**4Practical Questions and Answers**

**1. Retrieve all employees' names and salaries, sorted by salary in descending order.**

**Query:**

SELECT name, salary

FROM employees

ORDER BY salary DESC;

**2. Find the total sales and average sales for each employee, but only include employees with total sales greater than $1000.**

**Query:**

SELECT employee\_id,

SUM(sale\_amount) AS Total\_Sales,

AVG(sale\_amount) AS Average\_Sale

FROM sales

GROUP BY employee\_id

HAVING SUM(sale\_amount) > 1000;

**3. List employees hired between '2021-01-01' and '2022-01-01'.**

**Query:**

SELECT name, hire\_date

FROM employees

WHERE hire\_date BETWEEN '2021-01-01' AND '2022-01-01';

**4. Retrieve employees whose names start with 'A'.**

**Query:**

SELECT name

FROM employees

WHERE name LIKE 'A%';

**5. Find the maximum salary in each department.**

**Query:**

SELECT department\_id,

MAX(salary) AS Max\_Salary

FROM employees

GROUP BY department\_id;

**6. List employees who do not work in department 3.**

**Query:**

SELECT name

FROM employees

WHERE department\_id <> 3;

**7. Count the number of employees in each department.**

**Query:**

SELECT department\_id,

COUNT(\*) AS Number\_Of\_Employees

FROM employees

GROUP BY department\_id;

**8. Retrieve employees whose salaries are between $50,000 and $75,000.**

**Query:**

SELECT name, salary

FROM employees

WHERE salary BETWEEN 50000 AND 75000;

**9. List the first three characters of each employee's name.**

**Query:**

SELECT name,

LEFT(name, 3) AS Short\_Name

FROM employees;

**10. Retrieve the current date and time.**

**Query:**

SELECT NOW() AS Current\_DateTime;

**11. Find employees whose names contain the substring 'ohn'.**

**Query:**

SELECT name

FROM employees

WHERE name LIKE '%ohn%';

**12. List all employees' names in uppercase.**

**Query:**

SELECT UPPER(name) AS Uppercase\_Name

FROM employees;

**13. Retrieve employees whose salaries are not between $40,000 and $60,000.**

**Query:**

SELECT name, salary

FROM employees

WHERE salary NOT BETWEEN 40000 AND 60000;

**14. Count the total number of sales made by each employee.**

**Query:**

SELECT employee\_id,

COUNT(\*) AS Number\_Of\_Sales

FROM sales

GROUP BY employee\_id;

**15. List employees' names and the year they were hired.**

**Query:**

SELECT name,

YEAR(hire\_date) AS Hire\_Year

FROM employees;

**16. Find employees whose names do not contain the letter 'e'.**

**Query:**

SELECT name

FROM employees

WHERE name NOT LIKE '%e%';

**17. Retrieve employees' names and their salaries rounded to the nearest thousand.**

**Query:**

SELECT name,

ROUND(salary, -3) AS Rounded\_Salary

FROM employees;

**18. List the departments with more than one employee.**

**Query:**

SELECT department\_id,

COUNT(\*) AS Number\_Of\_Employees

FROM employees

GROUP BY department\_id

HAVING COUNT(\*) > 1;

**19. Find the employees with names that end with 'n'.**

**Query:**

SELECT name

FROM employees

WHERE name LIKE '%n';

**20. List employees' names and their hire dates in 'DD/MM/YYYY' format.**

**Query:**

SELECT name,

DATE\_FORMAT(hire\_date, '%d/%m/%Y') AS Hire\_Date

FROM employees;

**21. Retrieve employees' names and their salaries with a 10% increase.**

**Query:**

SELECT name,

salary,

salary \* 1.10 AS Increased\_Salary

FROM employees;

**22. Find the minimum and maximum hire dates from the employees table.**

**Query:**

SELECT MIN(hire\_date) AS Earliest\_Hire\_Date,

MAX(hire\_date) AS Latest\_Hire\_Date

FROM employees;

**23. Retrieve employees hired on '2022-03-22'.**

**Query:**

SELECT name,

hire\_date

FROM employees

WHERE hire\_date = '2022-03-22';

**24. Find employees whose names have exactly 5 characters.**

**Query:**

SELECT name

FROM employees

WHERE CHAR\_LENGTH(name) = 5;

**25. Find employees hired before 2020 and earning more than $50,000.**

**Query:**

SELECT name,

hire\_date,

salary

FROM employees

WHERE hire\_date < '2020-01-01'

AND salary > 50000;

**26. Write a query to find the employees who have the second highest salary in each department using the RANK() analytical function in MySQL. ( Analyze this Query and Try to Understand )**

**Given the table employee\_data with columns:**

* **employeeid**
* **firstname**
* **department**
* **salary**

### Query:

SELECT

employeeid,

firstname,

department,

salary,

salary\_rank

FROM (

SELECT

employeeid,

firstname,

department,

salary,

RANK() OVER (PARTITION BY department ORDER BY salary DESC) AS salary\_rank

FROM

employee\_data

) AS ranked\_employees

WHERE

Department =’IT’ and salary\_rank = 2;

#### Convert Hire Date to String

**Query:**

SELECT

employee\_id,

name,

hire\_date,

DATE\_FORMAT(hire\_date, '%Y-%m-%d') AS hire\_date\_str

FROM

employees;

#### 2. Convert Salary to Integer

**Query:**

SELECT

employee\_id,

name,

salary,

CAST(salary AS UNSIGNED) AS salary\_int

FROM

employees;

#### 3. Convert Hire Date to Timestamp

**Query:**

SELECT

employee\_id,

name,

hire\_date,

UNIX\_TIMESTAMP(hire\_date) AS hire\_date\_timestamp

FROM

employees;

#### 4. Convert String to Date

**Query:**

SELECT

employee\_id,

name,

hire\_date,

STR\_TO\_DATE('2023-07-26', '%Y-%m-%d') AS string\_to\_date

FROM

employees;

#### 5. Convert Salary to Decimal with Two Decimal Places

**Query:**

SELECT

employee\_id,

name,

salary,

CAST(salary AS DECIMAL(10, 2)) AS salary\_decimal

FROM

employees;

**Question 1:**

Write a query to find the total sales amount for each employee using the sales table with columns:

* employee\_id
* sale\_amount

**Answer 1:**

SELECT

employee\_id,

SUM(sale\_amount) AS total\_sales

FROM

sales

GROUP BY

employee\_id;

**Question 2:**

Write a query to find the number of employees in each department with an average salary greater than $60,000 using the employees table with columns:

* employee\_id
* salary
* department\_id

**Answer 2:**

SELECT

department\_id,

COUNT(\*) AS num\_employees

FROM

employees

GROUP BY

department\_id

HAVING

AVG(salary) > 60000;

**Question 3:**

Write a query to find the maximum, minimum, and average salary for each department using the employees table.

**Answer 3:**

SELECT

department\_id,

MAX(salary) AS max\_salary,

MIN(salary) AS min\_salary,

AVG(salary) AS avg\_salary

FROM

employees

GROUP BY

department\_id;

**Question 4:**

Write a query to find employees who were hired after January 1, 2020, using the employees table with columns:

* employee\_id
* hire\_date

**Answer 4:**

SELECT

employee\_id,

hire\_date

FROM

employees

WHERE

hire\_date > '2020-01-01';

**Question 5:**

Write a query to find the total number of sales and the total sales amount for each month using the sales table with columns:

* sale\_id
* sale\_date
* sale\_amount

**Answer 5:**

SELECT

DATE\_FORMAT(sale\_date, '%Y-%m') AS sale\_month,

COUNT(\*) AS total\_sales\_count,

SUM(sale\_amount) AS total\_sales\_amount

FROM

sales

GROUP BY

DATE\_FORMAT(sale\_date, '%Y-%m');

**Question 6:**

Write a query to find employees whose name starts with 'A' using the employees table.

**Answer 6:**

SELECT

employee\_id,

name

FROM

employees

WHERE

name LIKE 'A%';

**Question 7:**

Write a query to find employees with salaries between $50,000 and $75,000 using the employees table.

**Answer 7:**

SELECT

employee\_id,

salary

FROM

employees

WHERE

salary BETWEEN 50000 AND 75000;

**Question 8:**

Write a query to find the departments with more than 3 employees using the employees table.

**Answer 8:**

SELECT

department\_id,

COUNT(\*) AS num\_employees

FROM

employees

GROUP BY

department\_id

HAVING

COUNT(\*) > 3;

**Question 9:**

Write a query to find the second highest salary in the employees table.

**Answer 9:**

SELECT

MAX(salary) AS second\_highest\_salary

FROM

employees

WHERE

salary < (SELECT MAX(salary) FROM employees);

**Question 10:**

Write a query to find the total sales amount for each employee in 2024 using the sales table.

**Answer 10:**

SELECT

employee\_id,

SUM(sale\_amount) AS total\_sales\_2024

FROM

sales

WHERE

YEAR(sale\_date) = 2024

GROUP BY

employee\_id;

**Question 11:**

Write a query to find the average salary of employees hired in each year using the employees table.

**Answer 11:**

SELECT

YEAR(hire\_date) AS hire\_year,

AVG(salary) AS avg\_salary

FROM

employees

GROUP BY

YEAR(hire\_date);

**Question 12:**

Write a query to find the number of employees with a salary greater than the average salary using the employees table.

**Answer 12:**

SELECT

COUNT(\*) AS num\_employees\_above\_avg\_salary

FROM

employees

WHERE

salary > (SELECT AVG(salary) FROM employees);

**Question 13:**

Write a query to find the total sales amount for employees with IDs 1, 2, and 3 using the sales table.

**Answer 13:**

SELECT

employee\_id,

SUM(sale\_amount) AS total\_sales

FROM

sales

WHERE

employee\_id IN (1, 2, 3)

GROUP BY

employee\_id;

**Question 14:**

Write a query to find the maximum salary in each department using the employees table.

**Answer 14:**

SELECT

department\_id,

MAX(salary) AS max\_salary

FROM

employees

GROUP BY

department\_id;

**Question 15:**

Write a query to find the names of employees who have 'Smith' in their name using the employees table.

**Answer 15:**

SELECT

employee\_id,

name

FROM

employees

WHERE

name LIKE '%Smith%';

**Question 16:**

Write a query to find the average salary and total number of employees for each department using the employees table.

**Answer 16:**

SELECT

department\_id,

AVG(salary) AS avg\_salary,

COUNT(\*) AS num\_employees

FROM

employees

GROUP BY

department\_id;

**Question 17:**

Write a query to find employees hired between January 1, 2022, and December 31, 2023, using the employees table.

**Answer 17:**

SELECT

employee\_id,

hire\_date

FROM

employees

WHERE

hire\_date BETWEEN '2022-01-01' AND '2023-12-31';

**Question 18:**

Write a query to find the total number of sales and the total sales amount for each employee using the sales table.

**Answer 18:**

SELECT

employee\_id,

COUNT(\*) AS total\_sales\_count,

SUM(sale\_amount) AS total\_sales\_amount

FROM

sales

GROUP BY

employee\_id;

**Question 19:**

Write a query to find the top 3 highest-paid employees using the employees table.

**Answer 19:**

SELECT

employee\_id,

name,

salary

FROM

employees

ORDER BY

salary DESC

LIMIT 3;

**Question 20:**

Write a query to find the employees with a salary not between $45,000 and $75,000 using the employees table.

**Answer 20:**

SELECT

employee\_id,

salary

FROM

employees

WHERE

salary NOT BETWEEN 45000 AND 75000;

**Question 21:**

Write a query to find the total number of employees hired each year using the employees table.

**Answer 21:**

SELECT

YEAR(hire\_date) AS hire\_year,

COUNT(\*) AS num\_employees

FROM

employees

GROUP BY

YEAR(hire\_date);

**Question 22:**

Write a query to find the average salary for each hire year using the employees table.

**Answer 22:**

SELECT

YEAR(hire\_date) AS hire\_year,

AVG(salary) AS avg\_salary

FROM

employees

GROUP BY

YEAR(hire\_date);

**Question 23:**

Write a query to find employees whose name contains 'Brown' using the employees table.

**Answer 23:**

SELECT

employee\_id,

name

FROM

employees

WHERE

name LIKE '%Brown%';

**Question 24:**

Write a query to find the total sales amount and the number of sales made by each employee in the year 2023 using the sales table.

**Answer 24:**

SELECT

employee\_id,

COUNT(\*) AS total\_sales\_count,

SUM(sale\_amount) AS total\_sales\_amount

FROM

sales

WHERE

YEAR(sale\_date) = 2023

GROUP BY

employee\_id;

**Question 25:**

Write a query to find the minimum salary in each department using the employees table.

**Answer 25:**

SELECT

department\_id,

MIN(salary) AS min\_salary

FROM

employees

GROUP BY

department\_id;