**Practice Queries on JOINS,Views,Sub-Queries, Indexes**

**JOINS**

1. **Given two tables, employees and departments, and a query to retrieve employee names along with their department names, what would be the output of the following SQL query?**

Expected Output: A list of employee names and their corresponding department names.

1. **Assuming you have two tables, orders and customers, and a query to find the total number of orders placed by each customer. What would be the output of the following SQL query?**

Expected Output: A list of customer names and the total number of orders placed by each customer.

1. **Given three tables, students, courses, and enrollments, and a query to retrieve the names of students who are enrolled in the course "Mathematics." What would be the output of the following SQL query?**

Expected Output: A list of student names who are enrolled in the "Mathematics" course.

1. **Assuming you have two tables, employees and managers, and a query to find the names of employees who do not have a manager. What would be the output of the following SQL query?**

Expected Output: A list of employee names who do not have a manager.

1. **Given two tables, orders and order\_items, and a query to retrieve the total cost of each order by summing the costs of its items. What would be the output of the following SQL query?**

Expected Output: A list of order IDs and the total cost of each order.

1. **Assuming you have two tables, students and grades, and a query to find the average grade for each student. What would be the output of the following SQL query?**

Expected Output: A list of student names and their average grades.

**Views**

1. **Given the following view definition, what would be the result of querying it?**

Expected Output: A list of emp\_id and emp\_name for all employees with 'Active' status.

1. **Assuming you have a view named order\_summary\_view, what SQL query would you use to retrieve the total number of orders from this view?**

Expected Output: The total number of orders as a single numeric value.

1. **Given a view product\_prices that displays product names and their prices, write a query to find the highest-priced product from this view.**

Expected Output: The highest-priced product.

1. **You have a view customer\_orders that lists customer names and their respective order quantities. Write a query to find the customer(s) with the highest total order quantity from this view.**

Expected Output: The customer with the highest total order quantity.

1. **Assuming you have a view named product\_inventory, write a query to calculate the average quantity of products in stock.**
2. **You have a view employee\_salaries that displays employee names and their respective salaries. Write a query to find the employee(s) with the lowest salary from this view.**
3. **Given a view product\_categories that lists product names and their corresponding categories, write a query to count the number of products in each category.**

Expected Output: A list of categories and the number of products in each category.

**Sub Query:**

1. **Given two tables, students and exam\_scores, and a query to find the highest score in the "Math" exam. What would be the output of the following SQL query that uses a subquery?**

Expected Output: The highest score in the "Math" exam.

1. **Assuming you have three tables, employees, departments, and salaries, and a query to retrieve the names of employees who earn more than the average salary in their respective departments. What would be the output of the following SQL query that uses a subquery?**

Expected Output: A list of employee names who earn more than the average salary in their departments.

1. **Given a table named orders and a query to find the order IDs of orders that have at least three items. What would be the output of the following SQL query that uses a subquery?**

Expected Output: A list of order IDs for orders with at least three items.

1. **Assuming you have two tables, students and enrollments, and a query to find the names of students who are enrolled in all available courses. What would be the output of the following SQL query that uses a subquery?**

Expected Output: A list of student names who are enrolled in all available courses.

1. **Given a table named employees and a query to find the names of employees who have the same manager as employee "John." What would be the output of the following SQL query that uses a subquery?**

Expected Output: A list of employee names who have the same manager as employee "John."

1. **Assuming you have two tables, products and sales, and a query to find the total sales for each product. What would be the output of the following SQL query that uses a subquery?**

Expected Output: A list of product names and their total sales.

**Indexes:**

1. Given a table named employees with millions of records and an index on the employee\_id column. If you execute a query to retrieve the employee details for employee\_id = 1001, what will be the output, and why is indexing important in this scenario?

Expected Output: The details of the employee with employee\_id = 1001.

Explanation: Indexing on the employee\_id column allows for efficient retrieval of specific records, reducing the need for a full table scan.

1. Assuming you have a table named products and a query to find the product with the highest price. If there is an index on the price column, what will be the output, and how does indexing improve query performance?

Expected Output: The product with the highest price.

Explanation: Indexing on the price column allows the database to quickly locate and retrieve the record with the highest price, reducing the time complexity of the query.

1. Given a table named orders and a query to count the total number of orders placed on a specific date. If there is an index on the order\_date column, what will be the output, and how does indexing assist in this query?

Expected Output: The total number of orders placed on the specified date.

Explanation: Indexing on the order\_date column speeds up the retrieval of orders for the specific date, making the count operation more efficient.

1. Assuming you have a table named customers and a query to find the names of customers whose last names start with "Smith." If there is an index on the last\_name column, what will be the output, and why is indexing beneficial in this case?

Expected Output: The names of customers with last names starting with "Smith."

Explanation: Indexing on the last\_name column allows the database to quickly identify and retrieve customers with the specified last name prefix, improving query performance.

1. Given a table named log\_entries containing log data with a timestamp, and a query to retrieve log entries within a specific time range. If there is an index on the timestamp column, what will be the output, and how does indexing help in this query?

Expected Output: Log entries within the specified time range.

Explanation: Indexing on the timestamp column accelerates the retrieval of log entries within the defined time frame, enhancing query efficiency.

1. Assuming you have a table named products and a query to find products with a rating above 4.5. If there is an index on the rating column, what will be the output, and why is indexing valuable in this scenario?

Expected Output: Products with a rating above 4.5.

Explanation: Indexing on the rating column allows for rapid identification and retrieval of products that meet the specified rating criteria, optimizing query performance.