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   SQL ANALYSIS PROJECT

   Real Estate Transactions Dataset
   Source: Dubai Land Department (United Arab Emirates)

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   Description:
   SQL-based analysis of apartment sales in Dubai  (Jan-Sep 2025).
   Focus on pricing trends, transaction status, and area insights.
   Includes  two  detailed  tables  for  JVC to explore flat type
   distribution and price vs size relationships.

   SQL Flavour: Microsoft SQL Server

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-- SECTION 1: Table Updates
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-- 1. Function to Convert Selected Text to Title Case

CREATE FUNCTION dbo.ToTitleCase (@text VARCHAR(200))
RETURNS VARCHAR(200)
AS
BEGIN
    DECLARE @result VARCHAR(200) = LOWER(@text);
    DECLARE @pos INT = 1;

    WHILE @pos <= LEN(@result)
    BEGIN
        IF @pos = 1 OR SUBSTRING(@result, @pos - 1, 1) = ' '
            SET @result = STUFF(
                @result,
                @pos,
                1,
                UPPER(SUBSTRING(@result, @pos, 1))
            );
        SET @pos = @pos + 1;
    END

    RETURN @result;
END;
```

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-- 2. Update Area Names in Original Table

UPDATE dldjansep2025.dbo.[transactions-2025-10-04]
    SET AREA_EN = dbo.ToTitleCase(AREA_EN);



-- 3. Update Area Name of Island 2

UPDATE dldjansep2025.dbo.[transactions-2025-10-04]
    SET AREA_EN = 'Jumeirah Island 2'
    WHERE AREA_EN = 'Island 2';




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-- SECTION 2: Descriptive Analysis
-- =============================================================

-- 1. Average Price Per Squermeter by Area and Status

SELECT
    area_en AS area,
    is_offplan_en AS status,
    ROUND(AVG(trans_value),2) AS avg_price_AED,
    ROUND(AVG(trans_value/ACTUAL_AREA),2) AS avg_psqm_AED,
    COUNT (*) AS total_transactions
FROM dldjansep2025.dbo.[transactions-2025-10-04]
WHERE PROP_SB_TYPE_EN IN ('Flat')
GROUP BY area_en, is_offplan_en
ORDER BY area_en, is_offplan_en;



-- 2. Market Share of Off-Plan vs Ready Apartments

SELECT
    area_en AS area,
    is_offplan_en AS status,
    COUNT (*) AS total_transactions,
    CAST(COUNT(*) * 100.0 / SUM(COUNT(*)) OVER (PARTITION BY area_en)
        AS decimal(5,2)) AS percent_share
FROM dldjansep2025.dbo.[transactions-2025-10-04]
WHERE prop_sb_type_en IN ('Flat')
GROUP BY area_en, is_offplan_en
ORDER BY area_en, percent_share DESC;



-- 3. Identify Hotspots for Off-Plan Pricing

SELECT
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106        area_en AS area,
107        COUNT (*) AS total_transactions,
108        ROUND(AVG(trans_value/actual_area),2) AS avg_psqm_AED
109 FROM dldjansep2025.dbo.[transactions-2025-10-04]
110 WHERE prop_sb_type_en IN ('Flat') AND
111        is_offplan_en = 'Off-Plan'
112 GROUP BY area_en
113 ORDER BY avg_psqm_AED DESC;
114
115
116
117 -- 4. Compute Price Gaps Between Off-Plan and Ready Properties by Areas
118
119 WITH area_prices AS (
120 SELECT
121        area_en,
122        is_offplan_en,
123        ROUND(AVG(trans_value/ACTUAL_AREA),2) AS avg_psqm
124 FROM dldjansep2025.dbo.[transactions-2025-10-04]
125 WHERE prop_sb_type_en IN ('Flat')
126 GROUP BY area_en, is_offplan_en
127 )
128
129 SELECT
130        a.area_en AS area,
131        a.avg_psqm AS offplan_psqm_AED,
132        b.avg_psqm AS ready_psqm_AED,
133        (a.avg_psqm - b.avg_psqm) AS price_gap_AED
134 FROM area_prices AS a
135 JOIN area_prices AS b
136 ON a.area_en = b.area_en
137 AND a.is_offplan_en = 'Off-Plan'
138 AND b.is_offplan_en = 'Ready'
139 ORDER BY price_gap_AED DESC;
140
141
142
143
144 -- ============================================================
145 -- SECTION 3: Ranking Insights and Trends
146 -- ============================================================
147
148 -- 1. Ranking Based on Average Price Per Squermeter
149
150 WITH area_avg AS (
151     SELECT
152         area_en,
153         ROUND(AVG(trans_value / actual_area), 2) AS avg_psqm_AED
154     FROM dldjansep2025.dbo.[transactions-2025-10-04]
155     WHERE prop_sb_type_en = 'Flat'
156     GROUP BY area_en
157 )
158 SELECT
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159        area_en,
160        avg_psqm_AED,
161        RANK() OVER (ORDER BY avg_psqm_AED DESC) AS price_rank
162 FROM area_avg
163 ORDER BY price_rank;
164
165
166
167 -- 2. Ranking Based Transaction Volume per Status (Off-Plan, Ready)
168 --    Listing the Top 10 Areas
169
170 WITH area_volume AS (
171     SELECT
172         area_en AS area,
173         is_offplan_en AS status,
174         COUNT(*) AS transactions
175     FROM dldjansep2025.dbo.[transactions-2025-10-04]
176     GROUP BY area_en, is_offplan_en
177 ),
178 ranked AS (
179     SELECT
180         area,
181         status,
182         transactions,
183         RANK() OVER (PARTITION BY status ORDER BY transactions DESC)
                  AS volume_rank
184     FROM area_volume
185 )
186 SELECT
187     area,
188     status,
189     transactions,
190     volume_rank
191 FROM ranked
192 WHERE volume_rank <= 10
193 ORDER BY status, volume_rank;
194
195
196
197 -- 3. Monthly Price Trends per Area
198
199 SELECT
200     area_en AS area,
201     is_offplan_en AS status,
202     LEFT(instance_date, 7) AS transaction_month,
203     ROUND(AVG(trans_value / actual_area), 2) AS avg_psqm_AED
204 FROM dldjansep2025.dbo.[transactions-2025-10-04]
205 GROUP BY area_en, is_offplan_en, LEFT(instance_date, 7)
206 ORDER BY area_en, transaction_month, is_offplan_en;
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211  -- =========================================================
212  -- SECTION 4: JVC Area Analysis
213  -- =========================================================
214
215  -- 1. Exploreing Apartment Type Distribution
216
217  SELECT
218      rooms_en AS type,
219      ROUND(AVG(actual_area), 2) AS avg_size,
220      ROUND(AVG(trans_value), 2) AS avg_price_AED,
221      ROUND(AVG(trans_value / actual_area), 2) AS avg_psqm_AED,
222      COUNT(*) AS total,
223      CAST(COUNT(*) * 100.0 / SUM(COUNT(*)) OVER () AS decimal (5,2)) AS  ⮌
             percent_share
224  FROM dldjansep2025.dbo.[transactions-2025-10-04]
225  WHERE prop_sb_type_en = 'Flat'
226      AND area_en = 'JUMEIRAH VILLAGE CIRCLE'
227      AND rooms_en IS NOT NULL
228  GROUP BY rooms_en
229  ORDER BY avg_size;
230
231
232
233  -- 2. Exploreing Apartment Price vs Size Relationships
234
235  WITH room_stats AS (
236      SELECT
237          rooms_en,
238          ROUND(AVG(actual_area), 2) AS avg_size,
239          ROUND(AVG(trans_value), 2) AS avg_price_AED
240      FROM dldjansep2025.dbo.[transactions-2025-10-04]
241      WHERE prop_sb_type_en = 'Flat'
242        AND area_en = 'JUMEIRAH VILLAGE CIRCLE'
243        AND rooms_en IS NOT NULL
244      GROUP BY rooms_en
245  )
246  SELECT
247      rooms_en AS type,
248      avg_size,
249      LAG(avg_size) OVER (ORDER BY avg_size) AS prev_avg_size,
250      avg_price_AED,
251      LAG(avg_price_AED) OVER (ORDER BY avg_price_AED) AS                 ⮌
             prev_avg_price_AED,
252      ROUND(avg_size / NULLIF(LAG(avg_size) OVER (ORDER BY avg_size),     ⮌
           0), 2) AS size_gain,
253      ROUND(avg_price_AED / NULLIF(LAG(avg_price_AED) OVER (ORDER BY      ⮌
             avg_price_AED), 0), 2) AS price_increase
254  FROM room_stats
255  ORDER BY avg_size;
256
```