DAY 4-COUNTDOWN TO SQL MASTERY: 5-DAY CHALLENGE
PROJECT NAME-"SOFTWARE SOLUTIONS: PROJECT DELIVERY & REVENUE ANALYSIS."

TASK 1: Monthly project completions:

Count the number of projects completed each month.

```sql
-- Monthly project completions:
SELECT DATE_FORMAT(end_date, '%Y-%m') AS completion_month,
       COUNT(project_id) AS Number_of_Completed_Projects
FROM Projects
WHERE status = 'Completed'
GROUP BY completion_month
ORDER BY completion_month ASC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

completion_month	Number_of_Completed_Projects
2023-01	1
2023-02	1
2023-06	1
2023-09	1
2023-11	1
2024-01	1
2024-03	1
2024-04	1
2024-05	1

TASK 2: Average project duration by status:

Calculate the average duration (in days) for projects based on their status (e.g., 'Completed', 'Delayed'). Assume end_date - start_date for duration.

```sql
-- Average project duration by status
SELECT status,
AVG(DATEDIFF(end_date, start_date)) AS average_duration_days
FROM Projects
GROUP BY status
ORDER BY status;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

status	average_duration_days
Completed	227.6667
In Progress	NULL

Note- their will be no days in In progress row because we don't know what is end_date here because work is not finished

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TASK 3: Rank projects by budget within each client:

For each client, rank their projects by budget in descending order. Show client_name, project_name, budget, and the rank

```
16    -- Rank projects by budget within each client
17    SELECT c.client_name,p.project_name,p.budget,
18     RANK() OVER (
19           PARTITION BY c.client_id
20           ORDER BY p.budget DESC
21       ) AS budget_rank
22    FROM Projects p
23    INNER JOIN Clients c ON c.client_id=p.client_id
24    ORDER BY
25       budget_rank  ASC ;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

client_name	project_name	budget	budget_rank
Global Innovations Inc.	Supply Chain Optimization	160000.00	1
MediCare Solutions	Telemedicine Platform	200000.00	1
RetailLink Corp.	E-commerce Redesign	120000.00	1
FinanceFlow Ltd.	Fraud Detection System	220000.00	1
EduTech Group	Student Management System	100000.00	1
AutoDrive Systems	Autonomous Driving Software	300000.00	1
GreenHarvest Foods	Farm Management App	80000.00	1
Global Innovations Inc.	AI-Powered CRM System	150000.00	2
MediCare Solutions	Patient Portal Upgrade	130000.00	2
RetailLink Corp.	Personalized Marketing Engine	110000.00	2
FinanceFlow Ltd.	Mobile Banking App	190000.00	2
EduTech Group	Online Learning Module	90000.00	2
AutoDrive Systems	Predictive Maintenance Softw...	250000.00	2
RetailLink Corp.	POS System Integration	95000.00	3
FinanceFlow Ltd.	Investment Analytics Tool	180000.00	3

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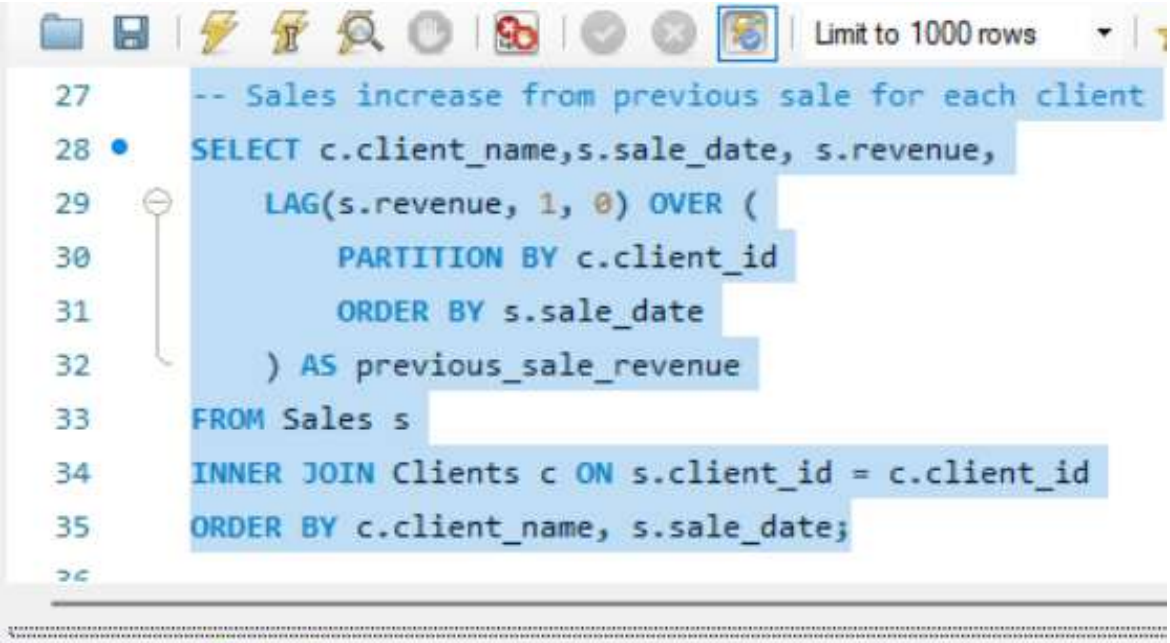
TASK 4: Sales increase from previous sale for each client:

For each client, calculate the revenue and the revenue of their *previous* sale. Show client_name, sale_date, revenue, and previous_sale_revenue. Sort by client_name and sale_date.



Result Grid | Filter Rows: | Export: | Wrap Cell Conte

client_name	sale_date	revenue	previous_sale_revenue
AutoDrive Systems	2023-07-25	300000.00	0.00
AutoDrive Systems	2024-03-15	250000.00	300000.00
EduTech Group	2023-06-30	90000.00	0.00
EduTech Group	2024-01-30	100000.00	90000.00
FinanceFlow Ltd.	2022-04-15	190000.00	0.00
FinanceFlow Ltd.	2023-05-10	180000.00	190000.00
FinanceFlow Ltd.	2023-12-20	220000.00	180000.00
FinanceFlow Ltd.	2024-04-05	75000.00	220000.00
Global Innovations Inc.	2022-12-15	150000.00	0.00
Global Innovations Inc.	2023-08-20	160000.00	150000.00
Global Innovations Inc.	2024-03-10	50000.00	160000.00
GreenHarvest Foods	2024-02-20	80000.00	0.00
MediCare Solutions	2023-02-20	200000.00	0.00
MediCare Solutions	2023-09-01	130000.00	200000.00
MediCare Solutions	2024-05-10	60000.00	130000.00
RetailLink Corp.	2022-06-10	95000.00	0.00
RetailLink Corp.	2023-03-25	120000.00	95000.00
RetailLink Corp.	2023-10-15	110000.00	120000.00

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TASK 5: Cumulative revenue by sales representative over time:

For each sales_rep_id, calculate the running total of revenue ordered by sale_date. Show first_name, last_name, sale_date, revenue, and running_total_revenue.

```
37  -- Cumulative revenue by sales representative over time
38  SELECT e.first_name,e.last_name,s.sale_date,s.revenue,
39  SUM(revenue) OVER (
40  PARTITION BY s.sales_rep_id
41  ORDER BY sale_date
42  ) AS running_total_revenue
43  FROM Employees e
44  INNER JOIN Sales s ON s.sales_rep_id=e.employee_id
45
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

first_name	last_name	sale_date	revenue	running_total_revenue
Bob	Williams	2022-06-10	95000.00	95000.00
Bob	Williams	2022-12-15	150000.00	245000.00
Bob	Williams	2023-03-25	120000.00	365000.00
Bob	Williams	2023-08-20	160000.00	525000.00
Bob	Williams	2023-10-15	110000.00	635000.00
Bob	Williams	2024-02-20	80000.00	715000.00
Bob	Williams	2024-03-10	50000.00	765000.00
David	Miller	2023-02-20	200000.00	200000.00
David	Miller	2023-06-30	90000.00	290000.00
David	Miller	2023-07-25	300000.00	590000.00
David	Miller	2023-12-20	220000.00	810000.00
David	Miller	2024-03-15	250000.00	1060000.00
David	Miller	2024-05-10	60000.00	1120000.00
Grace	Moore	2022-04-15	190000.00	190000.00
Grace	Moore	2023-05-10	180000.00	370000.00
Grace	Moore	2023-09-01	130000.00	500000.00
Grace	Moore	2024-01-30	100000.00	600000.00
Grace	Moore	2024-04-05	75000.00	675000.00