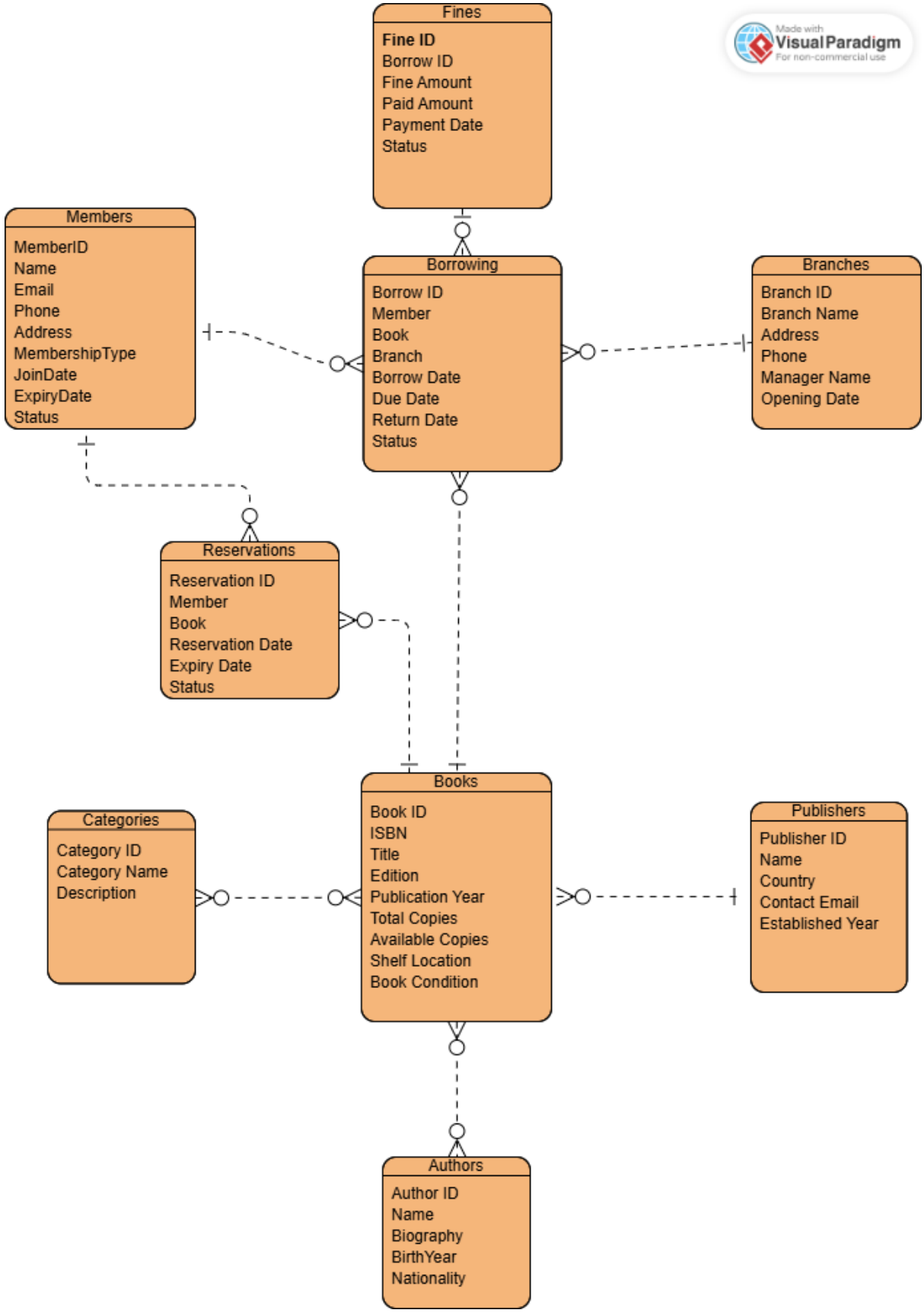
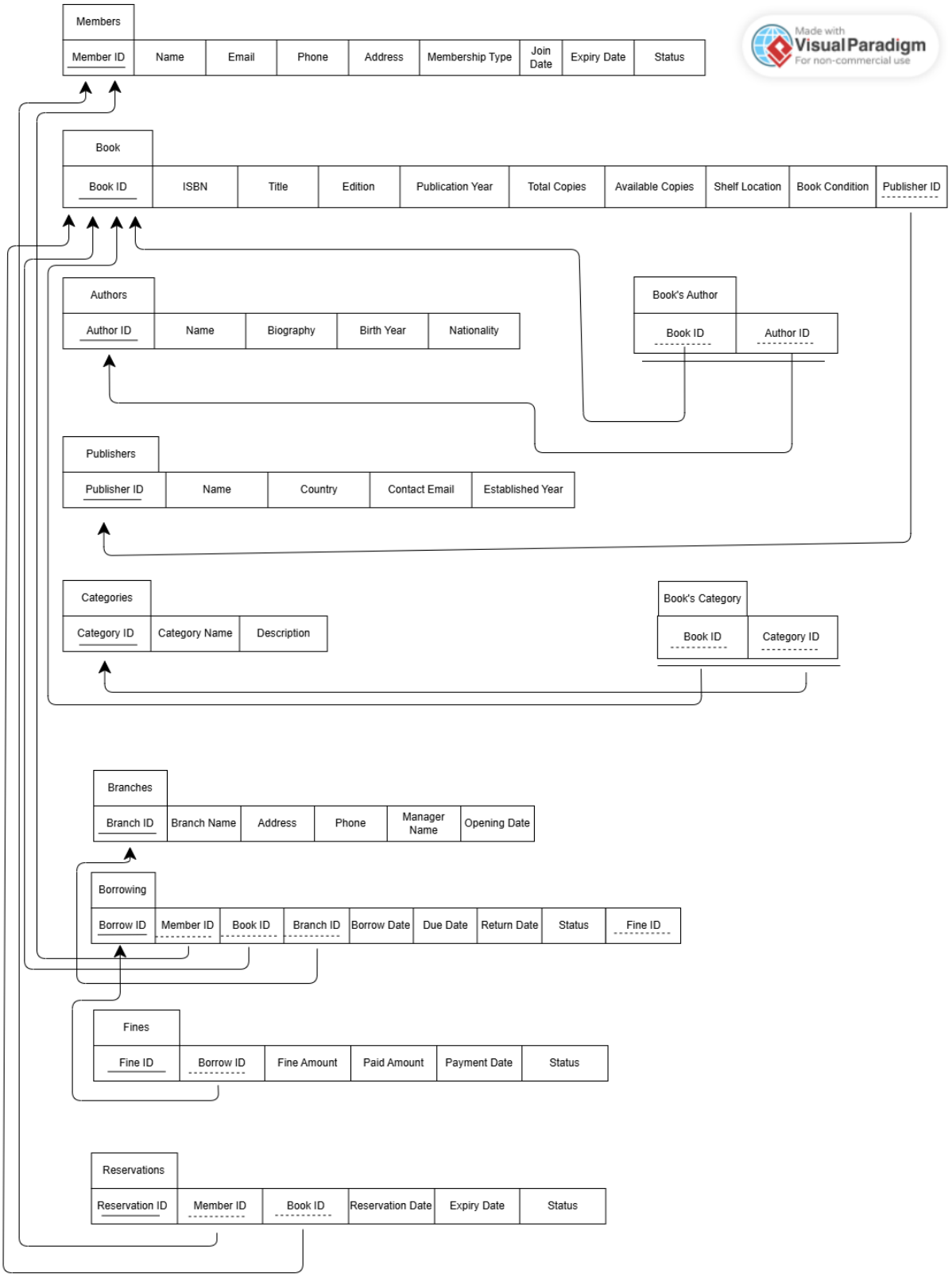
Task 1: ERD Design



Task 2: Normalization

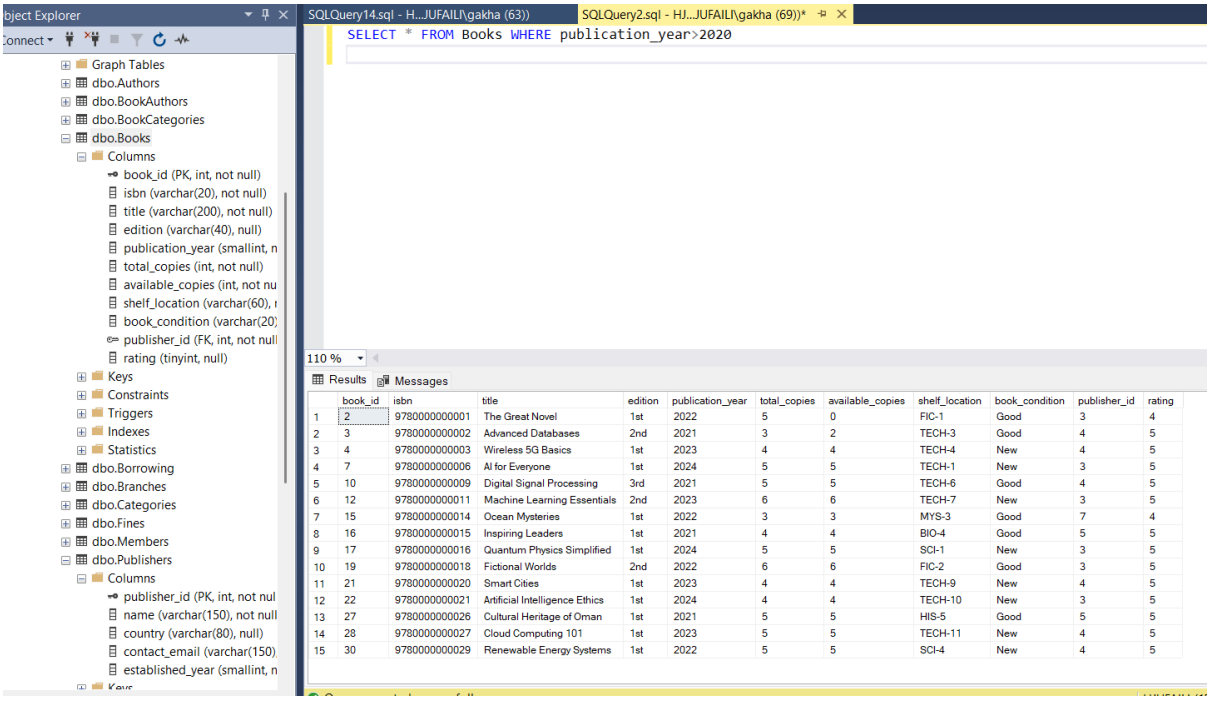
	Issues	Example
1NF	repeating values	author_names = "Alice Smith, Bob Jones" → two authors in one cell categories = "Fiction, Drama" → two genres in one cell
2NF	Partial dependency	member_name depends only on member_id
3NF	transitive dependencies	publisher_country depends on publisher_name, not on the table key.

Task 3: Database Mapping

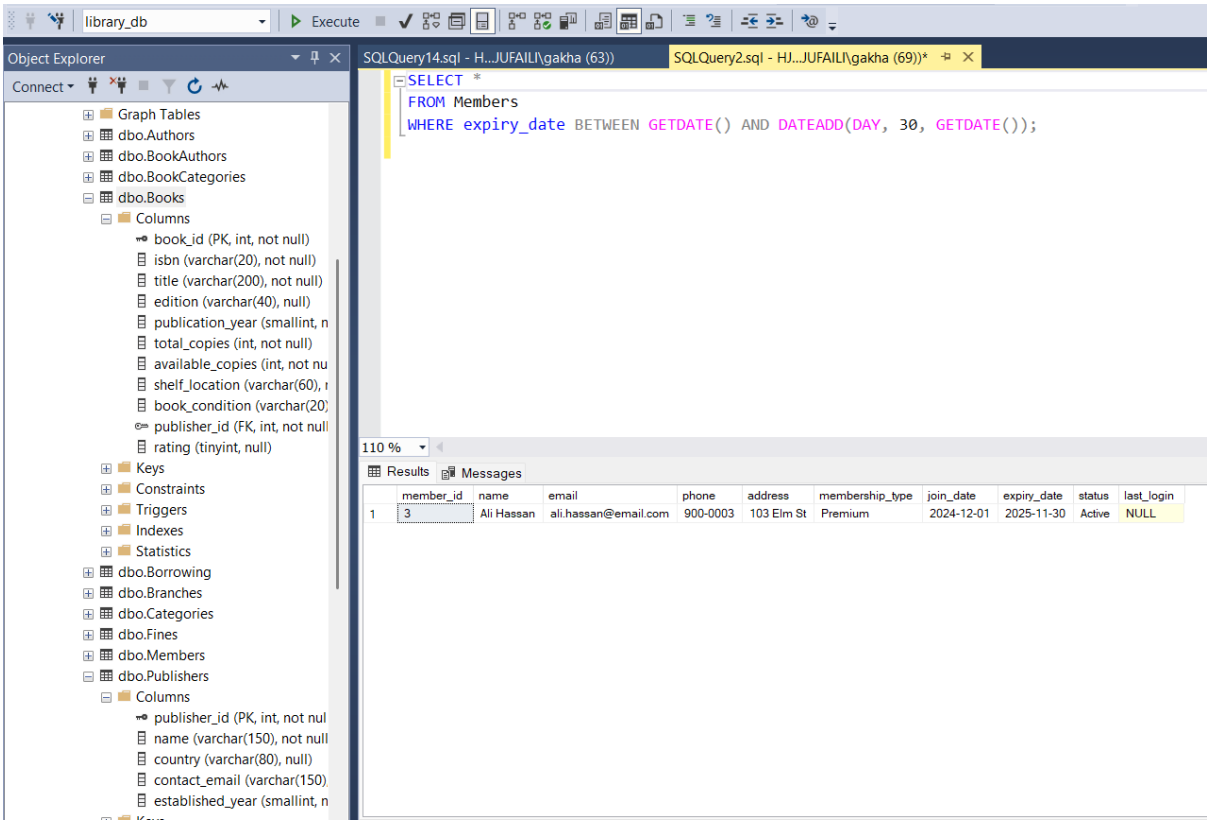


Task 6: SQL DQL - Basic Queries

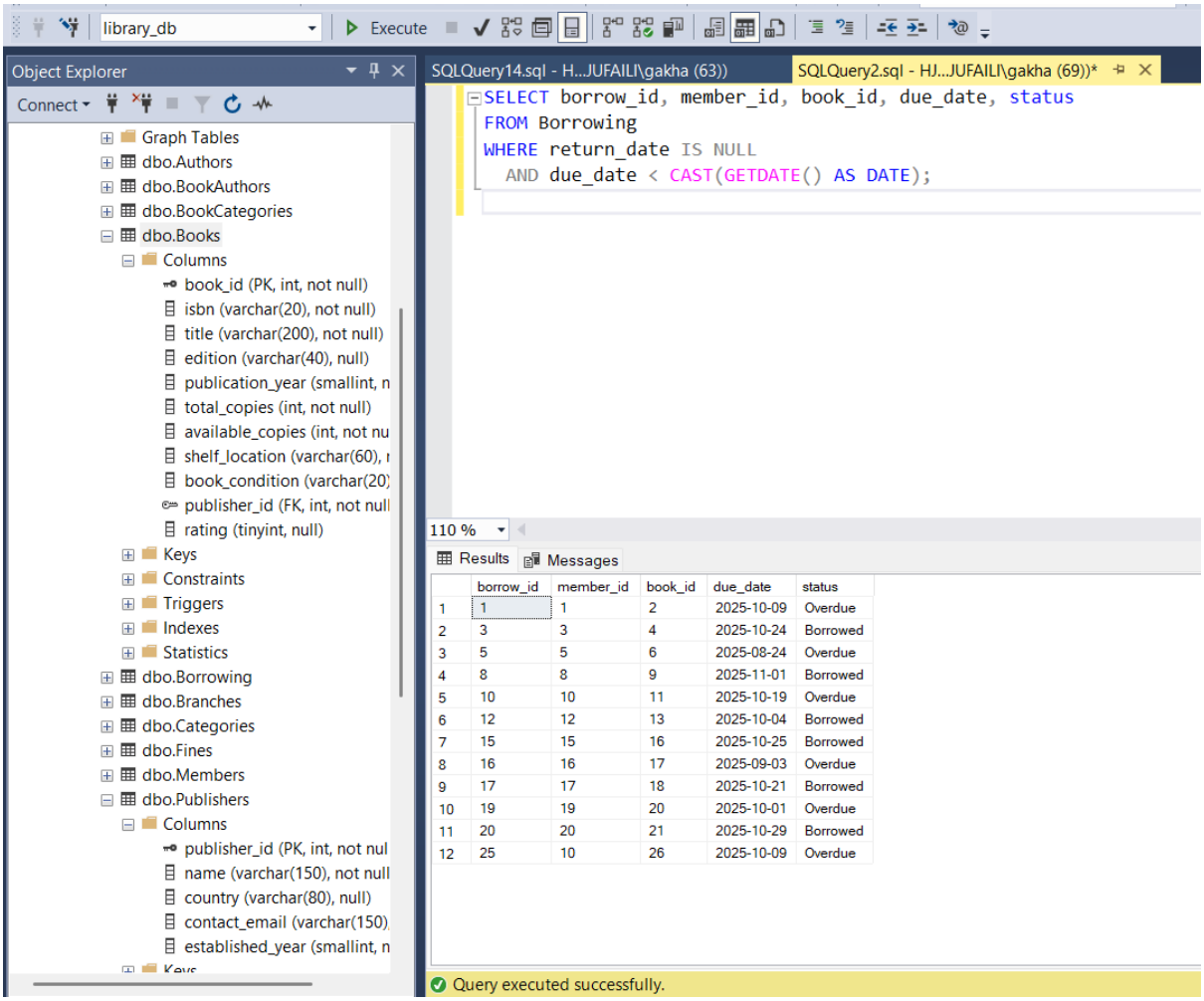
1. List all books published after 2020



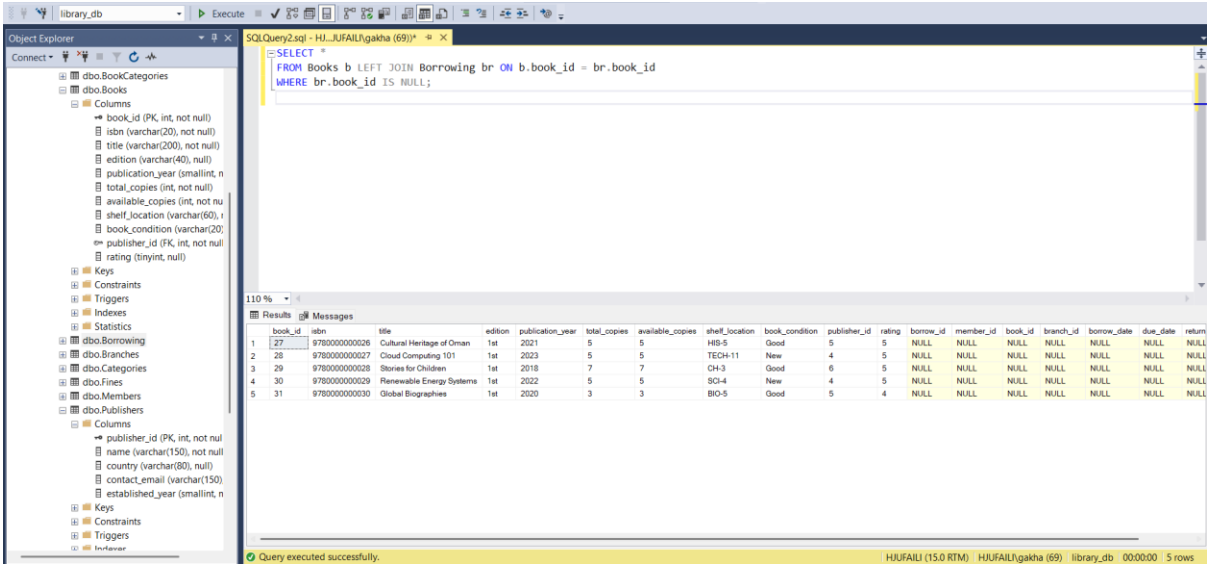
2. Find all members whose membership expires in the next 30 days



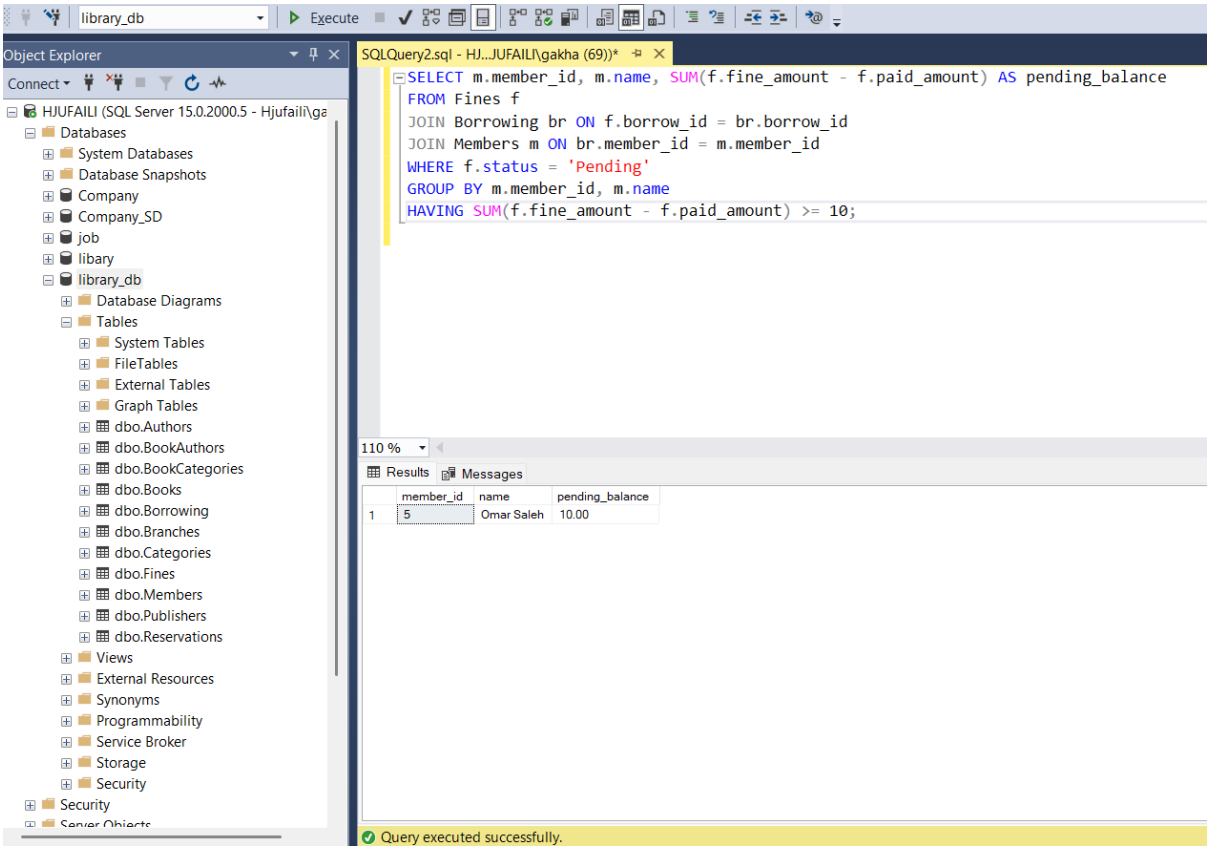
3. Show all overdue borrowings (return_date IS NULL AND due_date < CURDATE())



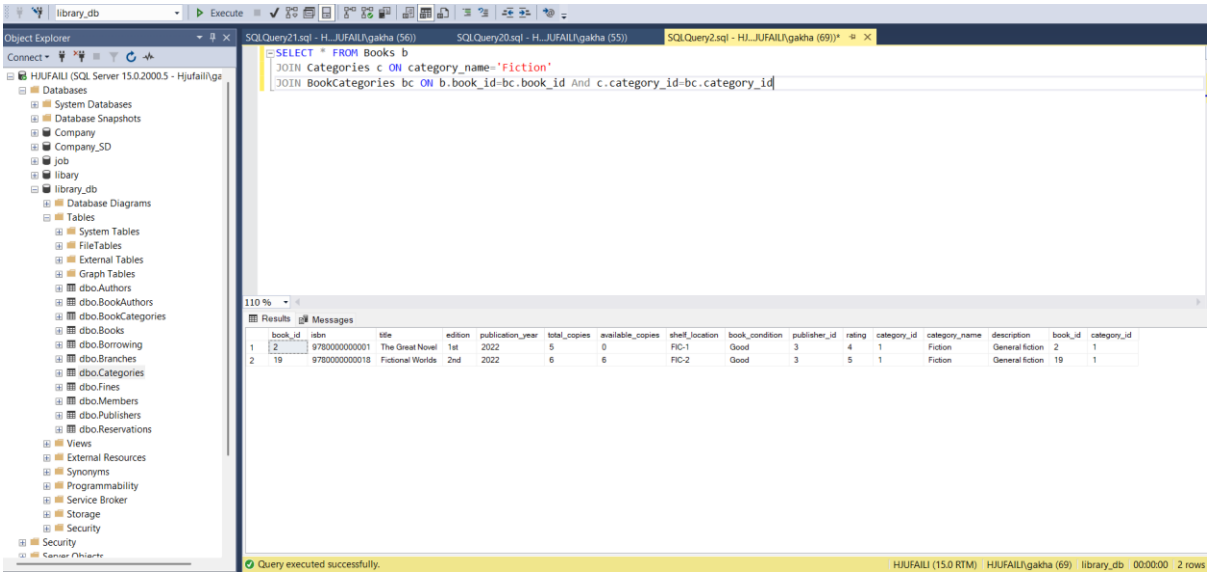
4. List books that have never been borrowed



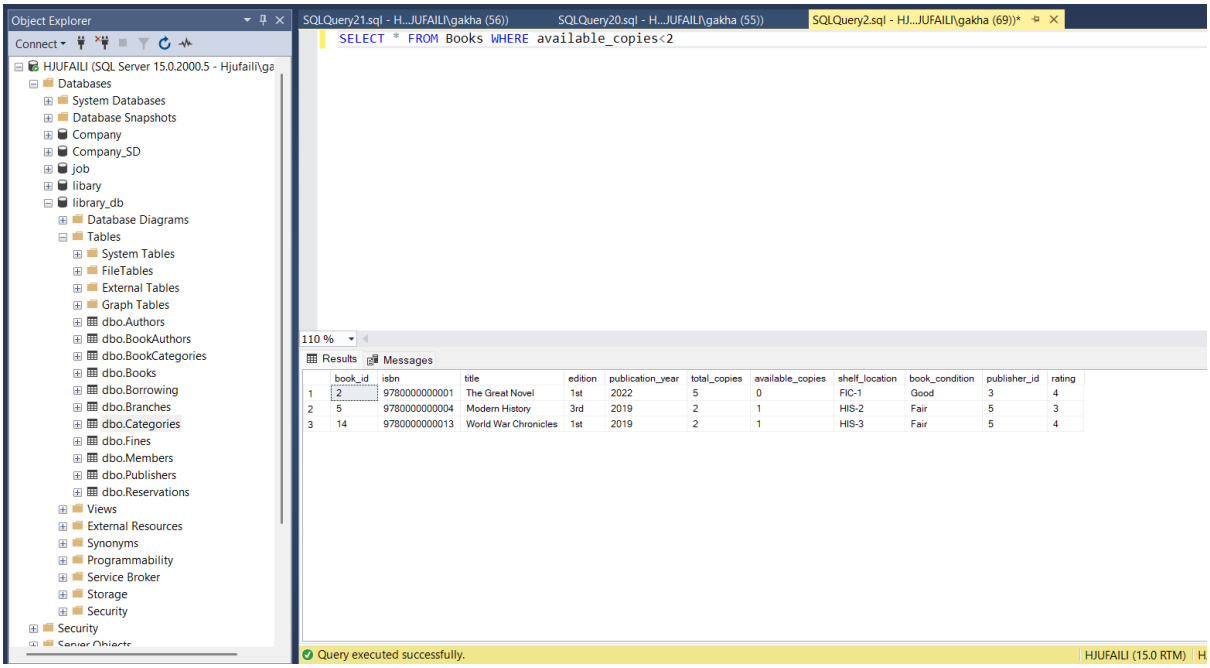
5. Find members with pending fines greater than $10



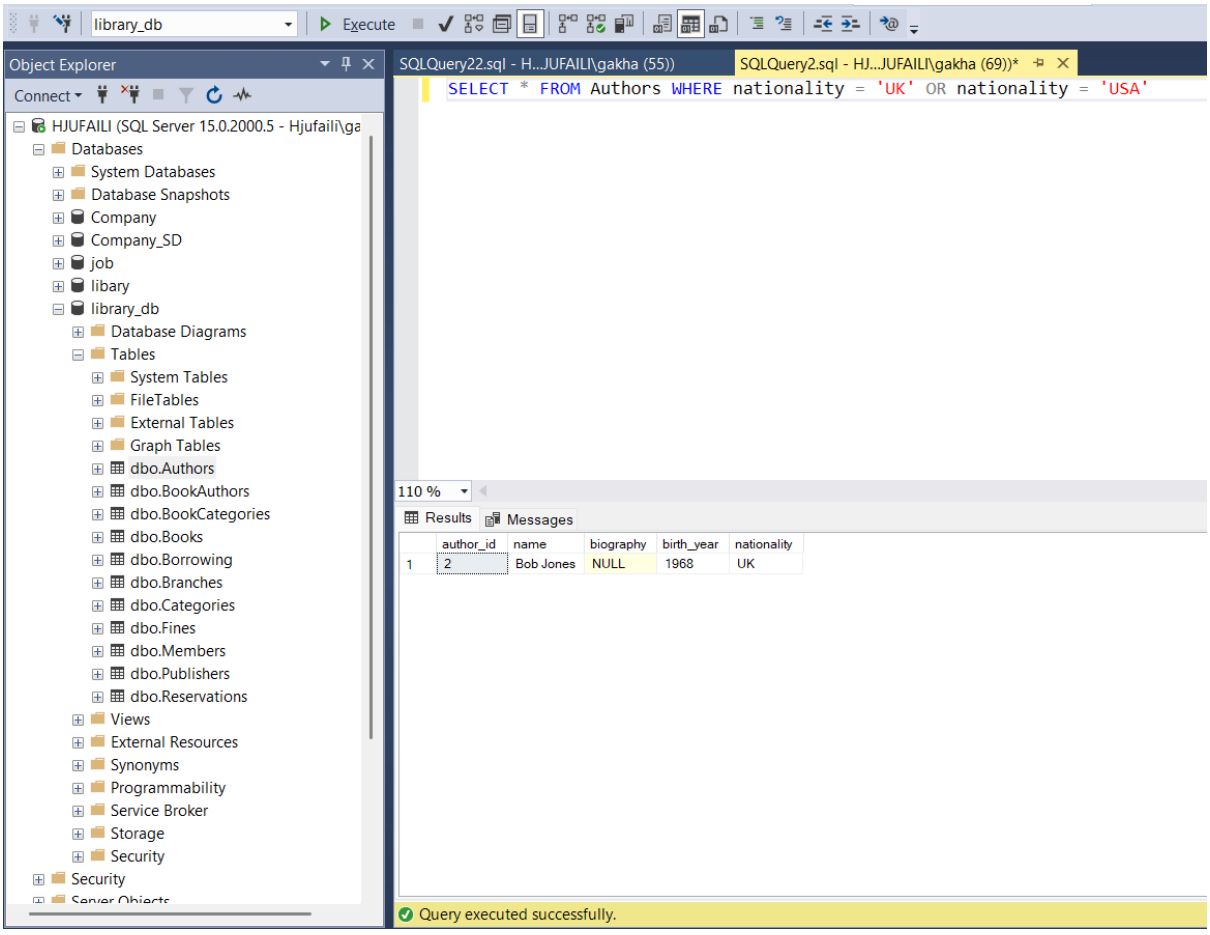
6. Show all books in 'Fiction' category



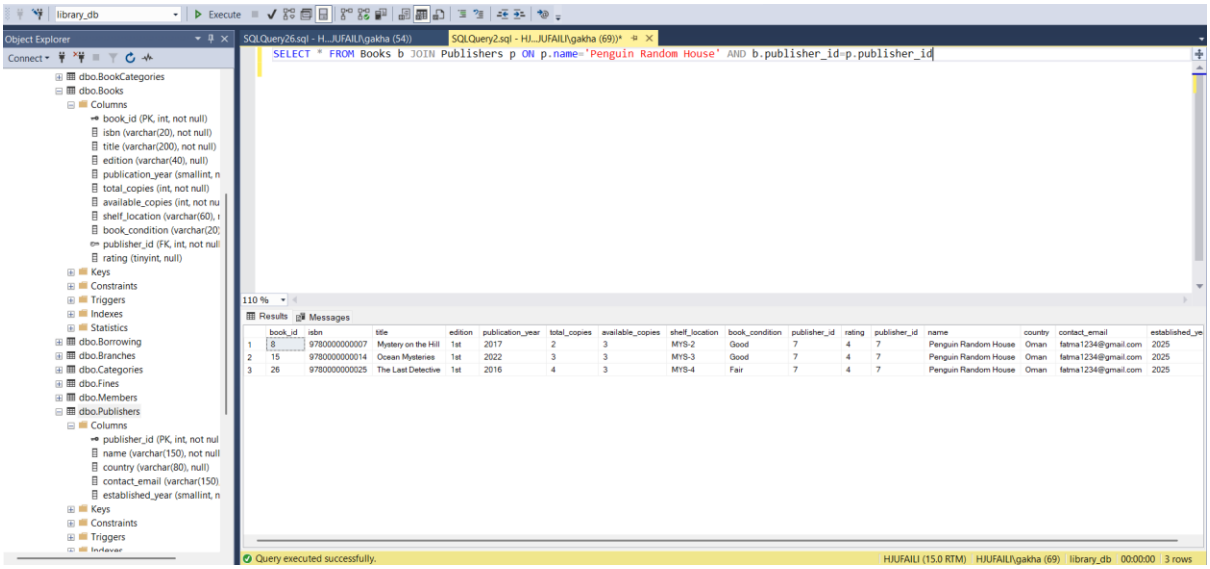
7. Display books with less than 2 available copies



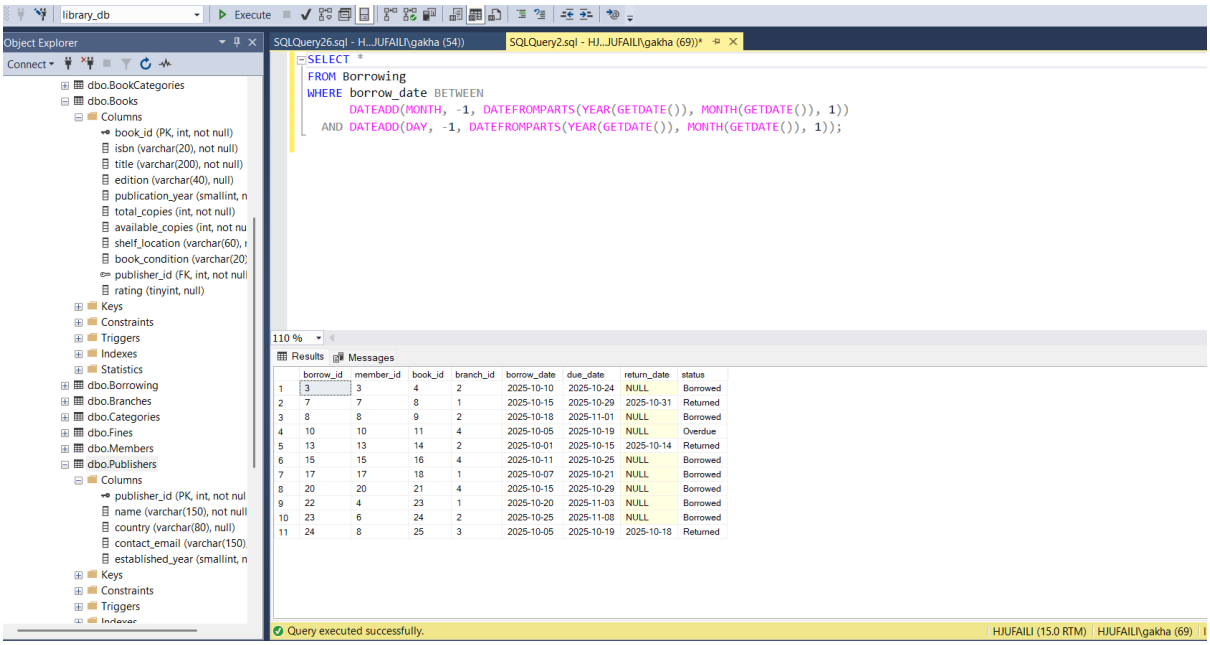
8. List all authors from 'USA' or 'UK'



9. Find books published by 'Penguin Random House'



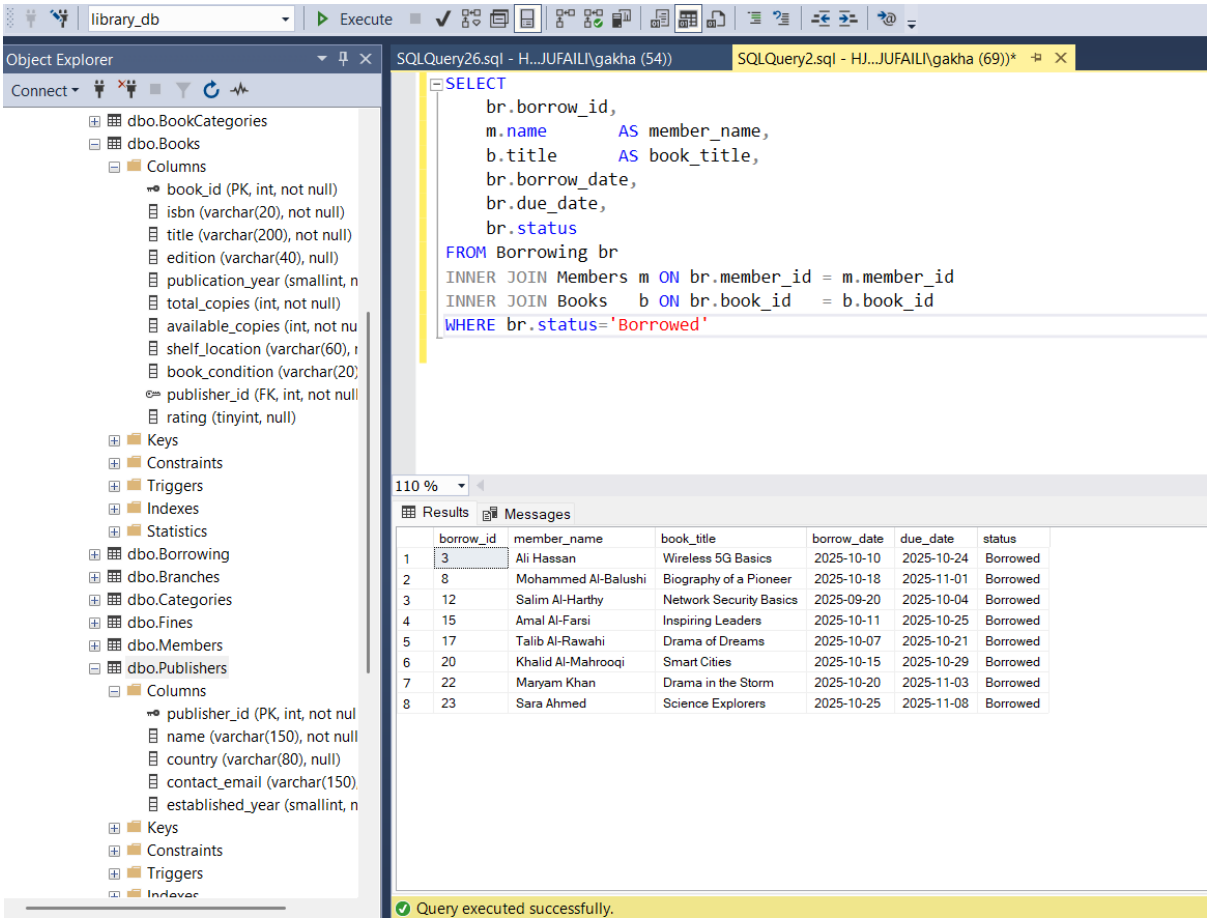
10. Show borrowings from last month using BETWEEN



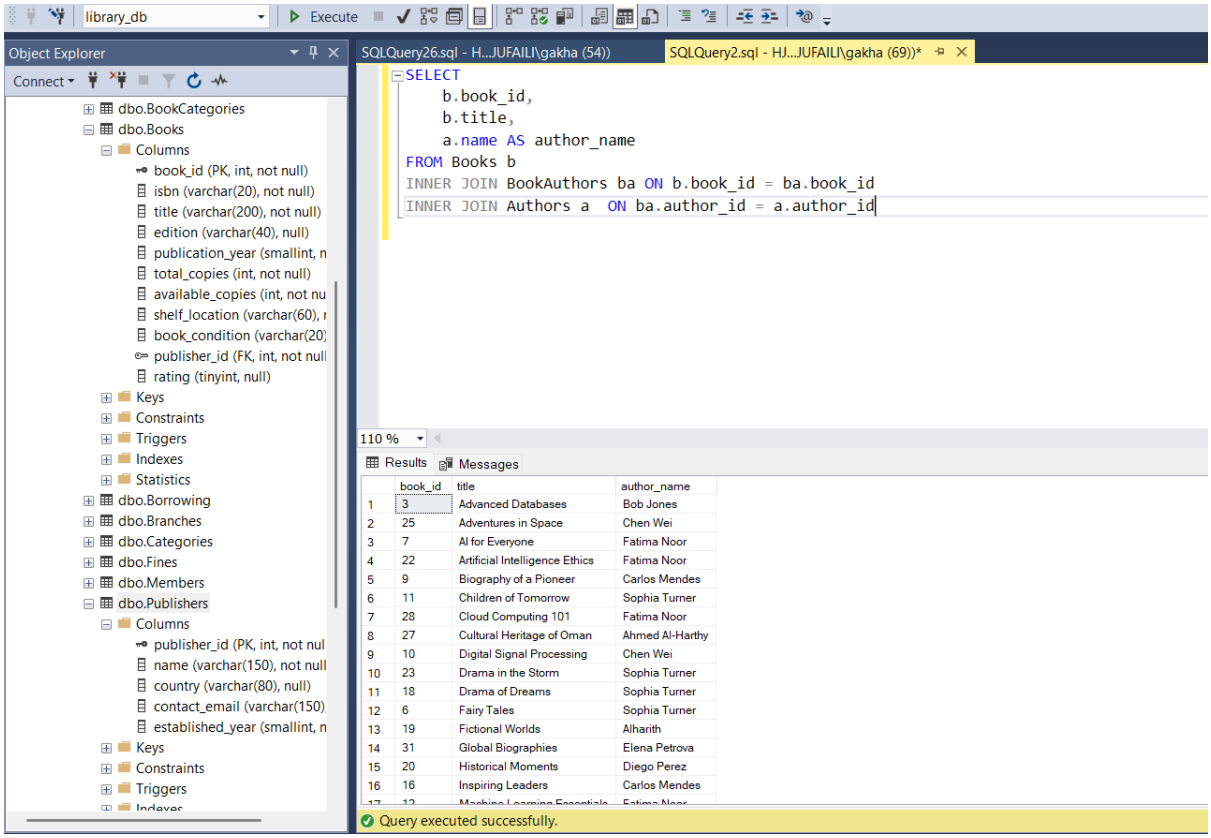
Task 7: SQL Joins

INNER JOIN:

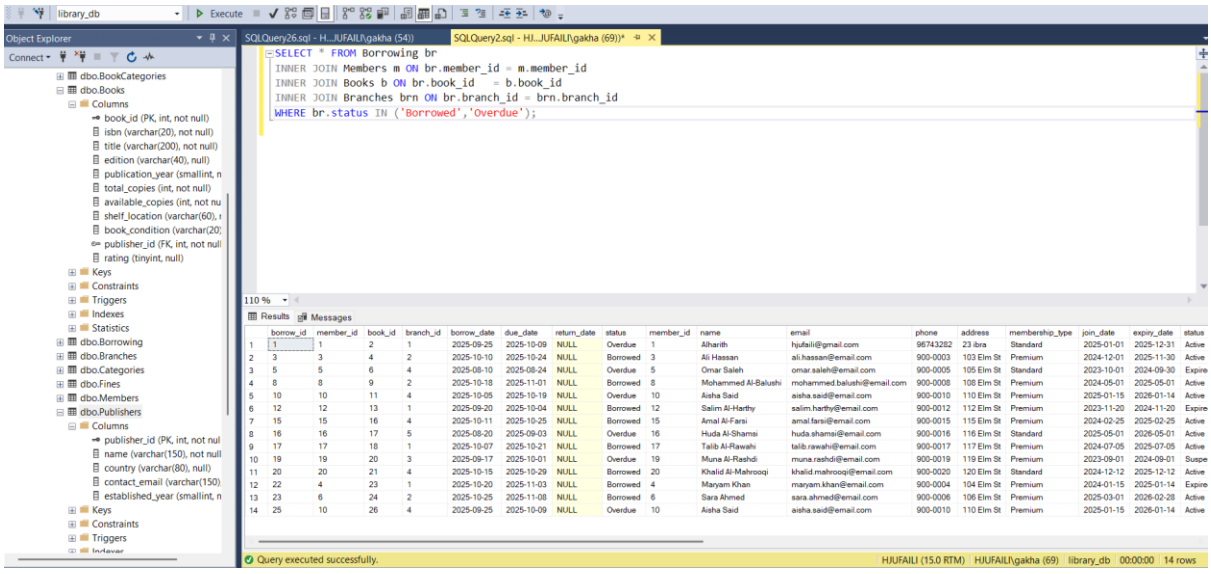
1. List all borrowed books with member names and book titles



2. Show all books with their author names (handle multiple authors)

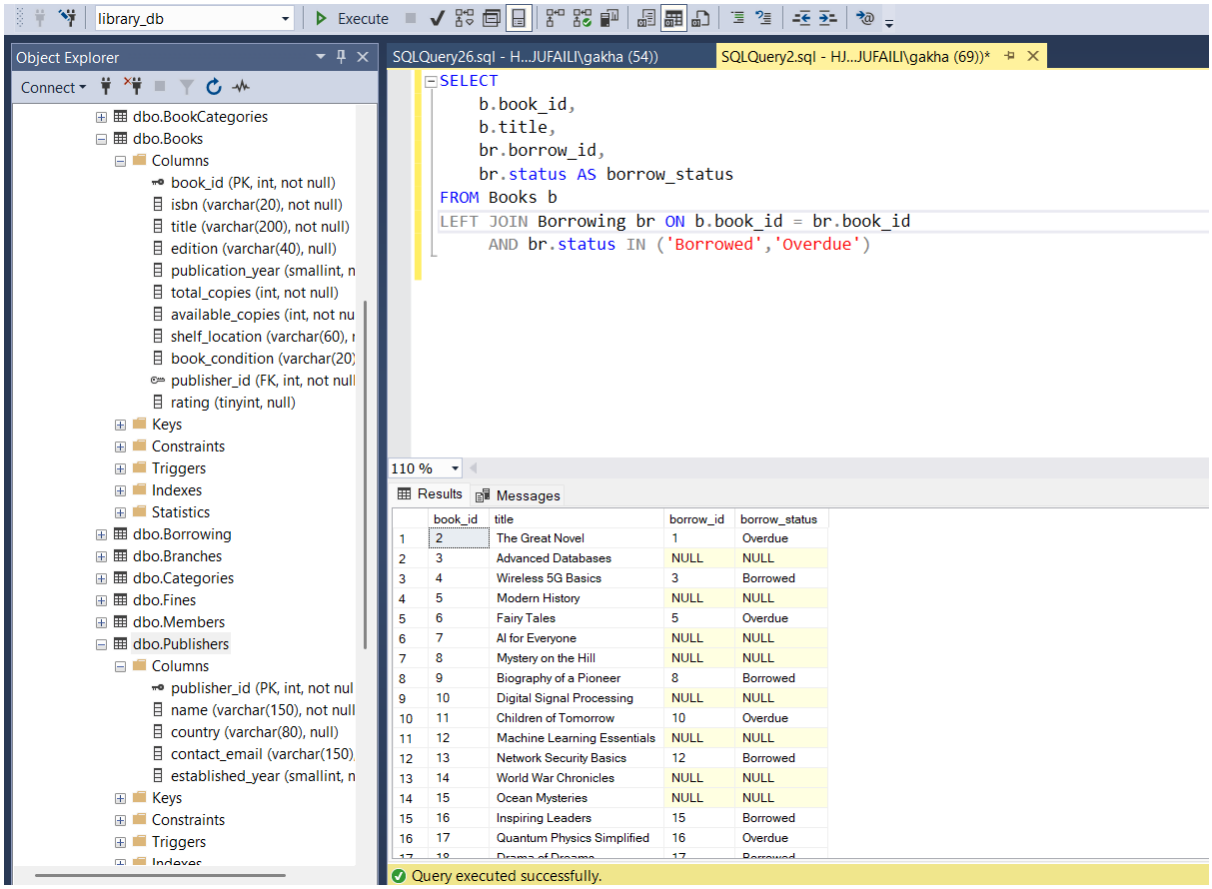


3. Display current borrowings with branch information

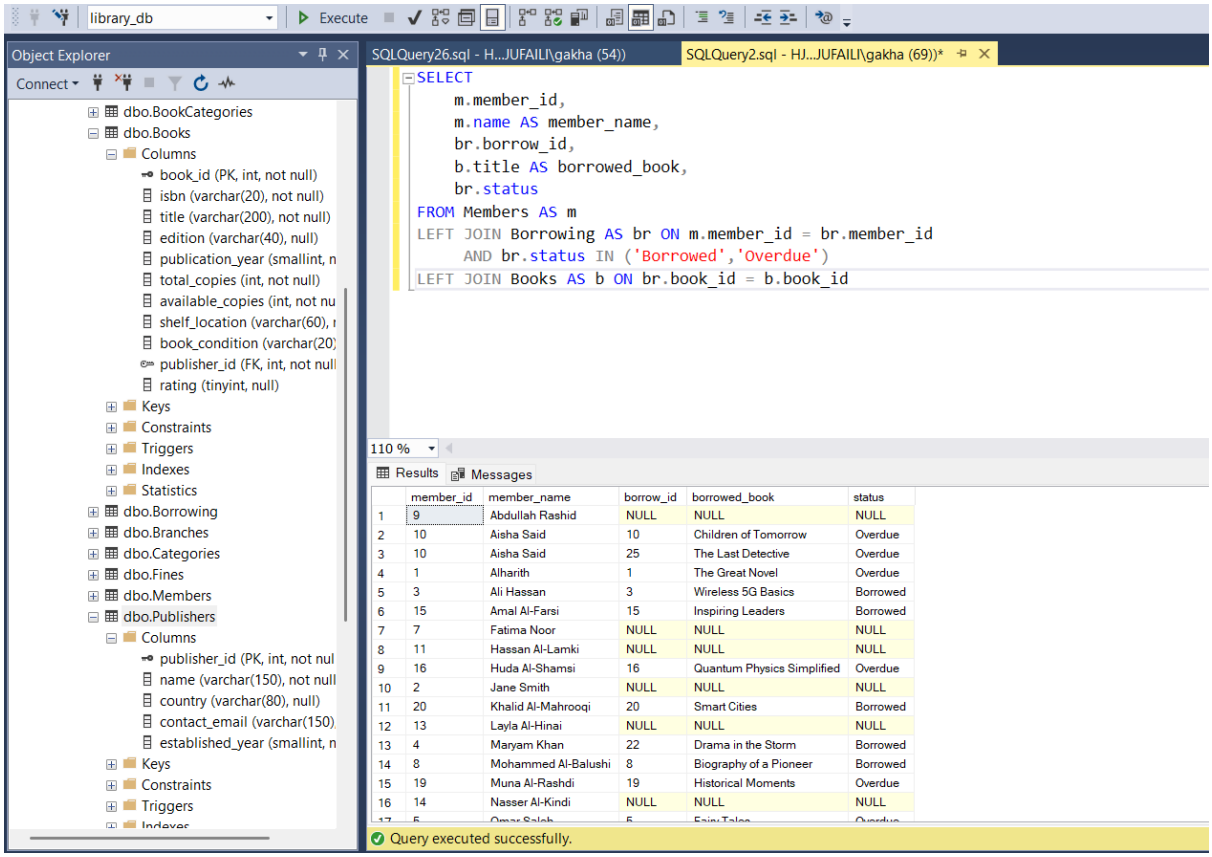


LEFT JOIN:

4. List ALL books and show if they're currently borrowed (include books not borrowed)



5. Show ALL members and their active borrowings (include members with no borrowings)



	member_id	member_name	borrow_id	borrowed_book	status
1	9	Abdullah Rashid	NULL	NULL	NULL
2	10	Aisha Said	10	Children of Tomorrow	Overdue
3	10	Aisha Said	25	The Last Detective	Overdue
4	1	Alharith	1	The Great Novel	Overdue
5	3	Ali Hassan	3	Wireless 5G Basics	Borrowed
6	15	Amal Al-Farsi	15	Inspiring Leaders	Borrowed
7	7	Fatima Noor	NULL	NULL	NULL
8	11	Hassan Al-Lamki	NULL	NULL	NULL
9	16	Huda Al-Shamsi	16	Quantum Physics Simplified	Overdue
10	2	Jane Smith	NULL	NULL	NULL
11	20	Khalid Al-Mahrooqi	20	Smart Cities	Borrowed
12	13	Layla Al-Hinai	NULL	NULL	NULL
13	4	Maryam Khan	22	Drama in the Storm	Borrowed
14	8	Mohammed Al-Balushi	8	Biography of a Pioneer	Borrowed
15	19	Muna Al-Rashdi	19	Historical Moments	Overdue
16	14	Nasser Al-Kindi	NULL	NULL	NULL

RIGHT JOIN / FULL OUTER JOIN (if supported):

6. Show all categories and count of books (include categories with no books)