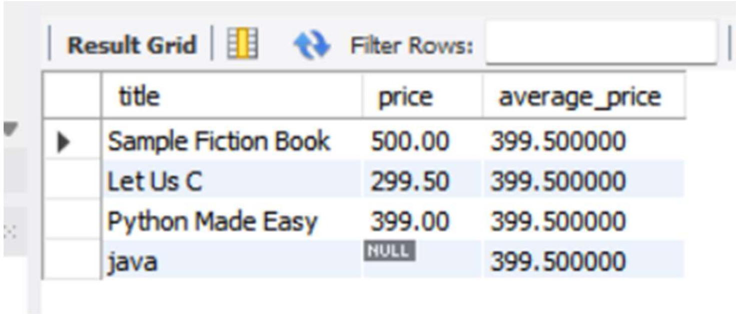
```sql
-- Task :Subqueries and Nested Queries


-- Database
USE library_management_system;


-- 1. Scalar Subquery – Show each book with average price for comparison
SELECT title, price,
       (SELECT AVG(price) FROM Books) AS average_price
FROM Books;
```

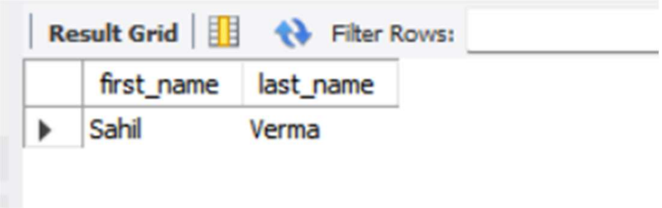
Output:-



	title	price	average_price
▶	Sample Fiction Book	500.00	399.500000
	Let Us C	299.50	399.500000
	Python Made Easy	399.00	399.500000
	java	NULL	399.500000

```sql
-- insert  sample data in books and issue table
INSERT INTO Books (isbn, title, category, price) VALUES ('FIC123', 'Sample Fiction Book', 'Fiction', 500);
INSERT INTO Issue (issue_id, reader_id, isbn, issue_date) VALUES (101, 1, 'FIC123', CURDATE());


-- 2. Subquery with IN – Readers who issued books in the 'Fiction' category
SELECT first_name, last_name
FROM Readers
WHERE reader_id IN (
   SELECT reader_id
   FROM Issue
   WHERE isbn IN (
        SELECT isbn FROM Books WHERE category = 'Fiction'
    )
);
```

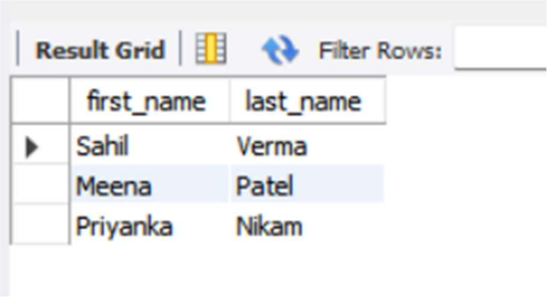
Output:-



first_name	last_name
Sahil	Verma

```
-- 3. Subquery with EXISTS – Readers who have issued at least one book
SELECT first_name, last_name
FROM Readers r
WHERE EXISTS (
    SELECT 1
    FROM Issue i
    WHERE i.reader_id = r.reader_id
);
```

Output:-

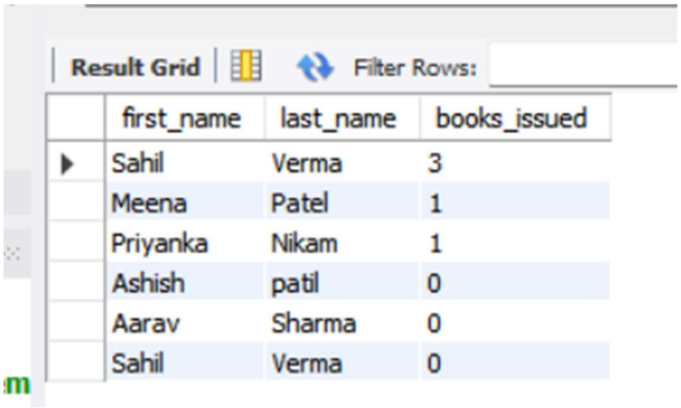


first_name	last_name
Sahil	Verma
Meena	Patel
Priyanka	Nikam

```
-- 4. Correlated Subquery – Show each reader and how many books they issued
SELECT r.first_name, r.last_name,
       (SELECT COUNT(*)
        FROM Issue i
        WHERE i.reader_id = r.reader_id) AS books_issued
```

```
FROM Readers r;
```

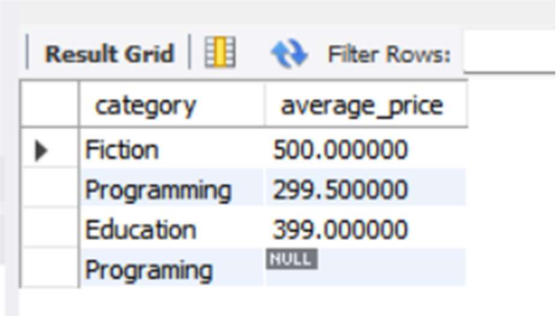
Output:-



first_name	last_name	books_issued
Sahil	Verma	3
Meena	Patel	1
Priyanka	Nikam	1
Ashish	patil	0
Aarav	Sharma	0
Sahil	Verma	0

```
-- 5. Subquery in FROM (Derived Table) – Categories and their average price

SELECT category, average_price

FROM (

    SELECT category, AVG(price) AS average_price

    FROM Books

    GROUP BY category

) AS category_avg;
```

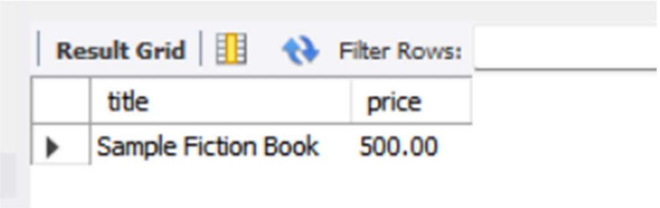
Output:-



category	average_price
Fiction	500.000000
Programming	299.500000
Education	399.000000
Programing	NULL

```
-- 6. Subquery with = – Find the most expensive book

SELECT title, price

FROM Books

WHERE price = (SELECT MAX(price) FROM Books);
```

Output:-



title	price
Sample Fiction Book	500.00