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ADT23SOCB1509

Assignment-7

**Implementation of SQL Subqueries, Nested Queries, and Views**

In SQL, **subqueries and nested queries** help in retrieving data using one query inside another. **Views** provide a virtual table based on the result of a query.

**1) Subqueries in SQL**

A **subquery** (inner query) is a query inside another SQL statement.

**Example: Find books published after the oldest book in the database**

SELECT Title, Year\_Published

FROM Book

WHERE Year\_Published > (SELECT MIN(Year\_Published) FROM Book);

📌 **Explanation:**

* The **inner query** (SELECT MIN(Year\_Published) FROM Book) gets the **oldest book year**.
* The **outer query** retrieves books **published after** that year.

**2) Nested Queries in SQL**

A **nested query** is a subquery inside another query, often in SELECT, FROM, or WHERE clauses.

**Example: Find members who have borrowed books**

SELECT Name

FROM Member

WHERE Member\_ID IN (SELECT Member\_ID FROM Transaction);

📌 **Explanation:**

* The **inner query** retrieves Member\_IDs from the Transaction table.
* The **outer query** fetches the names of members who have borrowed books.

**3) Views in SQL**

A **view** is a virtual table that stores a query result and can be used like a table.

**Example: Creating a View for Available Books**

CREATE VIEW Available\_Books AS

SELECT Book\_ID, Title, Author, Year\_Published

FROM Book

WHERE Book\_ID NOT IN (SELECT Book\_ID FROM Transaction WHERE Return\_Date IS NULL);

📌 **Explanation:**

* The **view** Available\_Books stores books that are **not currently borrowed**.
* This helps in **quick access** without writing the full query every time.

**Example: Using a View**

SELECT \* FROM Available\_Books;

📌 **Retrieves the list of available books**.

**Summary:**

|  |  |  |
| --- | --- | --- |
| **Feature** | **Example** | **Purpose** |
| Subquery | WHERE Year\_Published > (SELECT MIN(Year\_Published) FROM Book) | Fetches records using another query inside |
| Nested Query | WHERE Member\_ID IN (SELECT Member\_ID FROM Transaction) | |  | | --- | |  |  |  | | --- | | Filters data using a subquery | |
| View | CREATE VIEW Available\_Books AS ... | Creates a virtual table for easy access |