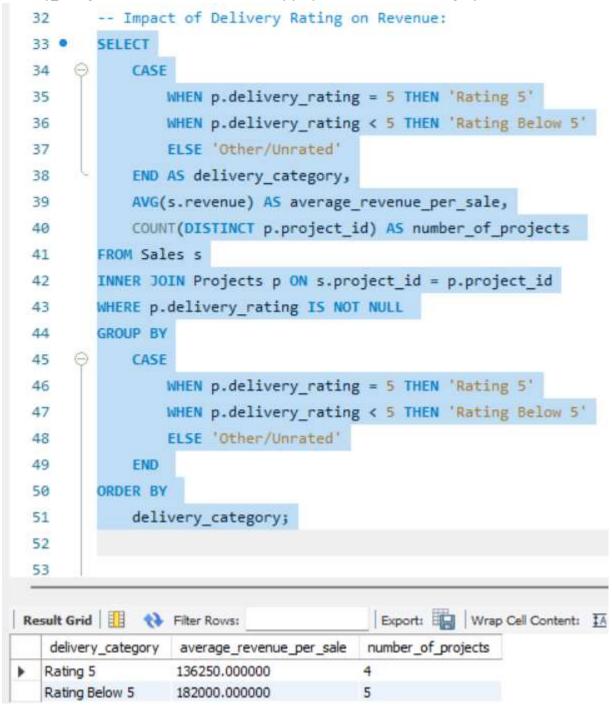
TASK 1: Client Profitability Analysis (Top 3):

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

```
-- Client Profitability Analysis (Top 3)
 2 .
       WITH
3
          ClientRevenue AS (
4
             SELECT c.client_id, c.client_name,
                   SUM(s.revenue) AS total_revenue
 5
 6
               FROM Clients c
7
              INNER JOIN Sales s ON c.client_id = s.client_id
              GROUP BY c.client_id, c.client_name ),
8
9
           ProjectCosts AS (
             SELECT c.client_id,
10
11
              SUM(p.actual_cost) AS total_actual_cost
              FROM Clients c
12
              INNER JOIN
13
                   Projects p ON c.client_id = p.client_id
14
              GROUP BY
15
                   c.client_id )
16
17
       SELECT
           cr.client_name,
18
19
               cr.total_revenue - COALESCE(pc.total_actual_cost, 0)
20
           ) AS profit -- COALESCE handles cases where a client has no projects
21
      FROM
22
           ClientRevenue cr
23
      LEFT JOIN
24
          ProjectCosts pc ON cr.client_id = pc.client_id
25
       ORDER BY
26
           profit DESC
27
       LIMIT
28
29
           3;
 Result Grid
                    Filter Rows:
     dient_name
                                profit
    FinanceFlow Ltd.
                               195000.00
    AutoDrive Systems
                               190000.00
    Global Innovations Inc. 135000.00
```

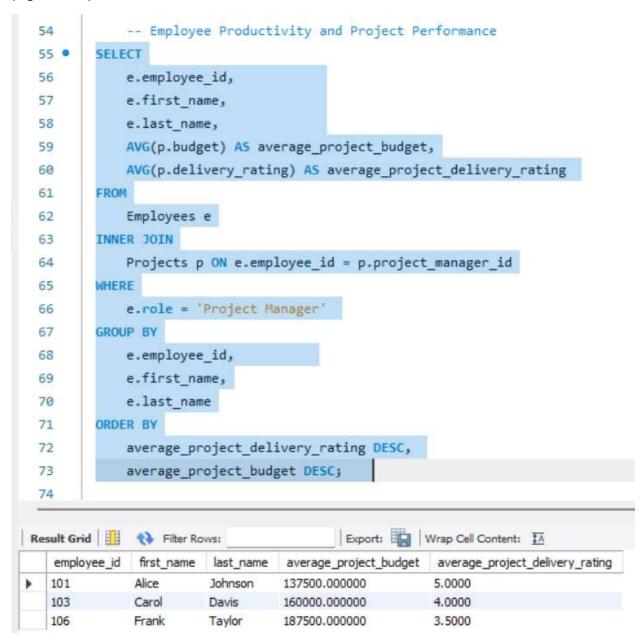
TASK 2: Impact of Delivery Rating on Revenue:

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.



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)



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.

```
-- Quarterly Revenue Growth
  78 • ⊕ MITH QuarterlyRevenue AS (
  79
             SELECT
                 YEAR(sale_date) AS sale_year,
  80
  81
                 QUARTER(sale_date) AS sale_quarter,
                 SUM(revenue) A5 total_quarterly_revenue
  82
   83
             FROM
   84
                 Sales
             GROUP BY
   85
                 YEAR(sale date),
   86
  87
                 (MIARTER(sale date)
   88
         ),
   89
         QuarterlyRevenueWithLag AS (
             SELECT
   90
  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
                 QuarterlyRevenue
   98
  gq
  100
         SELECT
  101
             gr.sale year,
          qr.sale_quarter,
  102
  183
             qr.total_quarterly_revenue,
  164
             qr.previous_quarter_revenue,
  185
  186
                 WHEN gr.previous quarter_revenue = 0 THEN MULL
  107
                 ELSE ( (qr.total_quarterly_revenue - qr.previous_quarter_revenue) * 100.0 / qr.previous_quarter_revenue )
             END AS quarter_over_quarter_growth_percentage
  188
        FROM
189
            QuarterlyRevenueWithLag gr
111
        ORDER BY
112
            qr.sale_year DESC,
113
            qr.sale_quarter ASC;
  Result Grid Filter Rows:
                                                     Export: Wrap Cell Content: IA
       sale_year
                   sale_quarter
                                   total_quarterly_revenue
                                                              previous_quarter_revenue quarter_over_quarter_growth_percentage
      2024
                                   480000.00
                                                              330000.00
                                                                                           45.4545455
                   1
                   2
      2024
                                   135000.00
                                                              480000.00
                                                                                           -71.8750000
      2023
                                   320000.00
                                                              150000.00
                                                                                           113.3333333
      2023
                   2
                                   270000.00
                                                              320000.00
                                                                                           -15.6250000
      2023
                   3
                                   590000.00
                                                              270000.00
                                                                                           118.5185185
      2023
                                   330000.00
                                                              590000.00
                                                                                           -44.0677966
                                                                                          NULL
      2022
                   2
                                   285000.00
                                                             0.00
                                                                                           -47.3684211
      2022
                                   150000.00
                                                              285000.00
```

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).

```
-- Comprehensive project summary
116
117 •
        WITH
            ProjectProfitStatus AS (
118
119
                 SELECT
                    project id,
120
                     project_name,
121
122
                    budget,
                     actual_cost,
123
124
                    CASE
125
                         WHEN budget > actual_cost THEN 'Profitable'
                         WHEN budget = actual_cost THEN 'Break-even'
126
                         WHEN budget < actual cost THEN 'Loss'
127
128
                         ELSE 'Unknown'
                     END AS profit status
129
130
                 FROM
131
                    Projects
132
            ),
            ProjectDuration AS (
133
134
                 SELECT
                    project_id,
135
                    project_name,
136
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
            )
        SELECT
145
146
            p.project_name,
            c.client name,
147
```

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

Autonomous Driving Software AutoDrive Systems

Mobile Banking App

POS System Integration

FinanceFlow Ltd.

RetailLink Corp.

Frank

Carol

Alice

```
148
              e.first name AS project manager first name,
              e.last name AS project manager last name,
149
158
              p.budget,
              p.actual cost,
151
              pps.profit status,
152
153
              p.delivery rating,
154
              pd.duration_in_days
155
         FROM
              Projects p
156
157
         INNER JOIN
158
              Clients c ON p.client_id = c.client_id
159
         INNER JOIN
              Employees e ON p.project manager id = e.employee id
168
161
              ProjectProfitStatus pps ON p.project id = pps.project id
162
163
         INNER JOIN
164
              ProjectDuration pd ON p.project id = pd.project id;
165
                                        Export: Wrap Cell Content: TA
Result Grid Fiter Rows:
                             dent name
                                                project_manager_first_name project_manager_last_name
   project_name
                                                                                                 budget
                                                                                                            actual cost profit_status delivery_rating_duration_in_days
                                                                                                 150000.00 145000.00 Profitable
                            Global Innovations Inc.

    AI-Powered CRM System

                                                Alce
                                                                         Johnson
                                                                                                                                   5
                                                                                                                                                 171
                                                                                                                                   4
   Telemedicine Platform
                            MediCare Solutions
                                                Carol
                                                                        Davis
                                                                                                200000.00 210000.00 Loss
                                                                                                                                                 198
                            RetailLink Corp.
                                                                                                 120000.00 118000.00 Profitable
                                                                                                                                   5
   E-commerce Redesign
                                                Alice
                                                                        Johnson
                                                                                                                                                 195
   Investment Analytics Tool
                            FinanceFlow Ltd.
                                                Caro
                                                                        Davis
                                                                                                 180000.00 175000.00 Profitable
                                                                                                                                   5
                                                                                                                                                 244
   Online Learning Module
                            EduTech Group
                                                Frank
                                                                                                           95000.00
                                                                                                                                   3
                                                                        Taylor
                                                                                                 90000.00
                                                                                                                      Loss
                                                                                                                                                 239
                                                                                                                                   4
   Patient Portal Upgrade
                            MediCare Solutions
                                                Carol
                                                                        Davis
                                                                                                 130000.00 135000.00 Loss
                                                                                                                                                 223
```

Taylor

Davis

Johnson

4

3

5

273

264

242

Loss

Loss Profitable

300000.00 310000.00

190000.00 195000.00

90000.00

95000.00