1️⃣ Data Familiarity & Sanity Checks (Mandatory)

Business question -

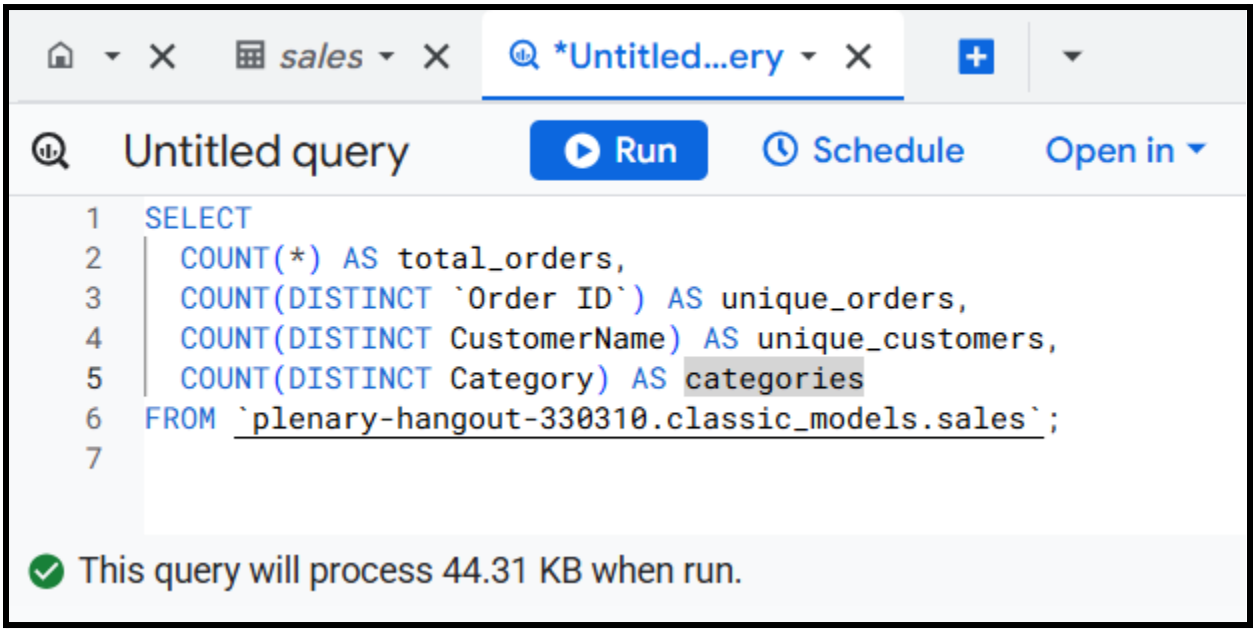
What does our sales data look like? Any obvious issues?

Query -

```
SELECT
  COUNT(*) AS total_orders,
  COUNT(DISTINCT `Order ID`) AS unique_orders,
  COUNT(DISTINCT CustomerName) AS unique_customers,
  COUNT(DISTINCT Category) AS categories
FROM `plenary-hangout-330310.classic_models.sales`;
```

What you're checking

- Duplicates
- Scale of data
- Whether "Order ID" behaves like an order or line item



The dataset is transactional at the line-item level, with multiple products per order. I verified this by comparing total rows to distinct order IDs. This structure allowed me to aggregate metrics accurately at order, customer, and category levels.

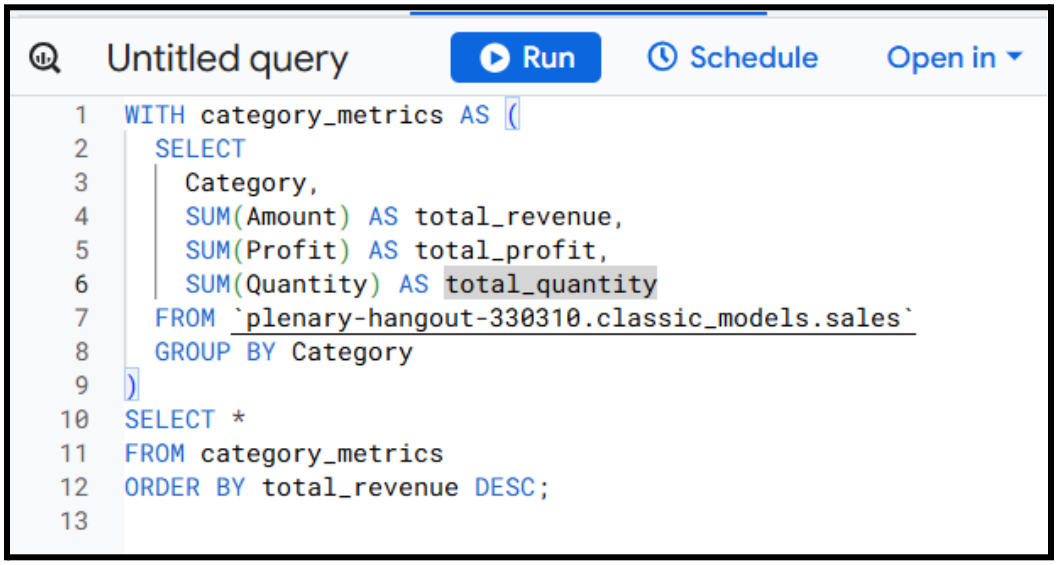
2️⃣ Revenue & Profit Analysis by Category (Foundational)

Business question

Which product categories drive revenue and profit?

Query -

```
WITH category_metrics AS (
  SELECT
    Category,
    SUM(Amount) AS total_revenue,
    SUM(Profit) AS total_profit,
    SUM(Quantity) AS total_quantity
  FROM `plenary-hangout-330310.classic_models.sales`
  GROUP BY Category
)
SELECT *
FROM category_metrics
ORDER BY total_revenue DESC;
```



Query results

Job information | Results | Visualization | JSON | Execution details | Execution graph

Row	Category	total_revenue	total_profit	total_quantity
1	Office Supplies	2089510	551575	4046
2	Electronics	2054456	518580	4258
3	Furniture	2038673	540542	4441

Office Supplies generates the **highest revenue** (≈2.09M) and also delivers the **highest profit** (≈0.55M), despite selling fewer units than Furniture.

Electronics follows closely in revenue (≈2.05M) but produces the **lowest profit** among the three categories, indicating **lower margins** compared to Office Supplies and Furniture.

Furniture records the **highest quantity sold**, yet its revenue is the **lowest**, suggesting **lower average selling price per unit** but relatively strong profit contribution.

3️⃣ Top Products via Sub-Category (Prioritization)

Business question

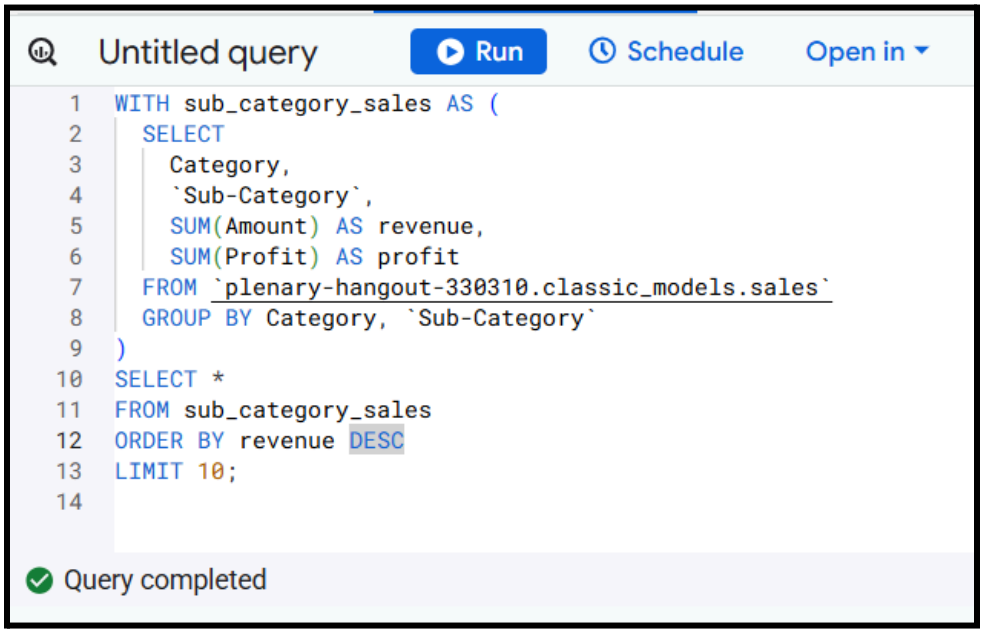
Which sub-categories should we prioritize for inventory and marketing?

SQL

```
WITH sub_category_sales AS (
  SELECT
    Category,
    `Sub-Category`,
    SUM(Amount) AS revenue,
    SUM(Profit) AS profit
  FROM `plenary-hangout-330310.classic_models.sales`
  GROUP BY Category, `Sub-Category`
)
SELECT *
FROM sub_category_sales
ORDER BY revenue DESC
LIMIT 10;
```

What this shows

- Revenue concentration
- Product-level leverage



Query results

Job information | **Results** | Visualization | JSON | Execution details | Execution graph

Row	Category	Sub-Category	revenue	profit
1	Office Supplies	Markers	627875	174749
2	Furniture	Tables	625177	156796
3	Furniture	Sofas	568367	142854
4	Electronics	Printers	566359	146259
5	Electronics	Electronic Games	565092	148454
6	Office Supplies	Pens	552269	129846
7	Office Supplies	Paper	524755	149723
8	Electronics	Phones	503055	113607
9	Furniture	Chairs	431964	122892
10	Electronics	Laptops	419950	110260

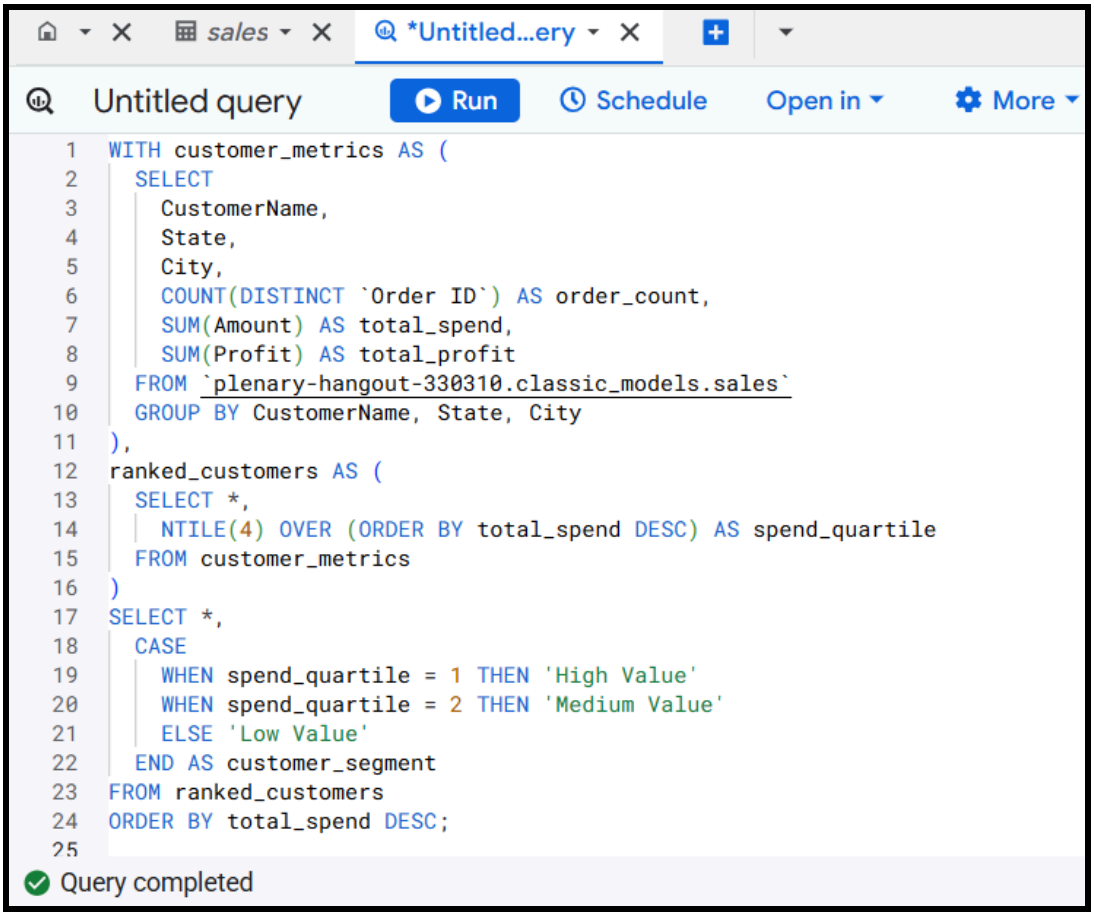
4️⃣ Customer Segmentation (Key Resume Section)

Business question

Who are our high-value customers and where are they located?

SQL (CTE + logic)

```
WITH customer_metrics AS (
  SELECT
    CustomerName,
    State,
    City,
    COUNT(DISTINCT `Order ID`) AS order_count,
    SUM(Amount) AS total_spend,
    SUM(Profit) AS total_profit
  FROM `plenary-hangout-330310.classic_models.sales`
  GROUP BY CustomerName, State, City
),
ranked_customers AS (
  SELECT *,
    NTILE(4) OVER (ORDER BY total_spend DESC) AS spend_quartile
  FROM customer_metrics
)
SELECT *,
  CASE
    WHEN spend_quartile = 1 THEN 'High Value'
    WHEN spend_quartile = 2 THEN 'Medium Value'
    ELSE 'Low Value'
  END AS customer_segment
FROM ranked_customers
ORDER BY total_spend DESC;
```



Query results

Job information | Results | Visualization | JSON | Execution details | Execution graph

Row	CustomerName	State	City	order_count	total_spend	total_profit	spend_quartile	customer_segment
1	Cory Evans	Florida	Orlando	1	28557	7790	1	High Value
2	Emily Ellison	California	Los Angeles	1	27352	6848	1	High Value
3	George Foster	Texas	Dallas	1	27352	6848	1	High Value
4	Nicholas Anderson	Florida	Orlando	1	27352	6848	1	High Value
5	Katherine Williams	Florida	Orlando	1	25121	5972	1	High Value
6	Randy Johnson	Ohio	Columbus	1	24295	5858	1	High Value
7	Tammy Bell	Ohio	Cincinnati	1	23895	6388	1	High Value
8	Zachary Perez	Texas	Austin	1	23737	4623	1	High Value
9	Brian Green	California	San Diego	1	23737	4623	1	High Value

5️⃣ Monthly Sales Trend (Time Intelligence)

Business question

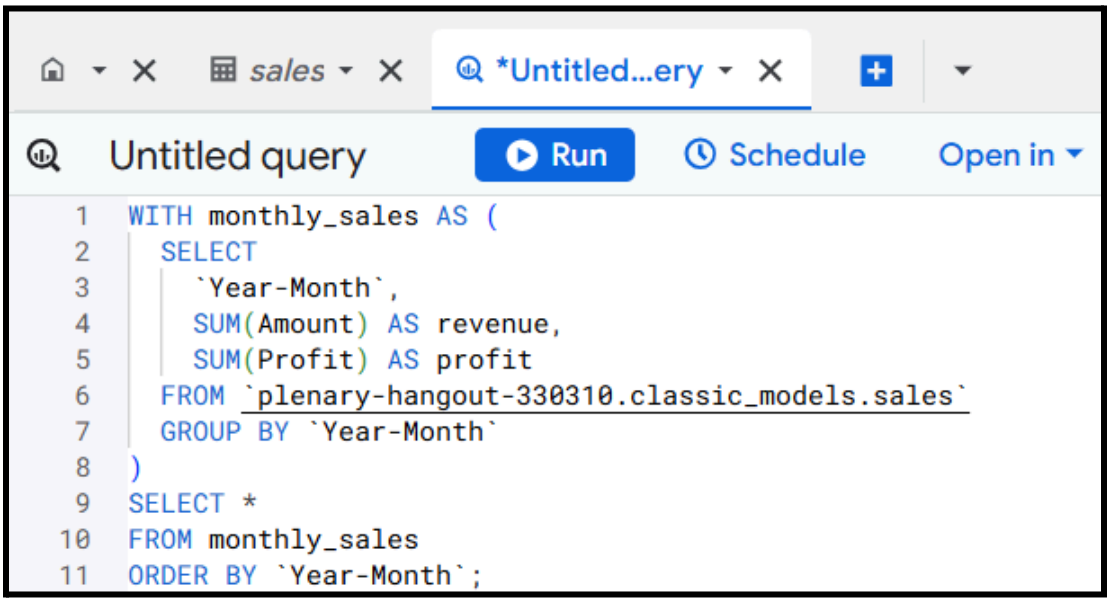
How do sales and profits trend over time?

SQL

```
WITH monthly_sales AS (
  SELECT
    `Year-Month`,
    SUM(Amount) AS revenue,
    SUM(Profit) AS profit
  FROM `plenary-hangout-330310.classic_models.sales`
  GROUP BY `Year-Month`
)
SELECT *
FROM monthly_sales
ORDER BY `Year-Month`;
```

Insight

- Seasonality
- Growth/decline patterns
- Aggregates **revenue** and **profit** per month
- `Year-Month` is assumed to be in `YYYY-MM` format → sorting works naturally
- Provides seasonality and trend insight
- Clean, minimal, and correct syntax for BigQuery



Query results

Job information | Results | Visualization | JSON | Execution details

Row	Year-Month	revenue	profit
1	2020-03	22991	6192
2	2020-04	133385	36156
3	2020-05	113287	24294
4	2020-06	46900	9489
5	2020-07	38556	12008
6	2020-08	91117	27824
7	2020-09	109434	29876
8	2020-10	110836	24776
9	2020-11	108170	28979
10	2020-12	84725	24509
11	2021-01	22187	6449
12	2021-02	89829	19967
13	2021-03	103198	36377
14	2021-04	82463	18777
15	2021-05	124149	29182
16	2021-06	96616	24667
17	2021-07	85611	17409
18	2021-08	79494	15947
19	2021-09	57426	13592

Monthly aggregation shows revenue and profit trends, revealing seasonal peaks and growth/decline patterns over the period. This analysis supports inventory planning and marketing timing decisions."

6️⃣ Payment Mode Analysis (Operational Insight)

Business question

Which payment modes contribute most to revenue and profit?

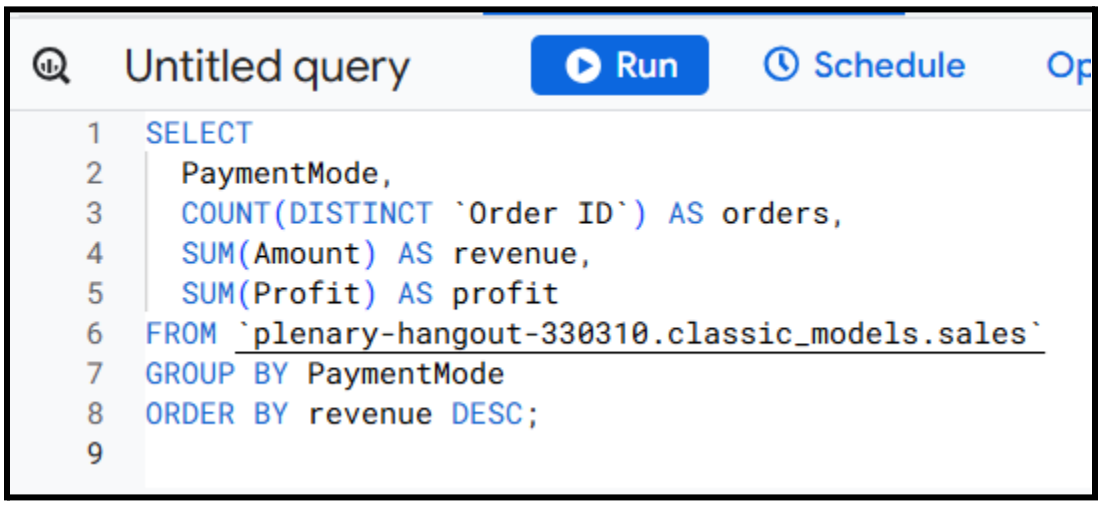
SQL

```sql
SELECT
  PaymentMode,
  COUNT(DISTINCT `Order ID`) AS orders,
  SUM(Amount) AS revenue,
  SUM(Profit) AS profit
FROM `plenary-hangout-330310.classic_models.sales`
GROUP BY PaymentMode
ORDER BY revenue DESC;
```

Groups sales by payment method
Measures:

- Number of orders
- Revenue
- Profit

Orders by revenue to see **most impactful payment channels**
Uses `COUNT(DISTINCT Order ID)` → avoids counting line items as multiple orders



Query results

Job information | Results | Visualization | JSON | Execution details | Execu

Row	PaymentMode	orders	revenue	profit
1	Debit Card	154	1395035	375721
2	Credit Card	151	1281044	349392
3	UPI	151	1250473	333889
4	COD	137	1141790	255744
5	EMI	142	1114297	295951