - DESKTOP-GILBFJO\librarybase (DESKTOP-GILBFJO\ouara (60)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT title, genre, isavailable FROM book;

SELECT fullname, email, membershipstartdate FROM member;

SELECT title, price AS BookPrice FROM book;

SELECT * FROM book WHERE price > 250;

SELECT * FROM member
WHERE membershipstartdate < '2023-01-01';

```

Results

memberid	fullname	email	phonenumber	membershipstartdate
1	All Hassen	ai@gmail.com	95123456	2022-06-20

Query executed successfully.

## 7. Display books published after 2018.

`SELECT *FROM book WHERE publishedyear > 2018;`

The Book table does not contain an attribute that represents the publication year of a book. Therefore, the required query cannot be performed.

Modify the table structure

Add a new column to store the publication year:

ALTER TABLE book

ADD publishedyear INT;

Insert or update publication year values

Assign publication years to existing records:

UPDATE book

SET publishedyear = 2020

WHERE bookid = 1;

UPDATE book

SET publishedyear = 2017

WHERE bookid = 2;

(Repeat as needed for other books.)

Execute the required query

Now the query can be executed correctly:

SELECT \*

FROM book

WHERE publishedyear > 2018;

## Conclusion

By adding the PublishedYear attribute to the Book table and populating it with valid data, the database can support queries that retrieve books published after a specific year.

8. Display books ordered by price descending.

SQLQuery2.sql - DESKTOP-GILBFIO.librarybase (DESKTOP-GILBFIO\ouara (60)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT * FROM member
WHERE membershipstartdate < '2023-01-01';

SELECT * FROM book WHERE publishedyear > 2018;

SELECT * FROM book ORDER BY price DESC;

```

Results

bookid	ISBN	title	genre	price	shelflocation	available	libraryid
1	978-555	Advanced Data Analysis	reference	450.00	A3	1	2
2	978-111	Data Structures	reference	300.00	A1	1	1
3	978-222	Database Systems	non-fiction	280.00	A2	1	1
4	978-333	Python Basics	fiction	180.00	B1	1	1
5	978-444	Children Stories	children	120.00	C1	1	2

Query executed successfully.

## 9. Display the maximum, minimum, and average book price.

SQLQuery2.sql - DESKTOP-GILBFIO.librarybase (DESKTOP-GILBFIO\ouara (60)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT * FROM book ORDER BY price DESC;

SELECT
    MAX(price) AS MaxPrice,
    MIN(price) AS MinPrice,
    AVG(price) AS AvgPrice
FROM book;

```

Results

MaxPrice	MinPrice	AvgPrice
450.00	120.00	266.000000

Query executed successfully.

## 10. Display total number of books

SQLQuery2.sql - DESKTOP-GILBFIO.librarybase (DESKTOP-GILBFIO\ouara (60)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT * FROM book ORDER BY price DESC;

SELECT
    MAX(price) AS MaxPrice,
    MIN(price) AS MinPrice,
    AVG(price) AS AvgPrice
FROM book;

SELECT COUNT(*) AS TotalBooks FROM book;

```

Results

TotalBooks
5

Query executed successfully.

## 11. Display members with NULL email.

SQLQuery2.sql - DESKTOP-GILBFIO.librarybase (DESKTOP-GILBFIO\ouara (60)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT
    MAX(price) AS MaxPrice,
    MIN(price) AS MinPrice,
    AVG(price) AS AvgPrice
FROM book;

SELECT COUNT(*) AS TotalBooks FROM book;

SELECT * FROM member WHERE email IS NULL;

```

Results

memberid	fullname	email	phonenumber	membershipstartdate
----------	----------	-------	-------------	---------------------

Query executed successfully.

## 12. Display books whose title contains 'Data'.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the Object Explorer, the database 'librarybase' is selected. Two queries are run in the 'SQLQuery2.sql' window:

```

SELECT * FROM member WHERE email IS NULL;

```

```

SELECT * FROM book
WHERE title LIKE '%Data%';

```

The results of the second query are displayed in a table:

bookid	ISBN	title	genre	price	shelflocation	available	libraryid
1	978-111	Data Structures	reference	300.00	A1	1	1
2	978-222	Database Systems	non-fiction	280.00	A2	1	1
3	978-555	Advanced Data Analysis	reference	450.00	A3	1	2

At the bottom, a message indicates: "Query executed successfully." The system tray shows the date as Friday.

## DML

### 13. Insert yourself as a member (Member ID = 405).

The screenshot shows the Microsoft SQL Server Management Studio interface. The 'Object Explorer' shows the 'librarybase' database. A query is run in the 'SQLQuery2.sql' window:

```

SELECT * FROM book
WHERE title LIKE '%Data%';

```

```

SET IDENTITY_INSERT member ON;

INSERT INTO member (memberid, fullname, email, phonenumber, membershipstartdate)
VALUES (405, 'Noura Almaskari', 'noura@gmail.com', '99998877', GETDATE());

SET IDENTITY_INSERT member OFF;

```

The results show: "(1 row affected)". The completion time is listed as 2025-12-17T14:46:57.0936799+04:00.

At the bottom, a message indicates: "Query executed successfully." The system tray shows the date as Friday.

### 14. Register yourself to borrow book ID 1011.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the center, there is a query window titled "SQLQuery2.sql - DESKTOP-GILBFJO.librarybase (DESKTOP-GILBFJO\moura (60))". The query being run is:

```

SET IDENTITY_INSERT member ON;

INSERT INTO member (memberid, fullname, email, phonenumber, membershipstartdate)
VALUES (405, 'Noura Almaskari', 'noura@gmail.com', '99988877', GETDATE());

SET IDENTITY_INSERT member OFF;

INSERT INTO loan (loandate, duedate, memberid, bookid)
VALUES (GETDATE(), DATEADD(day, 7, GETDATE()), 405, 1011);

```

In the "Messages" pane at the bottom, an error message is displayed:

Msg 547, Level 16, State 0, Line 227  
The INSERT statement conflicted with the FOREIGN KEY constraint "loan\_book". The conflict occurred in database "librarybase", table "dbo.book", column 'bookid'.  
The statement has been terminated.

Completion time: 2025-12-17T14:48:20.5698828+04:00

**The INSERT statement failed because the referenced BookID does not exist in the Book table.**

## 15. Insert another member with NULL email and phone.

The screenshot shows the Microsoft SQL Server Management Studio interface. In the center, there is a query window titled "SQLQuery2.sql - DESKTOP-GILBFJO.librarybase (DESKTOP-GILBFJO\moura (60))". The query being run is:

```

INSERT INTO loan (loandate, duedate, memberid, bookid)
VALUES (GETDATE(), DATEADD(day, 7, GETDATE()), 405, 1011);

INSERT INTO member (fullname, email, phonenumber, membershipstartdate)
VALUES ('No Email Member', NULL, NULL, GETDATE());

```

In the "Messages" pane at the bottom, an error message is displayed:

Msg 515, Level 16, State 2, Line 232  
Cannot insert the value NULL into column 'email', table 'librarybase.dbo.member'; column does not allow nulls. INSERT fails.  
The statement has been terminated.

Completion time: 2025-12-17T14:52:19.1651272+04:00

**This operation is not possible because the Email attribute in the Member table does not allow NULL values according to the table constraints.**

## 16. Update the return date of your loan to today.

SQLQuery2.sql - DESKTOP-GILBF0.librarybase (DESKTOP-GILBF0\inoura (60)) - Microsoft SQL Server Management Studio (Administrator)

File Edit View Query Project Tools Window Help

New Query New Item New Window

Object Explorer

Connect to Server

DESKTOP-GILBF0 (SQL Server 15.0.2000.5)

Databases

System Databases

Database Snapshots

File

Filegroup

Backup Log

Backup Log System

Tables

Company\_SD

companyDatabase

companyDB

companyDBase

librarydb

Database Diagrams

Tables

Views

External Resources

Synonyms

Programmability

Service Broker

Assemblies

Security

Server Objects

Replication

Polybase

Always On High Availability

Management

Integration Services Catalogs

SQL Server Agent (Agent XPs disabled)

Alarming Profiler

SQLQuery2.sql - DESKTOP-GILBF0\inoura (60) -

```
INSERT INTO loan (loadate, duedate, memberid, bookid)
VALUES (GETDATE(), DATEADD(day, 7, GETDATE()), 405, 1011);

INSERT INTO member (fullname, email, phonenumer, membershipstartdate)
VALUES ('No Email Member', NULL, NULL, GETDATE());

UPDATE loan
SET returndate = GETDATE(), status = 'returned'
WHERE memberid = 405.
```

150 %

Messages

(0 rows affected)

Completion time: 2025-12-17T14:54:56.4672864+04:00

150 %

Query executed successfully.

Ready

29°C Mostly cloudy

Search

Ln 239 Col 22 Ch 22 INS

DESKTOP-GILBF0 (15.0 RTM) DESKTOP-GILBF0\inoura ... librarybase 00:00:00 0 rows

12/17/2025

17. Increase book prices by 5% for books priced under 200.

SQLQuery2.sql - DESKTOP-GILBFI0\inouira (60) - Microsoft SQL Server Management Studio (Administrator)

File Edit View Query Project Tools Window Help

Object Explorer

SQLQuery2.sql - DESKTOP-GILBFI0\inouira (60) Execute

Connec... Connect to Server

DESKTOP-GILBFI0 (SQL Server 15.0.2000.5) librarybase

libarydb

loan

```
UPDATE loan
SET returndate = GETDATE(), status = 'returned'
WHERE memberid = 405;
```

book

```
UPDATE book
SET price = price * 1.05
WHERE price < 200;
```

Messages

(2 rows affected)

Completion time: 2025-12-17T14:55:31.1251846+04:00

Ready

100 %

100 %

Query executed successfully.

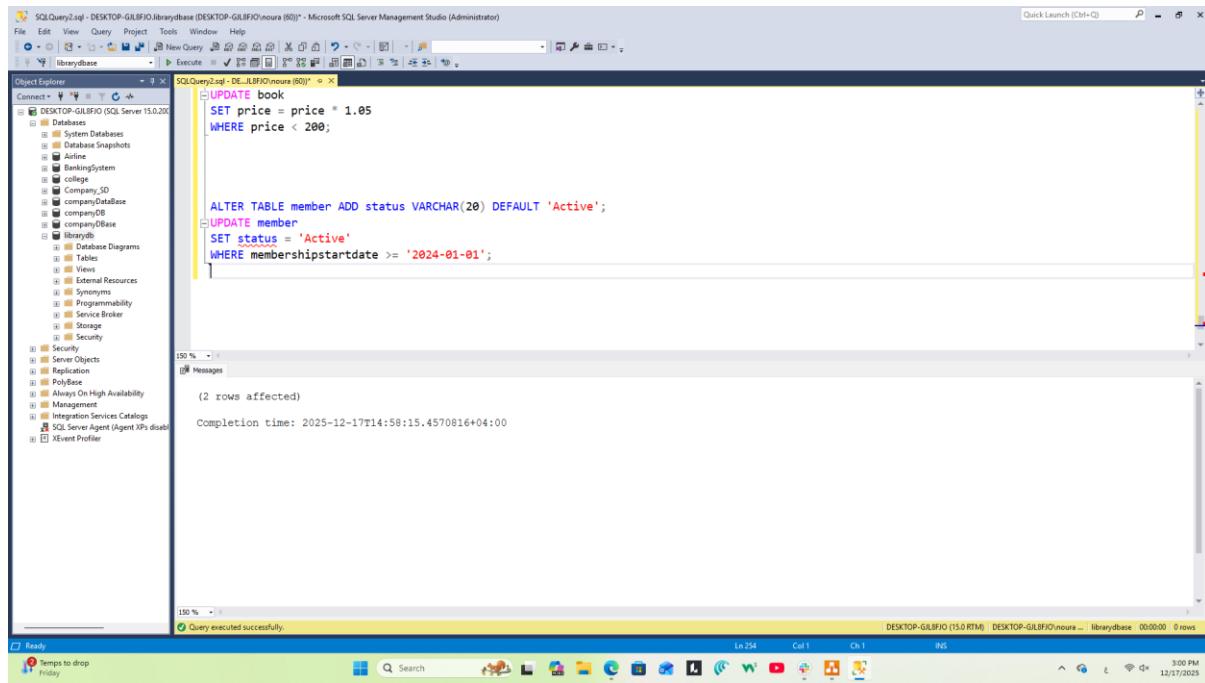
LN 245 Col 19 Ch 19 INS

DESKTOP-GILBFI0 (15.0 RTM) DESKTOP-GILBFI0\inouira ... librarybase 00:00:00 0 rows

12/17/2025

18. Update member status to 'Active' for recently joined members.

The original table design does not include a status column in the Member table. Therefore, it is not possible to directly update a member's status unless the column is added first.



```
UPDATE book
SET price = price * 1.05
WHERE price < 200;

ALTER TABLE member ADD status VARCHAR(20) DEFAULT 'Active';
UPDATE member
SET status = 'Active'
WHERE membershipstartdate >= '2024-01-01';

(2 rows affected)

Completion time: 2025-12-17T14:58:15.4570816+04:00
```

## 19. Delete members who never borrowed a book.

The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. A query window titled "SQLQuery2.sql - DESKTOP-GILBFIO\librarybase (DESKTOP-GILBFIO\inouira (0))" is open, displaying the following T-SQL code:

```
ALTER TABLE member ADD status VARCHAR(20) DEFAULT 'Active';
UPDATE member
SET status = 'Active'
WHERE membershipstartdate >= '2024-01-01';

DELETE FROM member
WHERE memberid NOT IN (
    SELECT DISTINCT memberid FROM loan
);
```

The "Messages" pane at the bottom shows the results of the execution:

- (2 rows affected)
- Completion time: 2025-12-17T15:00:57.9660283+04:00

The status bar at the bottom right indicates: DESKTOP-GILBFIO (15.0 RTM) | DESKTOP-GILBFIO\inouira ... | librarybase | 00:00:00 | 0 rows.