Interview Practice
MySQL (Group by)

Creating Database and tables:

create database interview_practice;

use interview_practice;

create table employees (

employee_id int primary key,

name varchar(50),

department varchar(50),

job_title varchar(50),

salary decimal(10,2),

gender varchar(10)

);

insert into employees(employee_id, name,department,job_title,salary,gender)values

(1,'Shubham','HR', 'Manager',75000,'Male'),

(2,'Sourabh','Finance','Analyst', 65000,'Male'),

(3, 'Anant', 'IT', 'Developer', 80000, 'Male'),

(4, 'Saurabh', 'IT', 'Developer', 78000, 'Male'),

(5, 'Deepti', 'HR', 'Recruiter', 55000, 'Female'),

(6, 'Manoj', 'Finance', 'Manager', 90000, 'Male'),

(7, 'Sri Ram', 'Marketing', 'Executive', 60000, 'Female'),

(8, 'Vishnu', 'Marketing', 'Manager', 85000, 'Female'),

(9, 'Shiva', 'IT', 'Support', 45000, 'Male'),

(10, 'Chirag', 'Finance', 'Analyst', 62000, 'Female');

	employee_id	name	department	job_title	salary	gender
▶	1	Shubham	HR	Manager	75000.00	Male
	2	Sourabh	Finance	Analyst	65000.00	Male
	3	Anant	IT	Developer	80000.00	Male
	4	Saurabh	IT	Developer	78000.00	Male
	5	Deepti	HR	Recruiter	55000.00	Female
	6	Manoj	Finance	Manager	90000.00	Male
	7	Sri Ram	Marketing	Executive	60000.00	Female
	8	Vishnu	Marketing	Manager	85000.00	Female
	9	Shiva	IT	Support	45000.00	Male
	10	Chirag	Finance	Analyst	62000.00	Female
✳	NULL	NULL	NULL	NULL	NULL	NULL

Create Table Sales(sale_id int primary key,

product_id int,

sales_amount decimal(10,2),

region varchar(50));

insert into Sales (sale_id,product_id,sales_amount,region) values

(1, 101, 500, 'North'),

(2, 102, 1500, 'East'),

(3, 103, 2000, 'West'),

(4, 101, 250, 'North'),

(5, 104, 3000, 'South'),

(6, 105, 1200, 'East'),

(7, 106, 1700, 'West'),

(8, 101, 900, 'South'),

(9, 102, 1100, 'East'),

(10, 103, 1600, 'North');

	sale_id	product_id	sales_amount	region
▶	1	101	500.00	North
	2	102	1500.00	East
	3	103	2000.00	West
	4	101	250.00	North
	5	104	3000.00	South
	6	105	1200.00	East
	7	106	1700.00	West
	8	101	900.00	South
	9	102	1100.00	East
	10	103	1600.00	North
*	NULL	NULL	NULL	NULL

Create Table orders(

order_id Int Primary Key,

customer_id int,

order_amount decimal(10,2),

status varchar(50),

shipping_method varchar(50)

);

insert into orders(order_id,customer_id,order_amount,status,shipping_method) values

(1, 201, 250, 'Shipped', 'Air'),

(2, 202, 450, 'Pending', 'Ground'),

(3, 203, 300, 'Delivered', 'Air'),

(4, 201, 700, 'Delivered', 'Ground'),

(5, 204, 150, 'Shipped', 'Air'),

(6, 205, 500, 'Cancelled', 'Ground'),

(7, 202, 600, 'Delivered', 'Ground'),

(8, 203, 350, 'Pending', 'Air'),

(9, 201, 400, 'Shipped', 'Ground'),

(10, 204, 750, 'Delivered', 'Air');

	order_id	customer_id	order_amount	status	shipping_method
▶	1	201	250.00	Shipped	Air
	2	202	450.00	Pending	Ground
	3	203	300.00	Delivered	Air
	4	201	700.00	Delivered	Ground
	5	204	150.00	Shipped	Air
	6	205	500.00	Cancelled	Ground
	7	202	600.00	Delivered	Ground
	8	203	350.00	Pending	Air
	9	201	400.00	Shipped	Ground
	10	204	750.00	Delivered	Air
*	NULL	NULL	NULL	NULL	NULL

create table products(

product_id int Primary key,

name varchar(50),

category varchar(50),

price decimal(10,2)

);

insert into products (product_id,name,category,price)values

(101,'Laptop','Electronics',1200),

(102, 'Smartphone', 'Electronics', 800),

(103, 'Tablet', 'Electronics', 600),

(104, 'Printer', 'Office Supplies', 200),

(105, 'Desk', 'Furniture', 150),

(106, 'Chair', 'Furniture', 100);

product_id	name	category	price
101	Laptop	Electronics	1200.00
102	Smartphone	Electronics	800.00
103	Tablet	Electronics	600.00
104	Printer	Office Supplies	200.00
105	Desk	Furniture	150.00
106	Chair	Furniture	100.00
NULL	NULL	NULL	NULL

Create Table customers(

customer_id int Primary key,

name varchar(50),

country varchar(50)

);

INSERT INTO customers (customer_id, name, country) VALUES

(201, 'Alice', 'USA'),

(202, 'Bob', 'Canada'),

(203, 'Charlie', 'UK'),

(204, 'David', 'Australia'),

(205, 'Eve', 'India');

customer_id	name	country
201	Alice	USA
202	Bob	Canada
203	Charlie	UK
204	David	Australia
205	Eve	India
NULL	NULL	NULL

create table students (

student_id int primary key,

name varchar(50),

grade_level int,

test_score decimal(5,2)

);

INSERT INTO students (student_id, name, grade_level, test_score) VALUES

(1, 'Shubham', 10, 85.5),

(2, 'Sourabh', 11, 78.0),

(3, 'Anant', 10, 92.0),

(4, 'Saurabh', 12, 88.0),

(5, 'Deepti', 11, 74.5),

(6, 'Manoj', 12, 80.0),

(7, 'Sri Ram', 10, 90.5),

(8, 'Vishnu', 11, 82.0),

(9, 'Shiva', 12, 86.0),

(10, 'Chirag', 10, 95.0);

student_id	name	grade_level	test_score
1	Shubham	10	85.50
2	Sourabh	11	78.00
3	Anant	10	92.00
4	Saurabh	12	88.00
5	Deepti	11	74.50
6	Manoj	12	80.00
7	Sri Ram	10	90.50
8	Vishnu	11	82.00
9	Shiva	12	86.00
10	Chirag	10	95.00
NULL	NULL	NULL	NULL

CREATE TABLE transactions (

```
    transaction_id INT PRIMARY KEY,

    customer_id INT,

    transaction_amount DECIMAL(10, 2),

    payment_method VARCHAR(50)

);


INSERT INTO transactions (transaction_id, customer_id, transaction_amount, payment_method)
VALUES

(1, 201, 250, 'Credit Card'),

(2, 202, 450, 'PayPal'),

(3, 203, 300, 'Credit Card'),

(4, 201, 700, 'Debit Card'),

(5, 204, 150, 'Credit Card'),

(6, 205, 500, 'PayPal'),

(7, 202, 600, 'Credit Card'),

(8, 203, 350, 'Debit Card'),

(9, 201, 400, 'PayPal'),

(10, 204, 750, 'Credit Card');
```

transaction_id	customer_id	transaction_amount	payment_method
1	201	250.00	Credit Card
2	202	450.00	PayPal
3	203	300.00	Credit Card
4	201	700.00	Debit Card
5	204	150.00	Credit Card
6	205	500.00	PayPal
7	202	600.00	Credit Card
8	203	350.00	Debit Card
9	201	400.00	PayPal
10	204	750.00	Credit Card
NULL	NULL	NULL	NULL

Basic Grouping

-- Q1. Group employees by department and count the number of employees in each department

Select department, count(*) as employee_count

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from employees

group by department;

department	employee_count
HR	2
Finance	3
IT	3
Marketing	2

-- Q2. Group customers by country count the number of customers in each country

select country,count(*) as customer_count

from customers

group by country;

country	customer_count
USA	1
Canada	1
UK	1
Australia	1
India	1

-- Q3 Group orders by status and count the number of orders in each status.

select status,count(*) as order_count

from orders

group by status;

status	order_count
Shipped	3
Pending	2
Delivered	4
Cancelled	1

-- Q4. Group products by category and count the number of products in each category

```
select category,count(*) as product_count

from products

group by category;
```

	category	product_count
▶	Electronics	3
	Office Supplies	1
	Furniture	2

```
-- Q5 Group employees by job title and count the number of employees in each job title

select job_title,count(*) as emp_in_each_job_title

from employees

group by job_title;
```

	job_title	emp_in_each_job_title
▶	Manager	3
	Analyst	2
	Developer	2
	Recruiter	1
	Executive	1
	Support	1

```
-- Q6 Group Sales by region and count the number of sales in each region

select region,count(*) as count_of_sales

from sales

group by region;
```

	region	count_of_sales
▶	North	3
	East	3
	West	2
	South	2

-- Q7 Group students by grade level and count the number of students in each grade

select grade_level,count(*) As student_count

from students

group by grade_level;

grade_level	student_count
10	4
11	3
12	3

-- Q8 Group orders by shipping method and count the number of orders for each shipping method

select shipping_method,count(*) as no_of_orders

from orders

group by shipping_method;

shipping_method	no_of_orders
Air	5
Ground	5

-- Q9 Group employees by gender and count the number of employees of each gender

select gender,count(*) as no_of_employees

from employees

group by gender;

gender	no_of_employees
Male	6
Female	4

-- Q10 Group transactions by payment method and count the number of transactions for each payment method

select payment_method,count(*) as transaction_count

from transactions

group by payment_method;

payment_method	transaction_count
Credit Card	5
PayPal	3
Debit Card	2

-- AGGREGATION Functions

-- Q1 Group sales Data by Product and calculate the total sales amount for each Product

select product_id, sum(sales_amount) as total_sales

from sales

group by product_id;

product_id	total_sales
101	1650.00
102	2600.00
103	3600.00
104	3000.00
105	1200.00
106	1700.00

-- Q2 Group employees by department and calculate the average salary for each department

select department,avg(salary) as Average_salary

from employees

group by department;

department	Average_salary
HR	65000.000000
Finance	72333.333333
IT	67666.666667
Marketing	72500.000000

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-- Q3 Group orders by customer and calculate the total order amount for each customer

select customer_id, sum(order_amount) as total_order_amount

from orders

group by customer_id;

customer_id	total_order_amount
201	1350.00
202	1050.00
203	650.00
204	900.00
205	500.00

-- Q4 Group products by category and calculate the average of price for each category

select category, avg(price) as Avg_price

from products

group by category;

category	Avg_price
Electronics	866.666667
Office Supplies	200.000000
Furniture	125.000000

-- Q5 Group employees by job title and calculate the maximum salary for each job title.

select job_title, max(salary) as max_salary

from employees

group by job_title;

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job_title	max_salary
Manager	90000.00
Analyst	65000.00
Developer	80000.00
Recruiter	55000.00
Executive	60000.00
Support	45000.00

-- Q6 Group sales by region and calculate the total sales amount for each region

select region, sum(sales_amount) as total_sales

from sales

group by region;

region	total_sales
North	2350.00
East	3800.00
West	3700.00
South	3900.00

-- Q7 Group students by grade level and calculate the average test score for each grade

select grade_level,avg(test_score) as avg_score
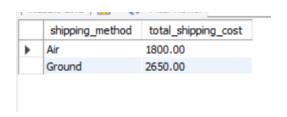
from students

group by grade_level;

grade_level	avg_score
10	90.750000
11	78.166667
12	84.666667

-- Q8 Group orders by shipping method and calculate the total shipping cost for each method

select shipping_method,sum(order_amount) as total_shipping_cost
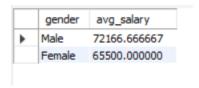
from orders

group by shipping_method;

shipping_method	total_shipping_cost
Air	1800.00
Ground	2650.00

-- Q9 Group employees by gender and calculate the average salary for each gender

select gender, avg(salary) as avg_salary

from employees

group by gender;

gender	avg_salary
Male	72166.666667
Female	65500.000000

-- Q10 Group tansactions by payment method and calculate the total transaction amount for each method

select payment_method, sum(transaction_amount) As total_transaction_amount

from transactions

group by payment_method;

payment_method	total_transaction_amount
Credit Card	2050.00
PayPal	1350.00
Debit Card	1050.00

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-- MULTIPLE AGGREGATIONS

-- Q1. Group customer orders by customer ID and calculate both the total and average order amounts for each customer

Select customer_id, sum(order_amount) as total_order_amount,avg(order_amount) AS average_order_amount

from orders

group by customer_id;

customer_id	total_order_amount	average_order_amount
201	1350.00	450.000000
202	1050.00	525.000000
203	650.00	325.000000
204	900.00	450.000000
205	500.00	500.000000

-- Q2 Group sales by product and calculate both the total sales amount and the average sales amount for each product

select product_id, sum(sales_amount) as total_sales_amount,avg(sales_amount) as avg_sales_amount

from sales

group by product_id;

product_id	total_sales_amount	avg_sales_amount
101	1650.00	550.000000
102	2600.00	1300.000000
103	3600.00	1800.000000
104	3000.00	3000.000000
105	1200.00	1200.000000
106	1700.00	1700.000000

-- Q3 Group employees by department and calculate both the total salary and the average salary for each department

select department, sum(salary) As total_salary, Avg(salary) As Avg_salary

from employees

group by department;

department	total_salary	Avg_salary
HR	130000.00	65000.000000
Finance	217000.00	72333.333333
IT	203000.00	67666.666667
Marketing	145000.00	72500.000000

-- Q4 Group Products by category and calculate both the total price and the average price for each category

select category,sum(price) as Total_price,avg(price) as Avg_price

from products

group by category;

category	Total_price	Avg_price
Electronics	2600.00	866.666667
Office Supplies	200.00	200.000000
Furniture	250.00	125.000000

-- Q5 Group sales by region and calculate both the total sales amount and the number of sales for each region.

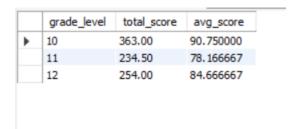Select region, sum(sales_amount),count(*) As sales_count

from sales

group by region;

Shubham A

region	sum(sales_amount)	sales_count
North	2350.00	3
East	3800.00	3
West	3700.00	2
South	3900.00	2

-- Q6 Group students by grade level and calculate both the total test score and the average test score for each grade

select grade_level,sum(test_score) as total_score, Avg(test_score) as avg_score

from students

group by grade_level;

grade_level	total_score	avg_score
10	363.00	90.750000
11	234.50	78.166667
12	254.00	84.666667

-- Q7 Group orders by shipping method and calculate both the total shipping cost and the average shipping cost for each method

select shipping_method, sum(order_amount)as total_shipping_cost,avg(order_amount) as Avg_shipping_cost
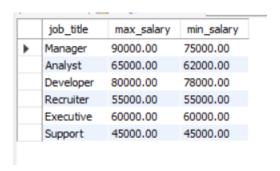
from orders

group by shipping_method;

	shipping_method	total_shipping_cost	Avg_shipping_cost
▶	Air	1800.00	360.000000
	Ground	2650.00	530.000000

-- Q8 Group employees by job title and calculate both the maximum and minimum salary for each job_title

Select job_title,max(salary) As max_salary ,min(salary) as min_salary

from employees

group by job_title;

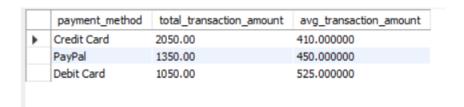|	job_title	max_salary	min_salary
▶	Manager	90000.00	75000.00
	Analyst	65000.00	62000.00
	Developer	80000.00	78000.00
	Recruiter	55000.00	55000.00
	Executive	60000.00	60000.00
	Support	45000.00	45000.00

-- Q9 Group transactions by payment method and calculate both the total transaction amount and the averaage transaction amount for each method

Select payment_method,sum(transaction_amount) as total_transaction_amount,avg(transaction_amount) avg_transaction_amount

from transactions

group by payment_method;

	payment_method	total_transaction_amount	avg_transaction_amount
▶	Credit Card	2050.00	410.000000
	PayPal	1350.00	450.000000
	Debit Card	1050.00	525.000000

-- Q10 Group Orders by customer and calculate both the total order amount and the number of orders for each customer

select customer_id, sum(order_amount) As total_order_amount, avg(order_amount) As average_order_amount

from orders

group by customer_id;

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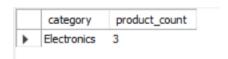| customer_id	total_order_amount	average_order_amount
201	1350.00	450.000000
202	1050.00	525.000000
203	650.00	325.000000
204	900.00	450.000000
205	500.00	500.000000

HAVING CLAUSE

-- Q1 Group Products by category and display only those categories that have more than 2 products

Select category,count(*) AS product_count

from products

group by category

having product_count > 2;

category	product_count
Electronics	3

-- Q2 Group employees by department and display only those departments with an average salary greater than $50,000

select department, avg(salary) as average_salary

from employees

group by department

having average_salary >50000;

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department	average_salary
HR	65000.000000
Finance	72333.333333
IT	67666.666667
Marketing	72500.000000

-- Q3 Group orders by customer and display only those customers who have placed more than 2 orders

select customer_id,count(*) As order_count

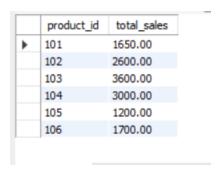from orders

group by customer_id

Having order_count > 2;

customer_id	order_count
201	3

-- Q4 Group sales by product and display only those products with total sales amount greater than $1,000

```sql
select product_id,sum(sales_amount) as total_sales
From sales
group by product_id
Having total_sales > 1000;
```

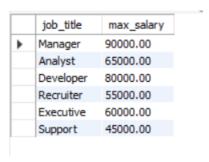| product_id	total_sales
101	1650.00
102	2600.00
103	3600.00
104	3000.00
105	1200.00
106	1700.00

-- Q5 Group employees by job title and display only those job titles with a maximum salary greater than $100,000

```sql
select job_title,max(salary) as max_salary
from employees
group by job_title
Having max_salary >  10000;
```

job_title	max_salary
Manager	90000.00
Analyst	65000.00
Developer	80000.00
Recruiter	55000.00
Executive	60000.00
Support	45000.00

-- Q6 Group sales by region and Display only those regions with total sales amount greater than $50,000

```sql
SELECT region, sum(sales_amount) as total_sales
from sales
```

group by region

having total_sales > 1000;

region	total_sales
North	2350.00
East	3800.00
West	3700.00
South	3900.00

-- Q7 Group students by grade level and display only those grade levels with an average test score greater than 80

select grade_level, avg(test_score) AS average_score

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FROM students

group by grade_level

having average_score > 80;

grade_level	average_score
10	90.750000
12	84.666667

-- Q8 Group orders by shipping method and display only those shipping methods with total shipping cost greater than $1000.

select shipping_method,sum(order_amount) as total_shipping_cost

from orders

group by shipping_method

having total_shipping_cost > 1000;

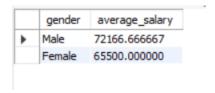| shipping_method	total_shipping_cost
Air	1800.00
Ground	2650.00

-- Q9 Group employees by gender and display only those genders with an average salary greater than $60,000

select gender,avg(salary) AS average_salary

from employees

group by gender

having average_salary > 60000;

gender	average_salary
Male	72166.666667
Female	65500.000000

-- Q10 Group transactions by payment method and display only those payment methods with total transaction amount greater than $5,000

select payment_method,sum(transaction_amount) as total_transaction_Amount

from transactions

group by payment_method

having total_transaction_amount > 1000;

payment_method	total_transaction_Amount
Credit Card	2050.00
PayPal	1350.00
Debit Card	1050.00

By:

Shubham