

TASK 1: Client Profitability Analysis (Top 3):

Identify the top 3 clients by overall profitability. Profitability can be defined as SUM(revenue from sales) - SUM(actual_cost from projects). Include client_name and their total calculated profit

```

1  -- Client Profitability Analysis (Top 3)
2  • WITH
3  ClientRevenue AS (
4      SELECT c.client_id, c.client_name,
5             SUM(s.revenue) AS total_revenue
6      FROM Clients c
7      INNER JOIN Sales s ON c.client_id = s.client_id
8      GROUP BY c.client_id, c.client_name ),
9  ProjectCosts AS (
10     SELECT c.client_id,
11            SUM(p.actual_cost) AS total_actual_cost
12     FROM Clients c
13     INNER JOIN
14         Projects p ON c.client_id = p.client_id
15     GROUP BY
16         c.client_id )
17  SELECT
18     cr.client_name,
19     (
20         cr.total_revenue - COALESCE(pc.total_actual_cost, 0)
21     ) AS profit -- COALESCE handles cases where a client has no projects
22  FROM
23     ClientRevenue cr
24  LEFT JOIN
25     ProjectCosts pc ON cr.client_id = pc.client_id
26  ORDER BY
27     profit DESC
28  LIMIT
29     3;

```

Result Grid		Filter Rows:
	client_name	profit
►	FinanceFlow Ltd.	195000.00
	AutoDrive Systems	190000.00
	Global Innovations Inc.	135000.00

TASK 2: Impact of Delivery Rating on Revenue:

Calculate the average revenue per sale for projects with a delivery_rating of 5 versus projects with a delivery_rating below 5. Also, count how many projects fall into each category.

```

32  -- Impact of Delivery Rating on Revenue:
33  •  SELECT
34      CASE
35          WHEN p.delivery_rating = 5 THEN 'Rating 5'
36          WHEN p.delivery_rating < 5 THEN 'Rating Below 5'
37          ELSE 'Other/Unrated'
38      END AS delivery_category,
39      AVG(s.revenue) AS average_revenue_per_sale,
40      COUNT(DISTINCT p.project_id) AS number_of_projects
41  FROM Sales s
42  INNER JOIN Projects p ON s.project_id = p.project_id
43  WHERE p.delivery_rating IS NOT NULL
44  GROUP BY
45      CASE
46          WHEN p.delivery_rating = 5 THEN 'Rating 5'
47          WHEN p.delivery_rating < 5 THEN 'Rating Below 5'
48          ELSE 'Other/Unrated'
49      END
50  ORDER BY
51      delivery_category;
52
53

```

Result Grid   Filter Rows: Export:  Wrap Cell Content: 

	delivery_category	average_revenue_per_sale	number_of_projects
►	Rating 5	136250.000000	4
	Rating Below 5	182000.000000	5

TASK 3: Employee Productivity and Project Performance:

For each 'Project Manager', determine the average budget of projects they manage and the average delivery_rating of those projects. Order by average delivery rating (highest first), then average budget (highest first)

```

54      -- Employee Productivity and Project Performance
55  •  SELECT
56      e.employee_id,
57      e.first_name,
58      e.last_name,
59      AVG(p.budget) AS average_project_budget,
60      AVG(p.delivery_rating) AS average_project_delivery_rating
61  FROM
62      Employees e
63  INNER JOIN
64      Projects p ON e.employee_id = p.project_manager_id
65  WHERE
66      e.role = 'Project Manager'
67  GROUP BY
68      e.employee_id,
69      e.first_name,
70      e.last_name
71  ORDER BY
72      average_project_delivery_rating DESC,
73      average_project_budget DESC;
74

```

Result Grid



Filter Rows:

Export:



Wrap Cell Content:

	employee_id	first_name	last_name	average_project_budget	average_project_delivery_rating
▶	101	Alice	Johnson	137500.000000	5.0000
	103	Carol	Davis	160000.000000	4.0000
	106	Frank	Taylor	187500.000000	3.5000

TASK 4: Quarterly Revenue Growth:

Calculate the total revenue for each quarter (Q1, Q2, Q3, Q4) of each year. Then, calculate the quarter-over-quarter growth rate (as a percentage) for total revenue.

```
77 -- Quarterly Revenue Growth
78 WITH QuarterlyRevenue AS (
79     SELECT
80         YEAR(sale_date) AS sale_year,
81         QUARTER(sale_date) AS sale_quarter,
82         SUM(revenue) AS total_quarterly_revenue
83     FROM
84         Sales
85     GROUP BY
86         YEAR(sale_date),
87         QUARTER(sale_date)
88 ),
89 QuarterlyRevenueWithLag AS (
90     SELECT
91         sale_year,
92         sale_quarter,
93         total_quarterly_revenue,
94         LAG(total_quarterly_revenue, 1, 0) OVER (
95             ORDER BY sale_year ASC, sale_quarter ASC
96         ) AS previous_quarter_revenue
97     FROM
98         QuarterlyRevenue
99 )
100 SELECT
101     qr.sale_year,
102     qr.sale_quarter,
103     qr.total_quarterly_revenue,
104     qr.previous_quarter_revenue,
105     CASE
106         WHEN qr.previous_quarter_revenue = 0 THEN NULL
107         ELSE ( (qr.total_quarterly_revenue - qr.previous_quarter_revenue) * 100.0 / qr.previous_quarter_revenue )
108     END AS quarter_over_quarter_growth_percentage
109 FROM
110     QuarterlyRevenueWithLag qr
111 ORDER BY
112     qr.sale_year DESC,
113     qr.sale_quarter ASC;
```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	sale_year	sale_quarter	total_quarterly_revenue	previous_quarter_revenue	quarter_over_quarter_growth_percentage
▶	2024	1	480000.00	330000.00	45.4545455
	2024	2	135000.00	480000.00	-71.8750000
	2023	1	320000.00	150000.00	113.3333333
	2023	2	270000.00	320000.00	-15.6250000
	2023	3	590000.00	270000.00	118.5185185
	2023	4	330000.00	590000.00	-44.0677966
	2022	2	285000.00	0.00	NULL
	2022	4	150000.00	285000.00	-47.3684211

TASK 5: Comprehensive Project Summary (for a Dashboard):

Create a consolidated view that includes project_name, client_name, project_manager_first_name, project_manager_last_name, budget, actual_cost, profit_status (from Day 3), delivery_rating, and the duration_in_days (from Day 4).

```

116  -- Comprehensive project summary
117  WITH
118      ProjectProfitStatus AS (
119          SELECT
120              project_id,
121              project_name,
122              budget,
123              actual_cost,
124              CASE
125                  WHEN budget > actual_cost THEN 'Profitable'
126                  WHEN budget = actual_cost THEN 'Break-even'
127                  WHEN budget < actual_cost THEN 'Loss'
128                  ELSE 'Unknown'
129              END AS profit_status
130          FROM
131              Projects
132      ),
133      ProjectDuration AS (
134          SELECT
135              project_id,
136              project_name,
137              start_date,
138              end_date,
139              DATEDIFF(end_date, start_date) AS duration_in_days
140          FROM
141              Projects
142          WHERE
143              end_date IS NOT NULL AND start_date IS NOT NULL
144      )
145  SELECT
146      p.project_name,
147      c.client name,

```


DAY 5-COUNTDOWN TO SQL MASTERY: 5-DAY CHALLENGE

PROJECT NAME-"SOFTWARE SOLUTIONS: PROJECT DELIVERY & REVENUE ANALYSIS."

```
148     e.first_name AS project_manager_first_name,
149     e.last_name AS project_manager_last_name,
150     p.budget,
151     p.actual_cost,
152     pps.profit_status,
153     p.delivery_rating,
154     pd.duration_in_days
155 FROM
156     Projects p
157 INNER JOIN
158     Clients c ON p.client_id = c.client_id
159 INNER JOIN
160     Employees e ON p.project_manager_id = e.employee_id
161 INNER JOIN
162     ProjectProfitStatus pps ON p.project_id = pps.project_id
163 INNER JOIN
164     ProjectDuration pd ON p.project_id = pd.project_id;
165
```

Result Grid									
Filter Rows: <input type="text"/> Export: Wrap Cell Contents:									
	project_name	client_name	project_manager_first_name	project_manager_last_name	budget	actual_cost	profit_status	delivery_rating	duration_in_days
▶	AI-Powered CRM System	Global Innovations Inc.	Alice	Johnson	150000.00	145000.00	Profitable	5	171
	Telemedicine Platform	MediCare Solutions	Carol	Davis	200000.00	210000.00	Loss	4	198
	E-commerce Redesign	RetailLink Corp.	Alice	Johnson	120000.00	118000.00	Profitable	5	195
	Investment Analytics Tool	FinanceFlow Ltd.	Carol	Davis	180000.00	175000.00	Profitable	5	244
	Online Learning Module	EduTech Group	Frank	Taylor	90000.00	95000.00	Loss	3	239
	Patient Portal Upgrade	MediCare Solutions	Carol	Davis	130000.00	135000.00	Loss	4	223
	Autonomous Driving Software	AutoDrive Systems	Frank	Taylor	300000.00	310000.00	Loss	4	273
	Mobile Banking App	FinanceFlow Ltd.	Carol	Davis	190000.00	195000.00	Loss	3	264
	POS System Integration	RetailLink Corp.	Alice	Johnson	95000.00	90000.00	Profitable	5	242