Execution plans and your understanding (EXPLAIN output).

1) List all customers who have overdue books (assume overdue if ReturnDate is null and IssueDate is older than 30 days).

Query

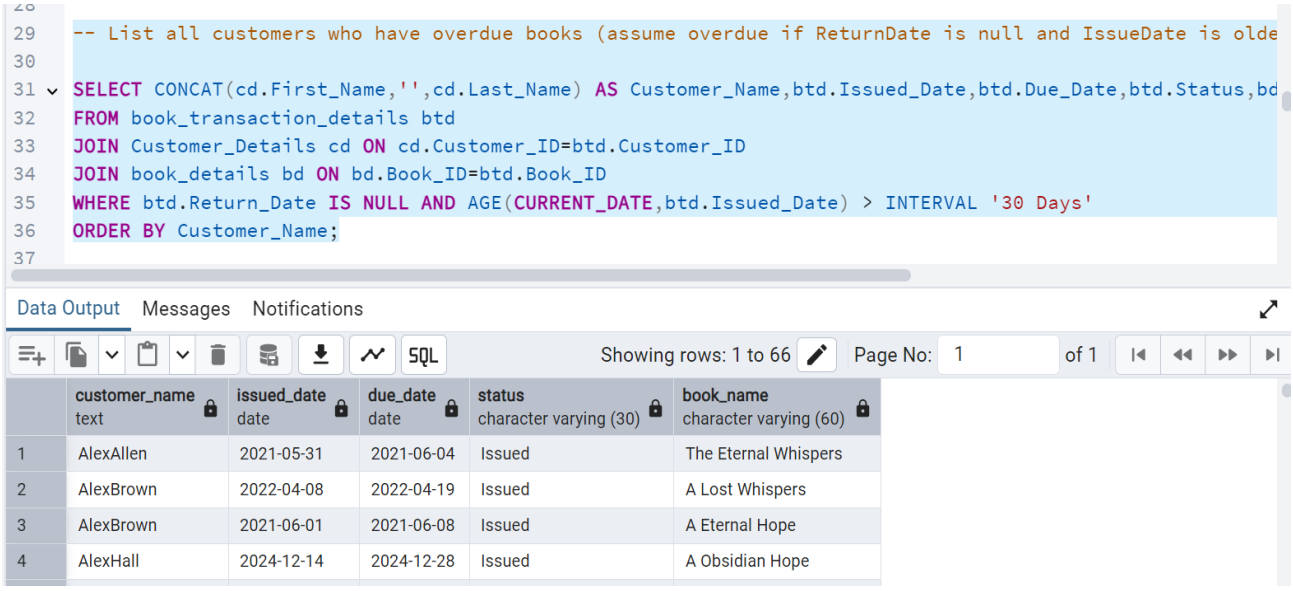
```
SELECT CONCAT(cd.First_Name,'',cd.Last_Name) AS Customer_Name, btd.Issued_Date,
btd.Due_Date,btd.Status,bd.Book_Name
FROM book_transaction_details btd
JOIN Customer_Details cd ON cd.Customer_ID=btd.Customer_ID
JOIN book_details bd ON bd.Book_ID=btd.Book_ID
WHERE btd.Return_Date IS NULL AND AGE(CURRENT_DATE,btd.Issued_Date) > INTERVAL '30
Days'
ORDER BY Customer_Name;
```

Execution plans and EXPLAIN output

The query looks for customers who haven't returned books and whose books were issued more than 30 days ago.
It first checks for matches between the customer and transaction tables using joins, then filters out customers with overdue books using where clause.

The output

Customer Names: All customer names retrieved for whoever the book is been issued and has overdue
Issued Date: The date when the books were issued to the customer.
Due Date: The date by when the books were supposed to be returned by the customer.
Status: Shows the Issued tag
Book Name: Shows all the books names that are overdue.



```
-- List all customers who have overdue books (assume overdue if ReturnDate is null and IssueDate is olde

SELECT CONCAT(cd.First_Name,'',cd.Last_Name) AS Customer_Name,btd.Issued_Date,btd.Due_Date,btd.Status,bd
FROM book_transaction_details btd
JOIN Customer_Details cd ON cd.Customer_ID=btd.Customer_ID
JOIN book_details bd ON bd.Book_ID=btd.Book_ID
WHERE btd.Return_Date IS NULL AND AGE(CURRENT_DATE,btd.Issued_Date) > INTERVAL '30 Days'
ORDER BY Customer_Name;
```

Data Output | Messages | Notifications

Showing rows: 1 to 66 | Page No: 1 of 1

	customer_name text	issued_date date	due_date date	status character varying (30)	book_name character varying (60)
1	AlexAllen	2021-05-31	2021-06-04	Issued	The Eternal Whispers
2	AlexBrown	2022-04-08	2022-04-19	Issued	A Lost Whispers
3	AlexBrown	2021-06-01	2021-06-08	Issued	A Eternal Hope
4	AlexHall	2024-12-14	2024-12-28	Issued	A Obsidian Hope

2) Find authors who have written more than 3 books.

Query

```
SELECT Count(DISTINCT bd.Book_ID) AS Book_Count,
CONCAT(ad.First_Name,'',ad.Last_Name) AS Author_Name, STRING_AGG(bd.Book_Name,
',') AS Book_Names
FROM Author_details ad
JOIN book_details bd ON ad.Book_ID = bd.Book_ID
GROUP BY ad.First_Name,ad.Last_Name
HAVING Count(DISTINCT bd.Book_ID) > 3
ORDER BY Author_Name;
```

Execution plans and EXPLAIN output

Joining authors and books combines data from the authors and the books they've written. Counting unique books counts how many distinct books each author has written and no duplicate.
Groups the data by the author's name, so we get one result per author. Using where clause, only the authors who have written more than 3 books.
Concatenating books name to create all the list of book names written by same author. Sort the authors alphabetically by their full name.

The output

Book_Count : Displays count of books written by the author that is more than 3 books.
Author_Name : Displays all the names of the author who has written more than one book.
Book_Names : Displays all the names of the book written by the authors.

```
38  -- Find authors who have written more than 3 books.
39
40  SELECT Count(DISTINCT bd.Book_ID) AS Book_Count, CONCAT(ad.First_Name,'',ad.Last_Name) AS Author_Name, S
41  FROM Author_details ad
42  JOIN book_details bd ON ad.Book_ID = bd.Book_ID
43  GROUP BY ad.First_Name,ad.Last_Name
44  HAVING Count(DISTINCT bd.Book_ID) > 3
45  ORDER BY Author_Name;
46
```

Data Output | Messages | Notifications

Showing rows: 1 to 33 | Page No: 1 of 1

	book_count bigint	author_name text	book_names text
1	6	DanielGarcia	A Wandering Dreams,A Broken Shadows,A Obsidian Memory,A Silent Time,The Broken Journey,The Obsidian Memory
2	6	DanielMartinez	The Eternal Memory,The Lost Soul,A Forgotten Hope,A Wandering Time,A Silent Silence,A Ancient Soul
3	5	DanielWilliams	The Ancient Shadows,A Silent Soul,The Hidden Journey,The Silent Shadows,The Eternal Dreams
4	4	DavidBrown	A Obsidian Fate,The Ancient Hope,A Hidden Hope,The Silent Hope