Buildables Week 1

Day 1 – Foundation (SELECT, WHERE, ORDER BY)

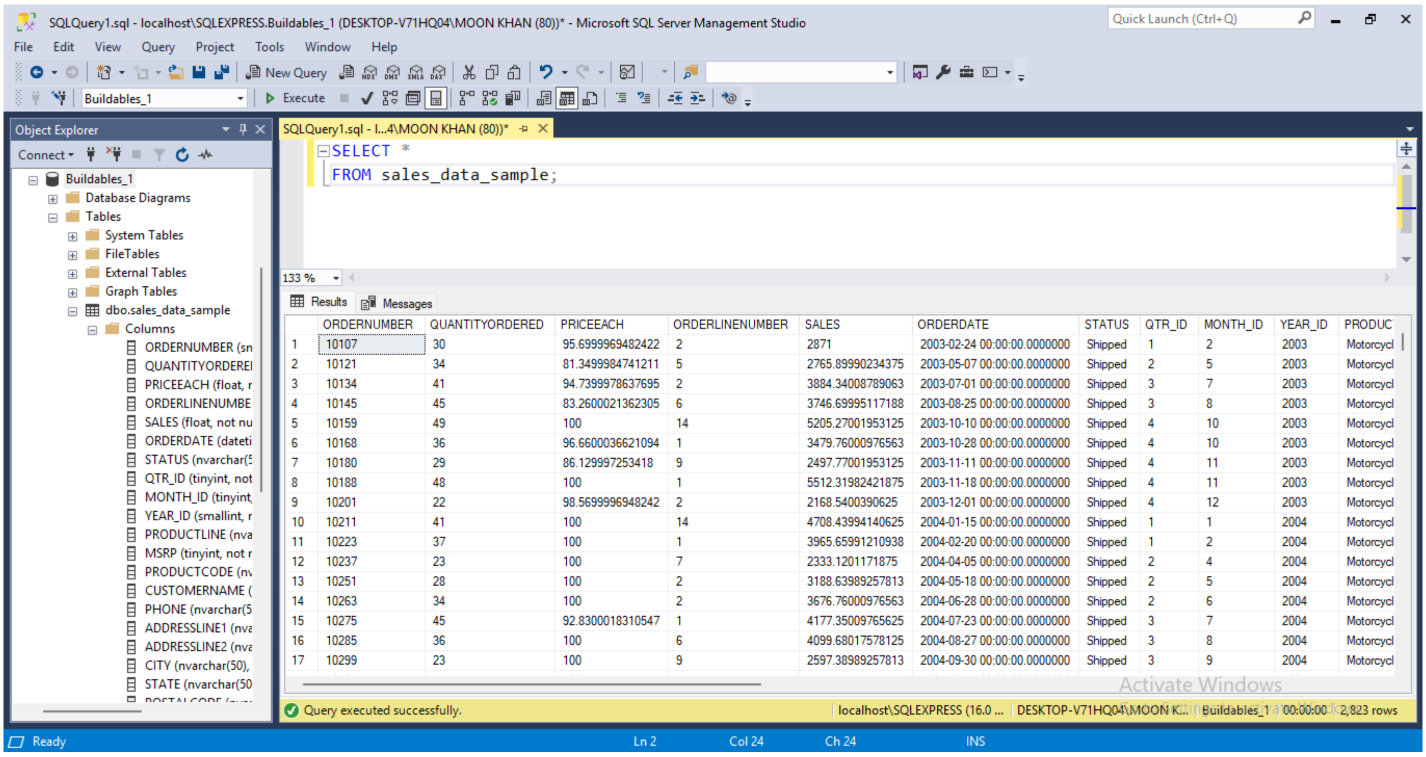
Query 1:

- **Purpose:** See full sales dataset (raw form).
- **Concepts Used:** SELECT
- **Code:**

```
SELECT *

FROM sales_data_sample;
```

- **Expected Output:** Entire table with all columns.
- **Business Insight:** Gives complete picture of sales records.



SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (80))* - Microsoft SQL Server Management Studio

```
SELECT *
FROM sales_data_sample;
```

	ORDERNUMBER	QUANTITYORDERED	PRICEEACH	ORDERLINENUMBER	SALES	ORDERDATE	STATUS	QTR_ID	MONTH_ID	YEAR_ID	PRODUC
1	10107	30	95.6999969482422	2	2871	2003-02-24 00:00:00.0000000	Shipped	1	2	2003	Motorcycl
2	10121	34	81.3499984741211	5	2765.89990234375	2003-05-07 00:00:00.0000000	Shipped	2	5	2003	Motorcycl
3	10134	41	94.7399978637695	2	3884.34008789063	2003-07-01 00:00:00.0000000	Shipped	3	7	2003	Motorcycl
4	10145	45	83.2600021362305	6	3746.69995117188	2003-08-25 00:00:00.0000000	Shipped	3	8	2003	Motorcycl
5	10159	49	100	14	5205.27001953125	2003-10-10 00:00:00.0000000	Shipped	4	10	2003	Motorcycl
6	10168	36	96.6600036621094	1	3479.76000976563	2003-10-28 00:00:00.0000000	Shipped	4	10	2003	Motorcycl
7	10180	29	86.129997253418	9	2497.77001953125	2003-11-11 00:00:00.0000000	Shipped	4	11	2003	Motorcycl
8	10188	48	100	1	5512.31982421875	2003-11-18 00:00:00.0000000	Shipped	4	11	2003	Motorcycl
9	10201	22	98.5699996948242	2	2168.5400390625	2003-12-01 00:00:00.0000000	Shipped	4	12	2003	Motorcycl
10	10211	41	100	14	4708.43994140625	2004-01-15 00:00:00.0000000	Shipped	1	1	2004	Motorcycl
11	10223	37	100	1	3965.65991210938	2004-02-20 00:00:00.0000000	Shipped	1	2	2004	Motorcycl
12	10237	23	100	7	2333.1201171875	2004-04-05 00:00:00.0000000	Shipped	2	4	2004	Motorcycl
13	10251	28	100	2	3188.63989257813	2004-05-18 00:00:00.0000000	Shipped	2	5	2004	Motorcycl
14	10263	34	100	2	3676.76000976563	2004-06-28 00:00:00.0000000	Shipped	2	6	2004	Motorcycl
15	10275	45	92.8300018310547	1	4177.35009765625	2004-07-23 00:00:00.0000000	Shipped	3	7	2004	Motorcycl
16	10285	36	100	6	4099.68017578125	2004-08-27 00:00:00.0000000	Shipped	3	8	2004	Motorcycl
17	10299	23	100	9	2597.38989257813	2004-09-30 00:00:00.0000000	Shipped	3	9	2004	Motorcycl

Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:00 | 2,823 rows

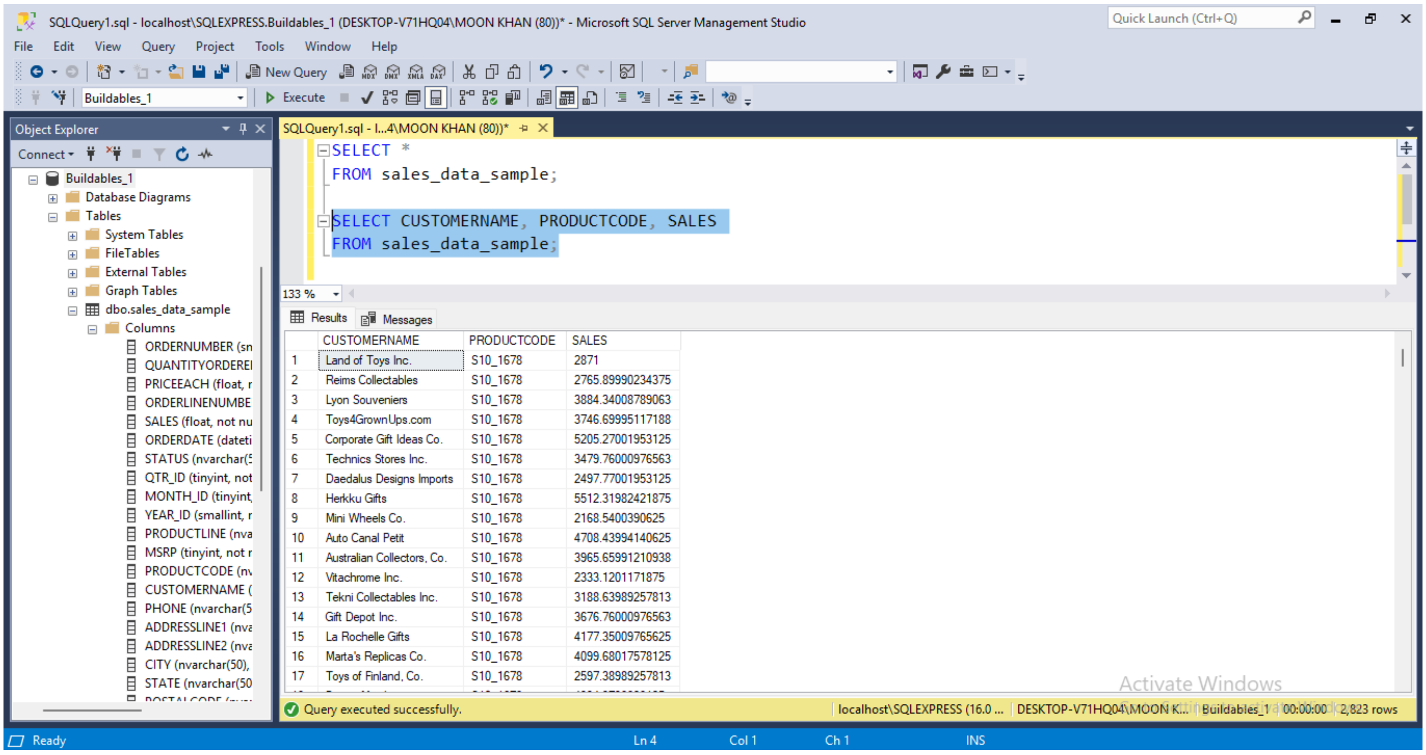
Query 2:

- **Purpose:** View only customer details (name, city, country).
- **Concepts Used:** SELECT
- **Code:**

```
SELECT CUSTOMERNAME, CITY, COUNTRY

FROM sales_data_sample;
```

- **Expected Output:** Customer name + city + country list.
- **Business Insight:** Quick way to focus only on customer information.



```
SELECT *
FROM sales_data_sample;

SELECT CUSTOMERNAME, PRODUCTCODE, SALES
FROM sales_data_sample;
```

	CUSTOMERNAME	PRODUCTCODE	SALES
1	Land of Toys Inc.	S10_1678	2871
2	Reims Collectables	S10_1678	2765.89990234375
3	Lyon Souveniers	S10_1678	3884.34008789063
4	Toys4GrownUps.com	S10_1678	3746.69995117188
5	Corporate Gift Ideas Co.	S10_1678	5205.27001953125
6	Technics Stores Inc.	S10_1678	3479.76000976563
7	Daedalus Designs Imports	S10_1678	2497.77001953125
8	Herkku Gifts	S10_1678	5512.31982421875
9	Mini Wheels Co.	S10_1678	2168.5400390625
10	Auto Canal Petit	S10_1678	4708.43994140625
11	Australian Collectors, Co.	S10_1678	3965.65991210938
12	Vitachrome Inc.	S10_1678	2333.1201171875
13	Tekni Collectables Inc.	S10_1678	3188.63989257813
14	Gift Depot Inc.	S10_1678	3676.76000976563
15	La Rochelle Gifts	S10_1678	4177.35009765625
16	Marta's Replicas Co.	S10_1678	4099.68017578125
17	Toys of Finland, Co.	S10_1678	2597.38989257813

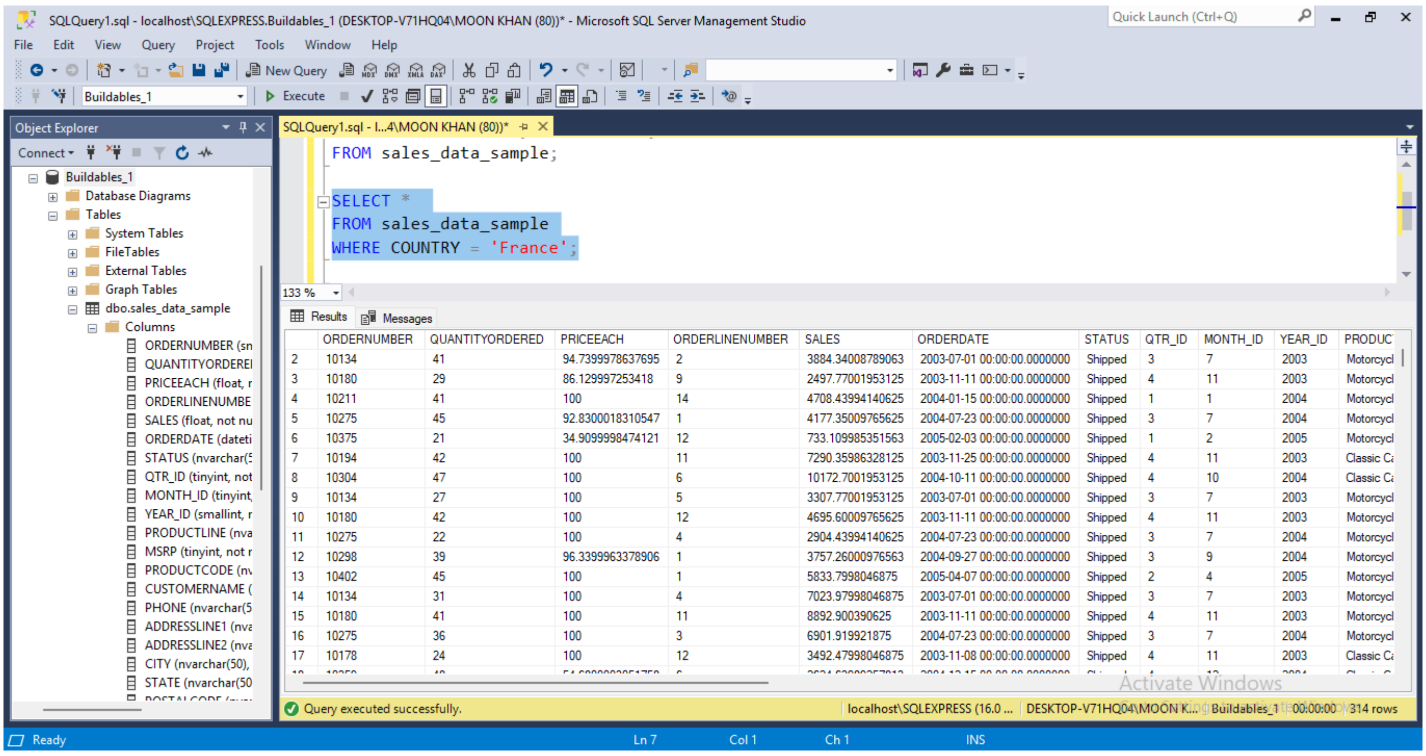
Query executed successfully.

Query 3:

- **Purpose:** Find all orders from France.
- **Concepts Used:** SELECT, WHERE
- **Code:**

```
SELECT ORDERNUMBER, CUSTOMERNAME, COUNTRY
FROM sales_data_sample
WHERE COUNTRY = 'France';
```

- **Expected Output:** Orders placed by France customers.
- **Business Insight:** Identifies region-specific sales.



```
FROM sales_data_sample;

SELECT *
FROM sales_data_sample
WHERE COUNTRY = 'France';
```

	ORDERNUMBER	QUANTITYORDERED	PRICEEACH	ORDERLINENUMBER	SALES	ORDERDATE	STATUS	QTR_ID	MONTH_ID	YEAR_ID	PRODUC
2	10134	41	94.7399978637695	2	3884.34008789063	2003-07-01 00:00:00.0000000	Shipped	3	7	2003	Motorcycl
3	10180	29	86.129997253418	9	2497.77001953125	2003-11-11 00:00:00.0000000	Shipped	4	11	2003	Motorcycl
4	10211	41	100	14	4708.43994140625	2004-01-15 00:00:00.0000000	Shipped	1	1	2004	Motorcycl
5	10275	45	92.8300018310547	1	4177.35009765625	2004-07-23 00:00:00.0000000	Shipped	3	7	2004	Motorcycl
6	10375	21	34.9099998474121	12	733.109985351563	2005-02-03 00:00:00.0000000	Shipped	1	2	2005	Motorcycl
7	10194	42	100	11	7290.35986328125	2003-11-25 00:00:00.0000000	Shipped	4	11	2003	Classic Ca
8	10304	47	100	6	10172.7001953125	2004-10-11 00:00:00.0000000	Shipped	4	10	2004	Classic Ca
9	10134	27	100	5	3307.77001953125	2003-07-01 00:00:00.0000000	Shipped	3	7	2003	Motorcycl
10	10180	42	100	12	4695.60009765625	2003-11-11 00:00:00.0000000	Shipped	4	11	2003	Motorcycl
11	10275	22	100	4	2904.43994140625	2004-07-23 00:00:00.0000000	Shipped	3	7	2004	Motorcycl
12	10298	39	96.3399963378906	1	3757.26000976563	2004-09-27 00:00:00.0000000	Shipped	3	9	2004	Motorcycl
13	10402	45	100	1	5833.7998046875	2005-04-07 00:00:00.0000000	Shipped	2	4	2005	Motorcycl
14	10134	31	100	4	7023.97998046875	2003-07-01 00:00:00.0000000	Shipped	3	7	2003	Motorcycl
15	10180	41	100	11	8892.900390625	2003-11-11 00:00:00.0000000	Shipped	4	11	2003	Motorcycl
16	10275	36	100	3	6901.919921875	2004-07-23 00:00:00.0000000	Shipped	3	7	2004	Motorcycl
17	10178	24	100	12	3492.47998046875	2003-11-08 00:00:00.0000000	Shipped	4	11	2003	Classic Ca

```
Query executed successfully.    localhost\SQLEXPRESS (16.0 ...    DESKTOP-V71HQ04\MOON K...    Buildables_1    00:00:00    314 rows
```

SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (80))* - Microsoft SQL Server Management Studio
Object Explorer
Buildables_1
Tables
dbo.sales_data_sample
Columns
Results
Messages
Ready
Ln 7
Col 1
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INS

Query 4:

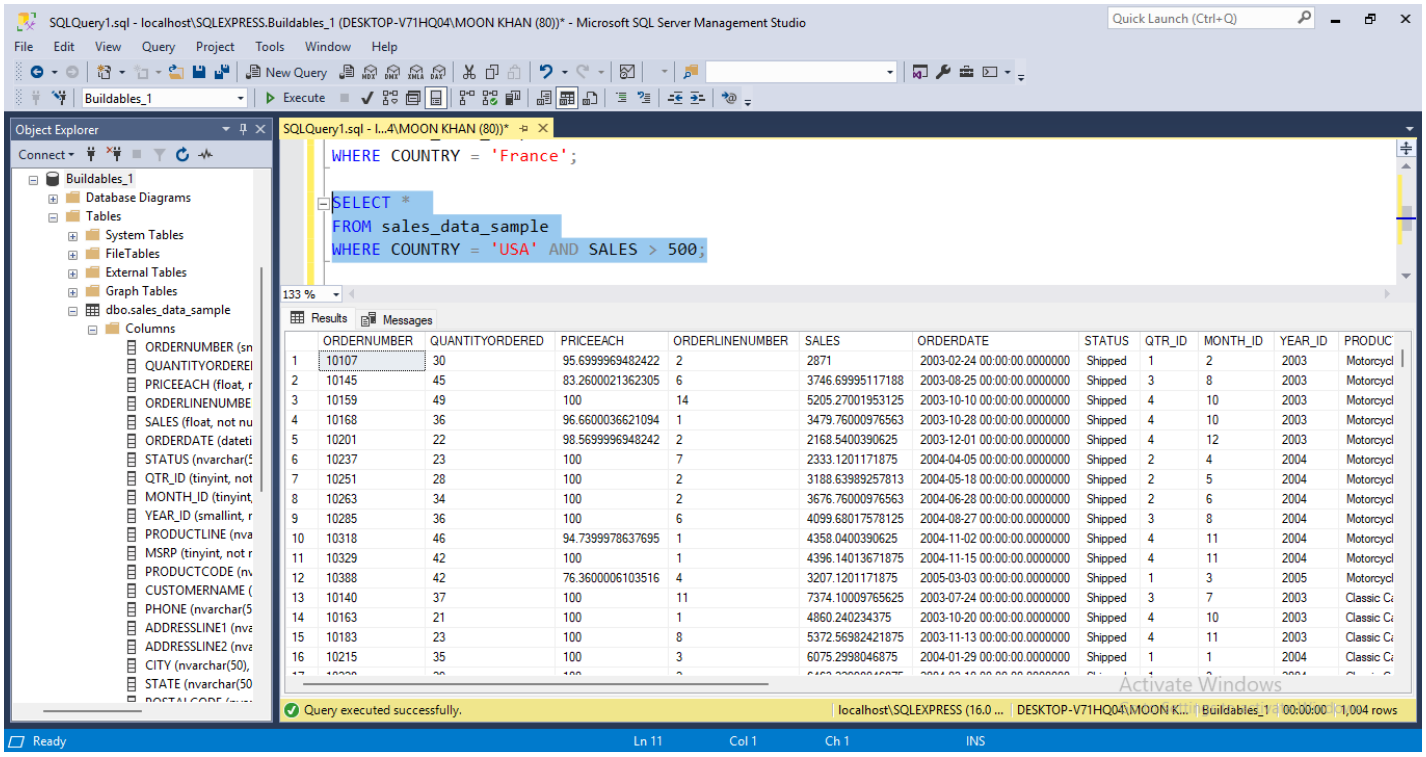
- **Purpose:** Customers from France with sales > 5000.
- **Concepts Used:** SELECT, WHERE, AND
- **Code:**

```
SELECT CUSTOMERNAME, COUNTRY, SALES

FROM sales_data_sample

WHERE COUNTRY = 'France' AND SALES > 5000;
```

- **Expected Output:** High-value French customers.
- **Business Insight:** Useful for targeted marketing.



```
WHERE COUNTRY = 'France';

SELECT *
FROM sales_data_sample
WHERE COUNTRY = 'USA' AND SALES > 500;
```

	ORDERNUMBER	QUANTITYORDERED	PRICEEACH	ORDERLINENUMBER	SALES	ORDERDATE	STATUS	QTR_ID	MONTH_ID	YEAR_ID	PRODUC
1	10107	30	95.6999969482422	2	2871	2003-02-24 00:00:00.0000000	Shipped	1	2	2003	Motorcycl
2	10145	45	83.2600021362305	6	3746.69995117188	2003-08-25 00:00:00.0000000	Shipped	3	8	2003	Motorcycl
3	10159	49	100	14	5205.27001953125	2003-10-10 00:00:00.0000000	Shipped	4	10	2003	Motorcycl
4	10168	36	96.6600036621094	1	3479.76000976563	2003-10-28 00:00:00.0000000	Shipped	4	10	2003	Motorcycl
5	10201	22	98.5699996948242	2	2168.5400390625	2003-12-01 00:00:00.0000000	Shipped	4	12	2003	Motorcycl
6	10237	23	100	7	2333.1201171875	2004-04-05 00:00:00.0000000	Shipped	2	4	2004	Motorcycl
7	10251	28	100	2	3188.63989257813	2004-05-18 00:00:00.0000000	Shipped	2	5	2004	Motorcycl
8	10263	34	100	2	3676.76000976563	2004-06-28 00:00:00.0000000	Shipped	2	6	2004	Motorcycl
9	10285	36	100	6	4099.68017578125	2004-08-27 00:00:00.0000000	Shipped	3	8	2004	Motorcycl
10	10318	46	94.7399978637695	1	4358.0400390625	2004-11-02 00:00:00.0000000	Shipped	4	11	2004	Motorcycl
11	10329	42	100	1	4396.14013671875	2004-11-15 00:00:00.0000000	Shipped	4	11	2004	Motorcycl
12	10388	42	76.3600006103516	4	3207.1201171875	2005-03-03 00:00:00.0000000	Shipped	1	3	2005	Motorcycl
13	10140	37	100	11	7374.10009765625	2003-07-24 00:00:00.0000000	Shipped	3	7	2003	Classic Ca
14	10163	21	100	1	4860.240234375	2003-10-20 00:00:00.0000000	Shipped	4	10	2003	Classic Ca
15	10183	23	100	8	5372.56982421875	2003-11-13 00:00:00.0000000	Shipped	4	11	2003	Classic Ca
16	10215	35	100	3	6075.2998046875	2004-01-29 00:00:00.0000000	Shipped	1	1	2004	Classic Ca

Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:00 | 1,004 rows

Query 5:

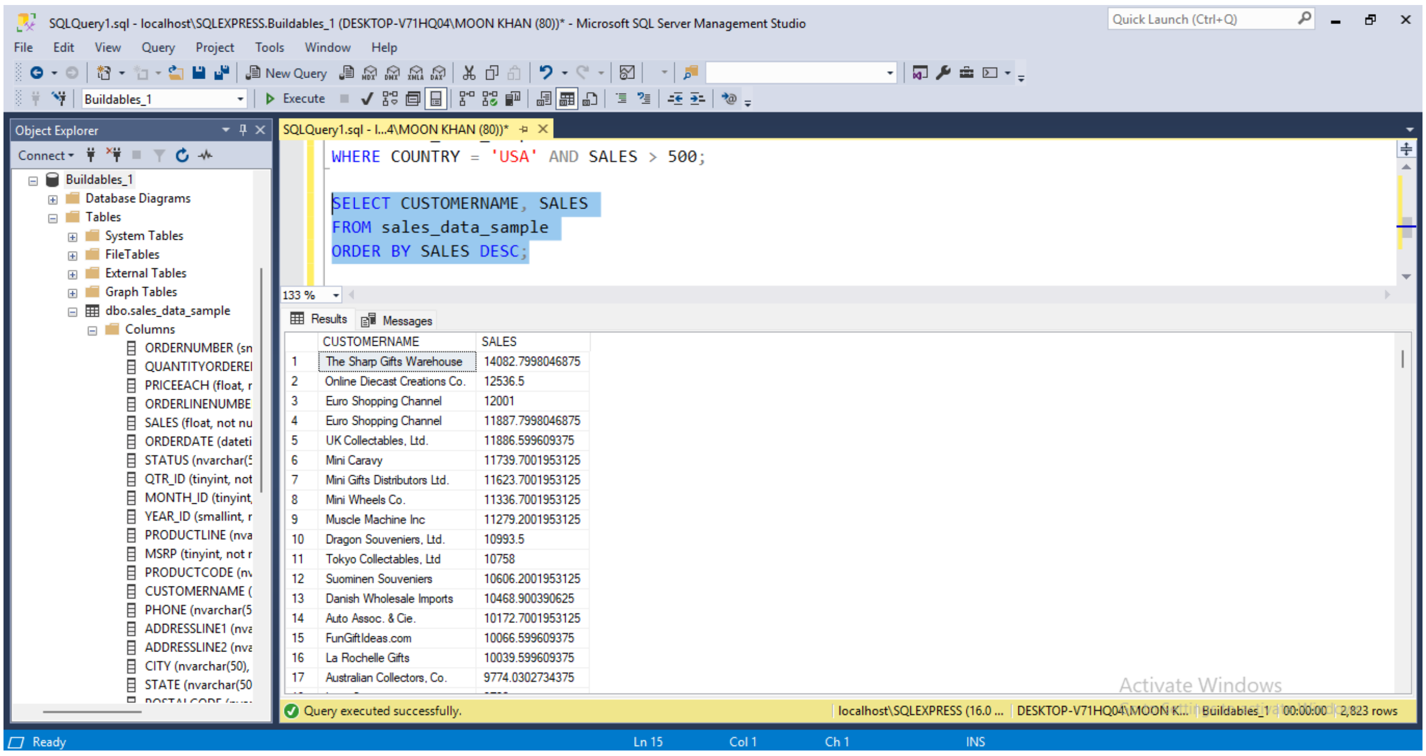
- **Purpose:** Sort orders by most recent first.
- **Concepts Used:** ORDER BY
- **Code:**

```
SELECT ORDERNUMBER, ORDERDATE, STATUS, SALES

FROM sales_data_sample

ORDER BY ORDERDATE DESC;
```

- **Expected Output:** Orders arranged newest → oldest.
- **Business Insight:** Helps monitor latest transactions.


SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (80))* - Microsoft SQL Server Management Studio

```
WHERE COUNTRY = 'USA' AND SALES > 500;

SELECT CUSTOMERNAME, SALES
FROM sales_data_sample
ORDER BY SALES DESC;
```

	CUSTOMERNAME	SALES
1	The Sharp Gifts Warehouse	14082.7998046875
2	Online Diecast Creations Co.	12536.5
3	Euro Shopping Channel	12001
4	Euro Shopping Channel	11887.7998046875
5	UK Collectables, Ltd.	11886.599609375
6	Mini Caravy	11739.7001953125
7	Mini Gifts Distributors Ltd.	11623.7001953125
8	Mini Wheels Co.	11336.7001953125
9	Muscle Machine Inc	11279.2001953125
10	Dragon Souveniers, Ltd.	10993.5
11	Tokyo Collectables, Ltd	10758
12	Suominen Souveniers	10606.2001953125
13	Danish Wholesale Imports	10468.900390625
14	Auto Assoc. & Cie.	10172.7001953125
15	FunGiftIdeas.com	10066.599609375
16	La Rochelle Gifts	10039.599609375
17	Australian Collectors, Co.	9774.0302734375

Query executed successfully. localhost\SQLEXPRESS (16.0 ... DESKTOP-V71HQ04\MOON K... Buildables_1 00:00:00 2,823 rows

📅 Day 2 – Data Aggregation (GROUP BY, HAVING, Aggregates)

Query 6:

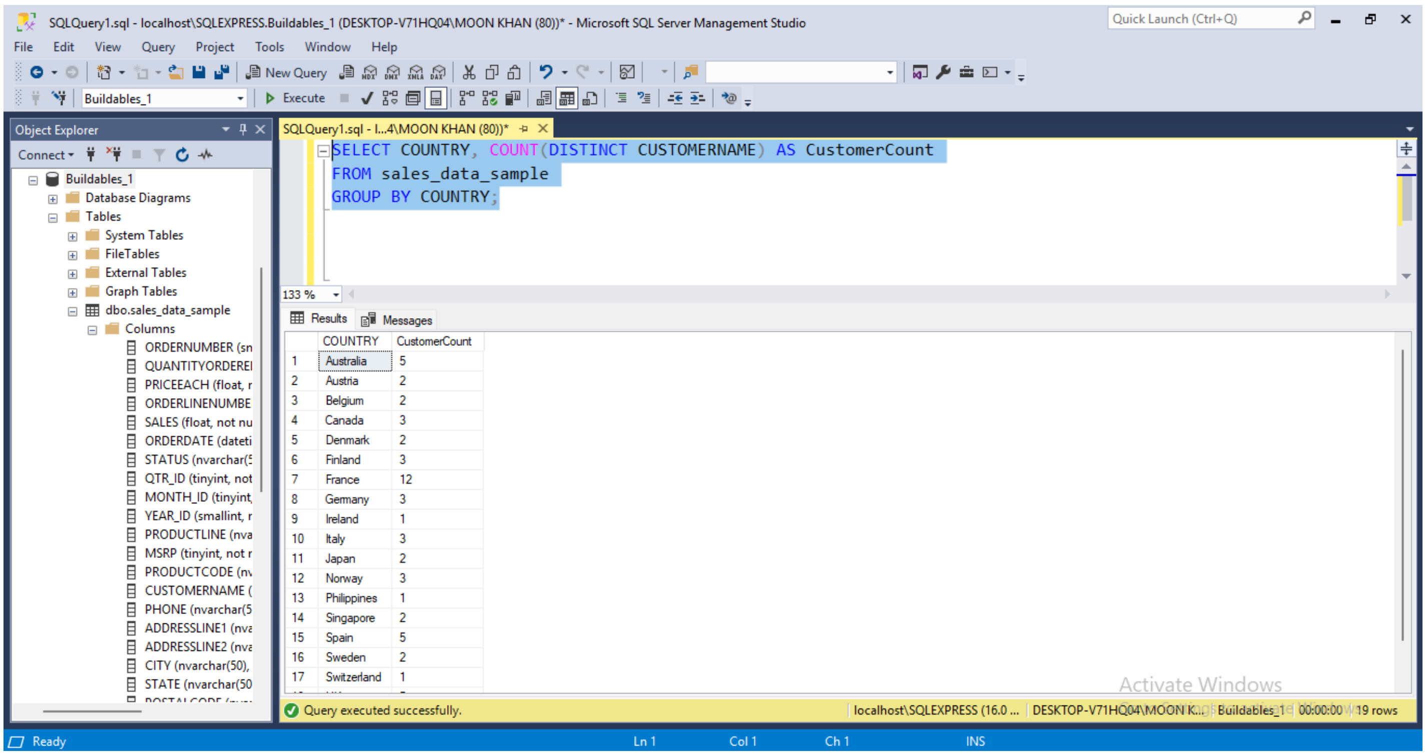
- **Purpose:** Count customers by country.
- **Concepts Used:** GROUP BY, COUNT
- **Code:**

```
SELECT COUNTRY, COUNT(DISTINCT CUSTOMERNAME) AS total_customers

FROM sales_data_sample

GROUP BY COUNTRY;
```

- **Expected Output:** Number of unique customers per country.
- **Business Insight:** Identifies strong vs. weak markets.



```
SELECT COUNTRY, COUNT(DISTINCT CUSTOMERNAME) AS CustomerCount
FROM sales_data_sample
GROUP BY COUNTRY;
```

	COUNTRY	CustomerCount
1	Australia	5
2	Austria	2
3	Belgium	2
4	Canada	3
5	Denmark	2
6	Finland	3
7	France	12
8	Germany	3
9	Ireland	1
10	Italy	3
11	Japan	2
12	Norway	3
13	Philippines	1
14	Singapore	2
15	Spain	5
16	Sweden	2
17	Switzerland	1

Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:00 | 19 rows

Query 7:

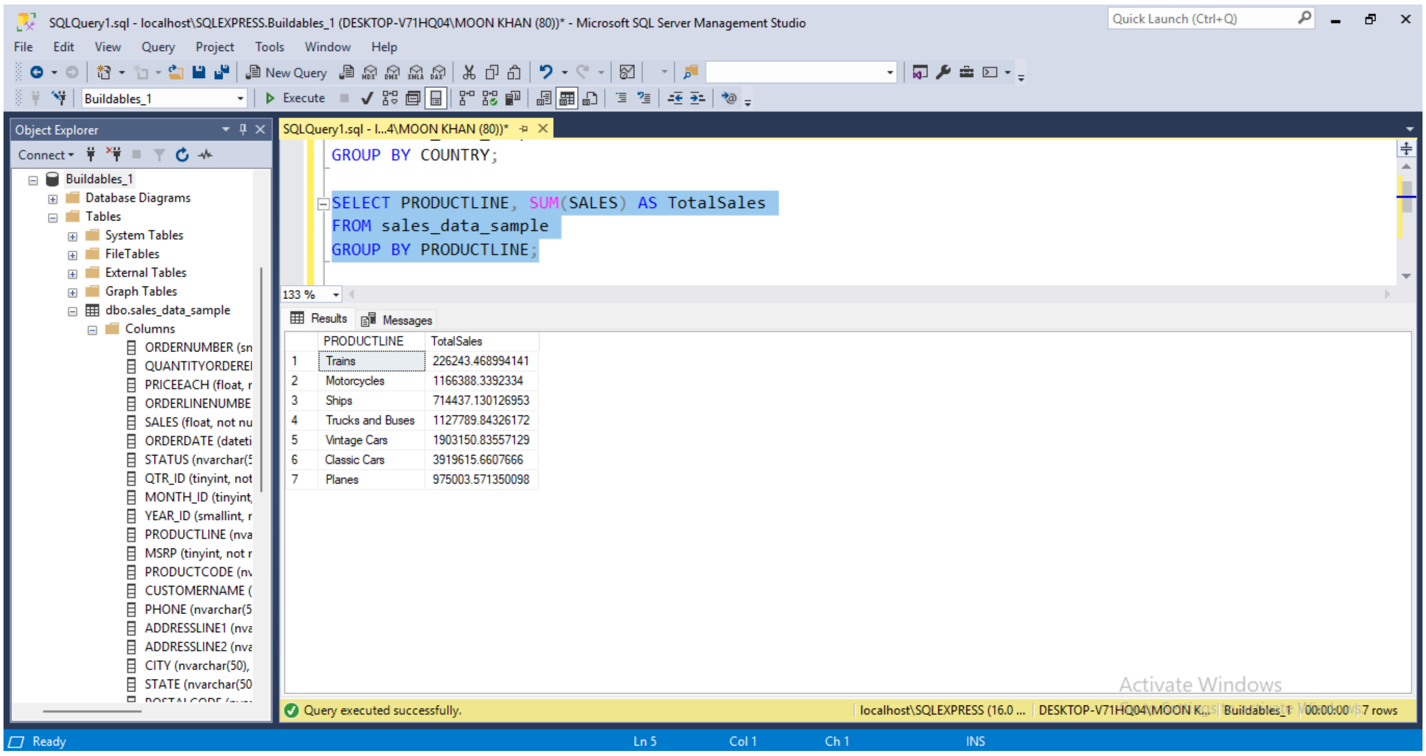
- **Purpose:** Total sales by product line.
- **Concepts Used:** SUM, GROUP BY
- **Code:**

```
SELECT PRODUCTLINE, SUM(SALES) AS total_sales

FROM sales_data_sample

GROUP BY PRODUCTLINE;
```

- **Expected Output:** Sales value grouped by product category.
- **Business Insight:** Shows which product line earns most revenue.



SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (80))* - Microsoft SQL Server Management Studio

```
GROUP BY COUNTRY;

SELECT PRODUCTLINE, SUM(SALES) AS TotalSales
FROM sales_data_sample
GROUP BY PRODUCTLINE;
```

	PRODUCTLINE	TotalSales
1	Trains	226243.468994141
2	Motorcycles	1166388.3392334
3	Ships	714437.130126953
4	Trucks and Buses	1127789.84326172
5	Vintage Cars	1903150.83557129
6	Classic Cars	3919615.6607666
7	Planes	975003.571350098

Query executed successfully. localhost\SQLEXPRESS (16.0 ... DESKTOP-V71HQ04\MOON K... Buildables_1 00:00:00 7 rows

Query 8:

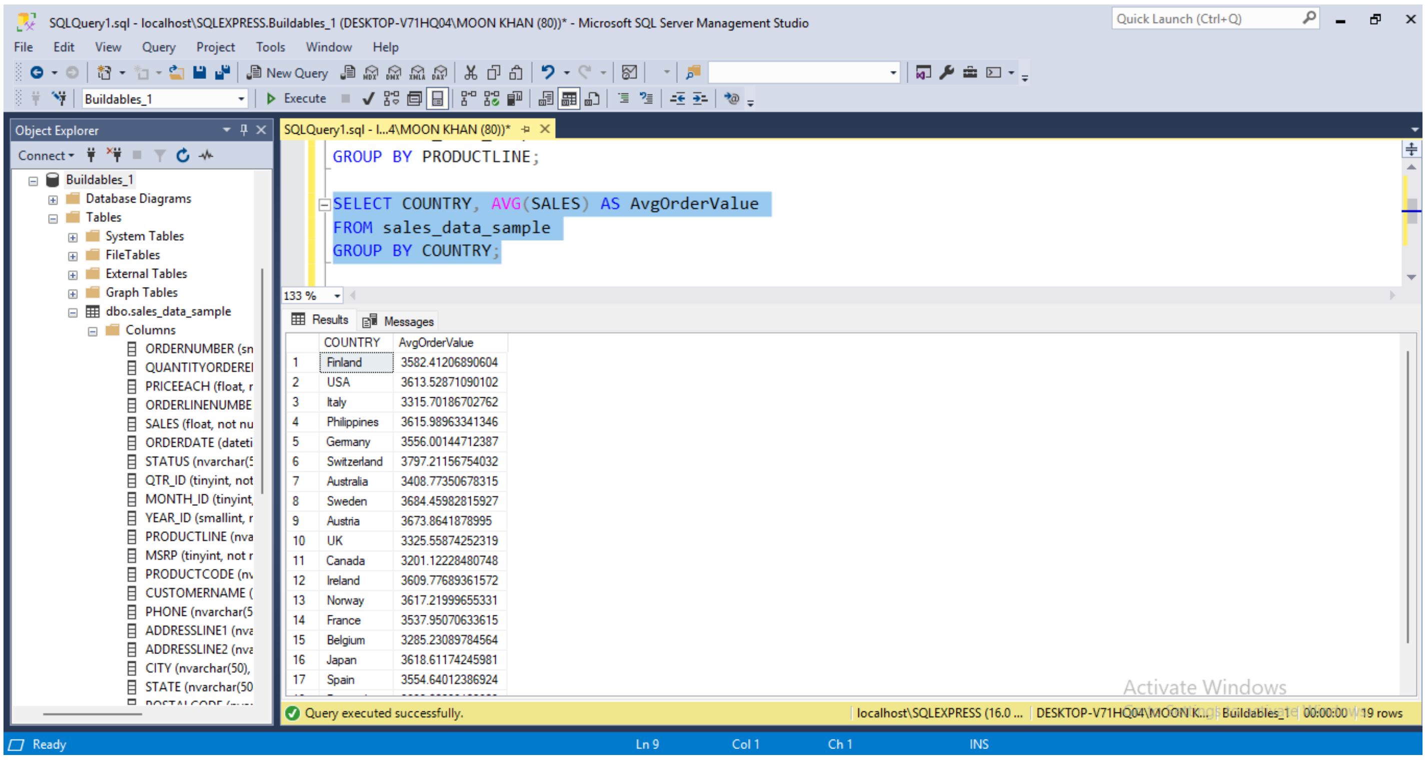
- **Purpose:** Average sales per customer.
- **Concepts Used:** AVG, GROUP BY
- **Code:**

```
SELECT CUSTOMERNAME, AVG(SALES) AS avg_order_value

FROM sales_data_sample

GROUP BY CUSTOMERNAME;
```

- **Expected Output:** Customer-wise average sales.
- **Business Insight:** Detects loyal vs. low-value customers.


SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (80))* - Microsoft SQL Server Management Studio

```
GROUP BY PRODUCTLINE;

SELECT COUNTRY, AVG(SALES) AS AvgOrderValue
FROM sales_data_sample
GROUP BY COUNTRY;
```

	COUNTRY	AvgOrderValue
1	Finland	3582.41206890604
2	USA	3613.52871090102
3	Italy	3315.70186702762
4	Philippines	3615.98963341346
5	Germany	3556.00144712387
6	Switzerland	3797.21156754032
7	Australia	3408.77350678315
8	Sweden	3684.45982815927
9	Austria	3673.8641878995
10	UK	3325.55874252319
11	Canada	3201.12228480748
12	Ireland	3609.77689361572
13	Norway	3617.21999655331
14	France	3537.95070633615
15	Belgium	3285.23089784564
16	Japan	3618.61174245981
17	Spain	3554.64012386924

Query executed successfully. localhost\SQLEXPRESS (16.0 ... DESKTOP-V71HQ04\MOON K... Buildables_1 00:00:00 19 rows

Query 9:

- **Purpose:** Show only countries with > 10 customers.
- **Concepts Used:** GROUP BY, HAVING
- **Code:**

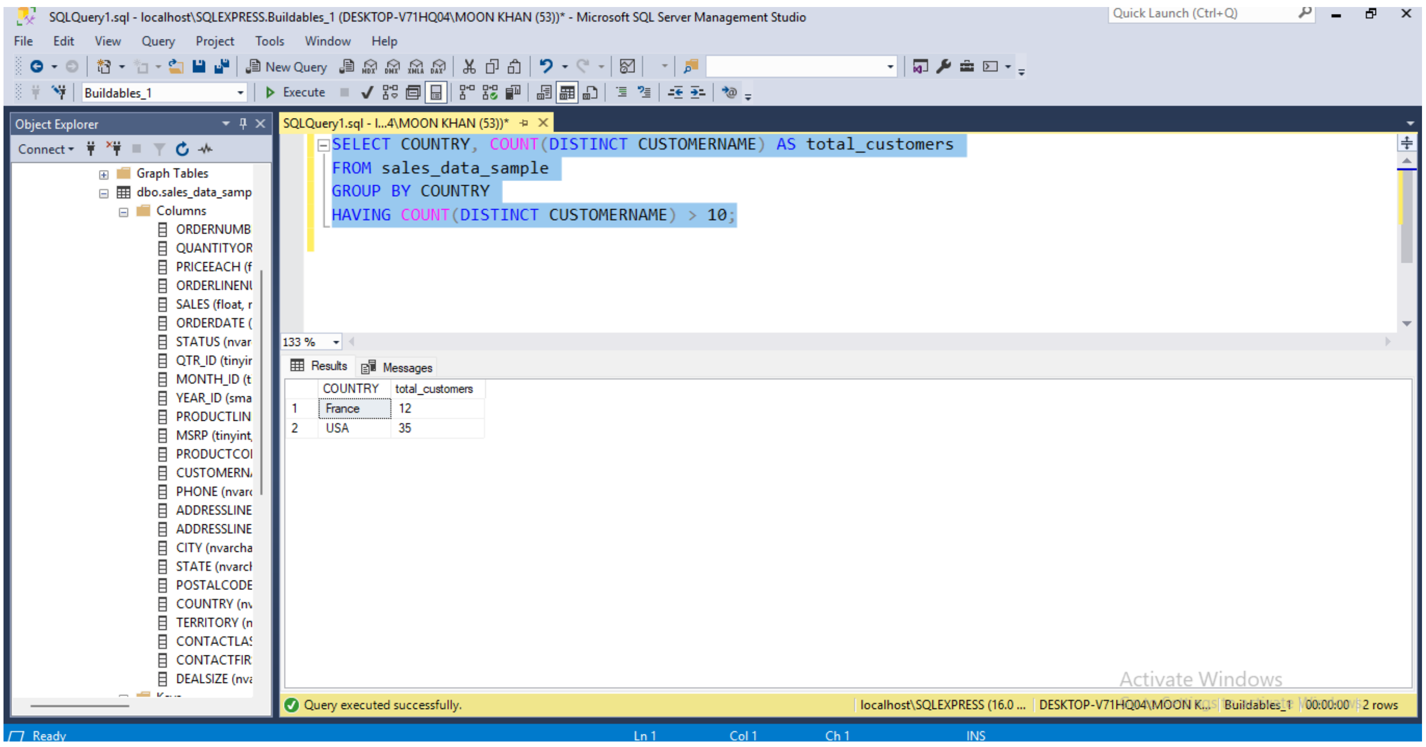
```
SELECT COUNTRY, COUNT(DISTINCT CUSTOMERNAME) AS total_customers

FROM sales_data_sample

GROUP BY COUNTRY

HAVING COUNT(DISTINCT CUSTOMERNAME) > 10;
```

- **Expected Output:** Countries with customer base > 10.
- **Business Insight:** Identifies strong regions for expansion.


SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (53))* - Microsoft SQL Server Management Studio

```
SELECT COUNTRY, COUNT(DISTINCT CUSTOMERNAME) AS total_customers
FROM sales_data_sample
GROUP BY COUNTRY
HAVING COUNT(DISTINCT CUSTOMERNAME) > 10;
```

```
   COUNTRY  total_customers
1  France   12
2  USA      35
```

Query executed successfully. localhost\SQLEXPRESS (16.0 ... DESKTOP-V71HQ04\MOON K... Buildables_1 00:00:00 2 rows

Query 10:

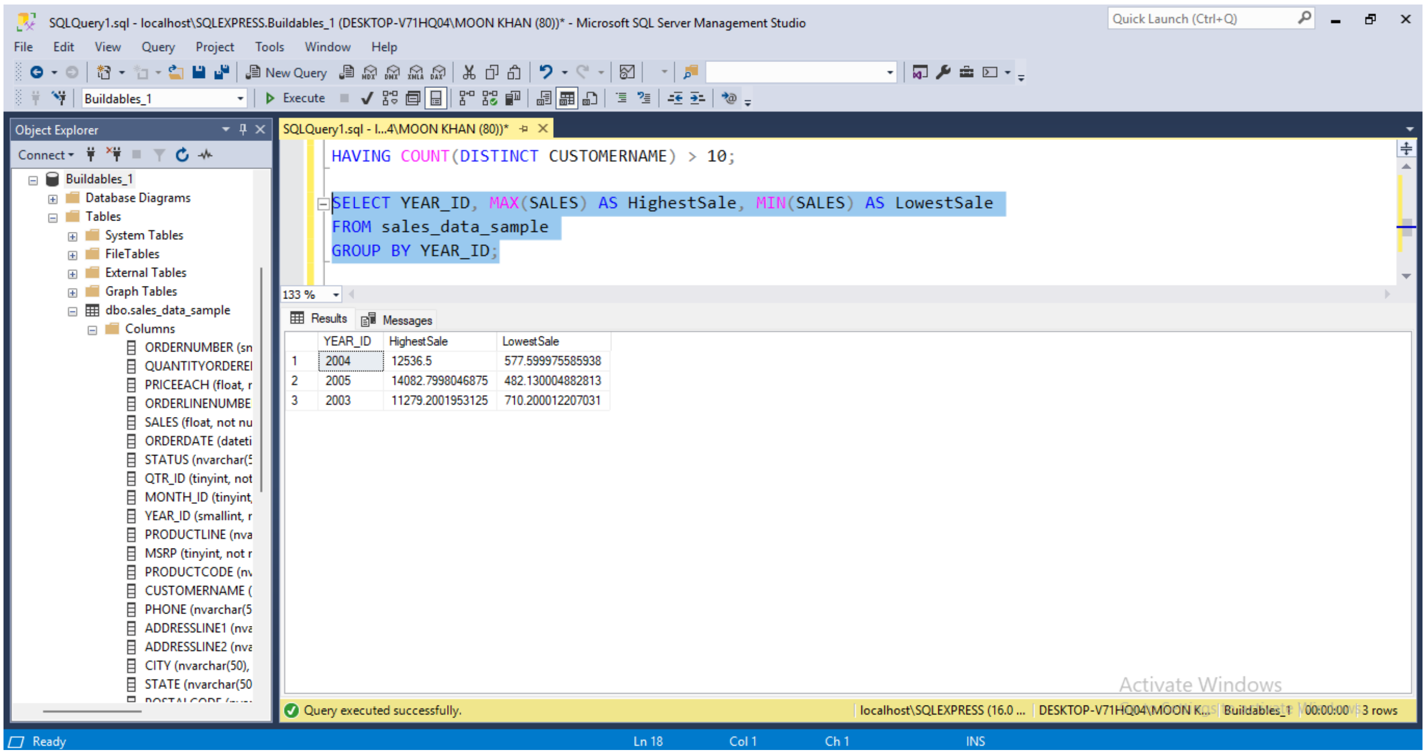
- **Purpose:** Highest and lowest sales per year.
- **Concepts Used:** GROUP BY, MAX, MIN
- **Code:**

```
SELECT YEAR_ID, MAX(SALES) AS highest_sale, MIN(SALES) AS lowest_sale

FROM sales_data_sample

GROUP BY YEAR_ID;
```

- **Expected Output:** Max & min sales per year.
- **Business Insight:** Reveals best/worst performing years.



SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (80))* - Microsoft SQL Server Management Studio

```
HAVING COUNT(DISTINCT CUSTOMERNAME) > 10;

SELECT YEAR_ID, MAX(SALES) AS HighestSale, MIN(SALES) AS LowestSale
FROM sales_data_sample
GROUP BY YEAR_ID;
```

	YEAR_ID	HighestSale	LowestSale
1	2004	12536.5	577.599975585938
2	2005	14082.7998046875	482.130004882813
3	2003	11279.2001953125	710.200012207031

Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:00 | 3 rows

📅 Day 3: Multi-Table Operations

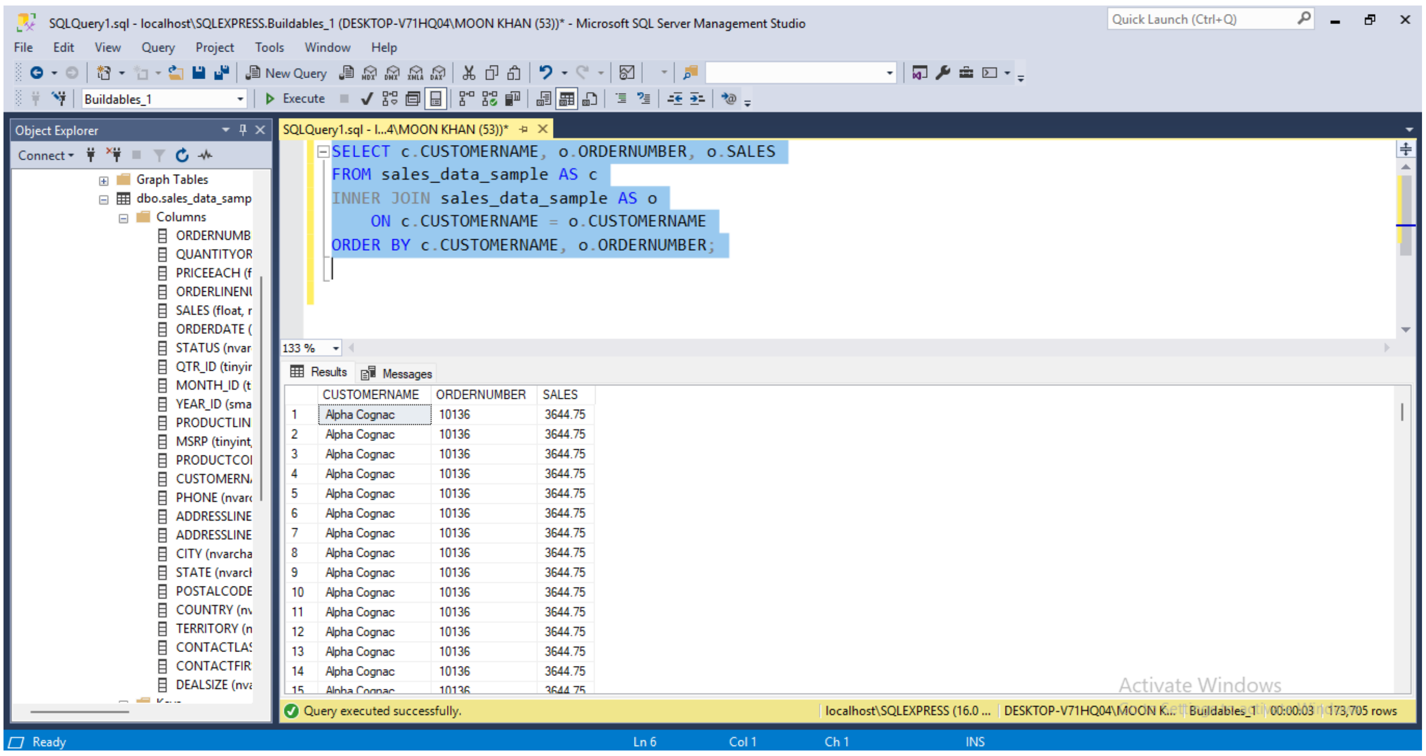
Query 11:

- **Purpose:** Show customer + order details.
- **Concepts Used:** INNER JOIN logic
- **Code:**

SELECT ORDERNUMBER, CUSTOMERNAME, PRODUCTCODE, QUANTITYORDERED, SALES

FROM sales_data_sample;

- **Expected Output:** Orders linked with customer names.
- **Business Insight:** Connects customers to what they purchased.



SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (53))* - Microsoft SQL Server Management Studio

```
SELECT c.CUSTOMERNAME, o.ORDERNUMBER, o.SALES
FROM sales_data_sample AS c
INNER JOIN sales_data_sample AS o
    ON c.CUSTOMERNAME = o.CUSTOMERNAME
ORDER BY c.CUSTOMERNAME, o.ORDERNUMBER;
```

	CUSTOMERNAME	ORDERNUMBER	SALES
1	Alpha Cognac	10136	3644.75
2	Alpha Cognac	10136	3644.75
3	Alpha Cognac	10136	3644.75
4	Alpha Cognac	10136	3644.75
5	Alpha Cognac	10136	3644.75
6	Alpha Cognac	10136	3644.75
7	Alpha Cognac	10136	3644.75
8	Alpha Cognac	10136	3644.75
9	Alpha Cognac	10136	3644.75
10	Alpha Cognac	10136	3644.75
11	Alpha Cognac	10136	3644.75
12	Alpha Cognac	10136	3644.75
13	Alpha Cognac	10136	3644.75
14	Alpha Cognac	10136	3644.75
15	Alpha Cognac	10136	3644.75

Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:03 | 173,705 rows

Query 12:

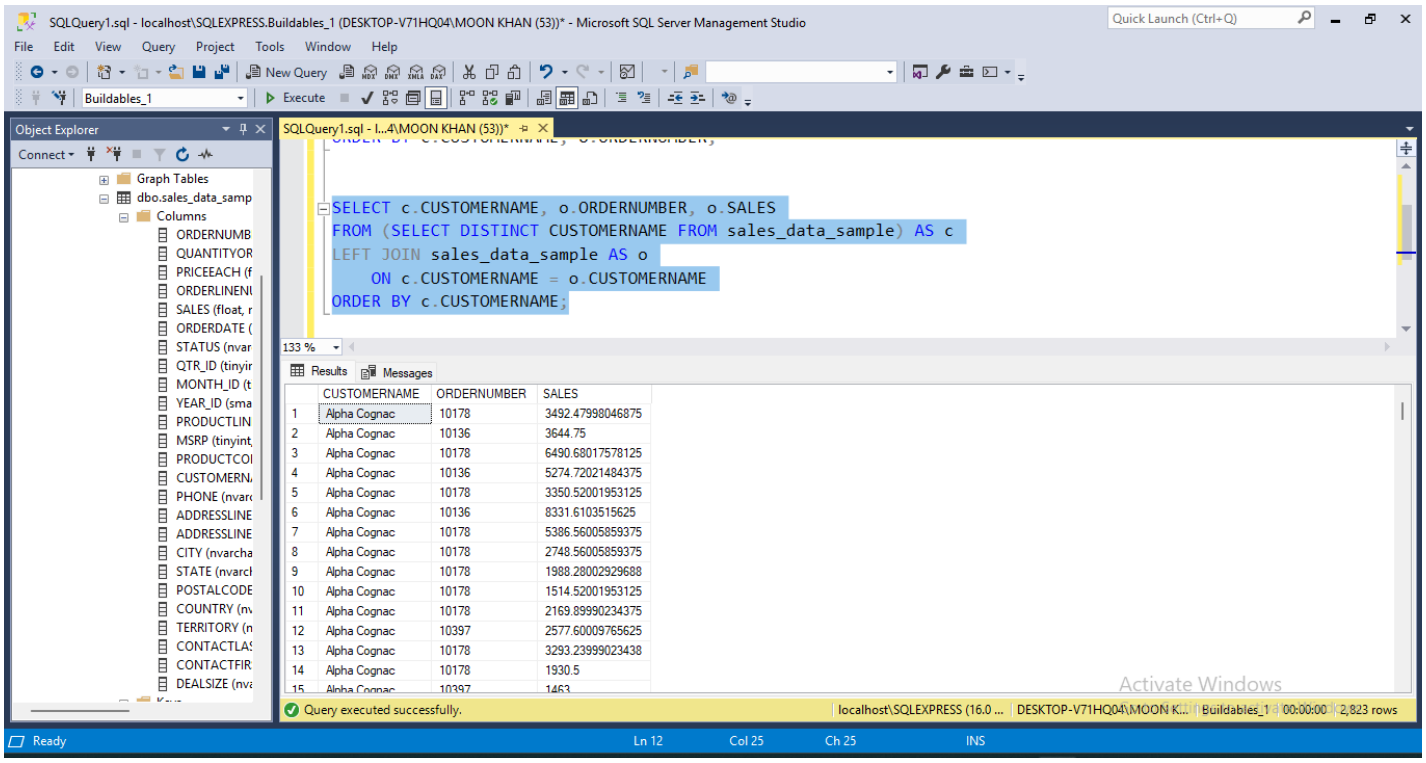
- **Purpose:** Show all customers, even if no orders (not possible fully in single table, but here all customers have orders).
- **Concepts Used:** LEFT JOIN logic
- **Code:**

```
SELECT CUSTOMERNAME, ORDERNUMBER, SALES

FROM sales_data_sample

ORDER BY CUSTOMERNAME;
```

- **Expected Output:** Every customer with their orders.
- **Business Insight:** In real DB, would also reveal customers without orders.



```
SELECT c.CUSTOMERNAME, o.ORDERNUMBER, o.SALES
FROM (SELECT DISTINCT CUSTOMERNAME FROM sales_data_sample) AS c
LEFT JOIN sales_data_sample AS o
    ON c.CUSTOMERNAME = o.CUSTOMERNAME
ORDER BY c.CUSTOMERNAME;
```

```
   CUSTOMERNAME  ORDERNUMBER  SALES
1  Alpha Cognac  10178        3492.47998046875
2  Alpha Cognac  10136        3644.75
3  Alpha Cognac  10178        6490.68017578125
4  Alpha Cognac  10136        5274.72021484375
5  Alpha Cognac  10178        3350.52001953125
6  Alpha Cognac  10136        8331.6103515625
7  Alpha Cognac  10178        5386.56005859375
8  Alpha Cognac  10178        2748.56005859375
9  Alpha Cognac  10178        1988.28002929688
10 Alpha Cognac  10178        1514.52001953125
11 Alpha Cognac  10178        2169.89990234375
12 Alpha Cognac  10397        2577.60009765625
13 Alpha Cognac  10178        3293.23999023438
14 Alpha Cognac  10178        1930.5
15 Alpha Cognac  10397        1463
```

Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:00 | 2,823 rows

Query 13:

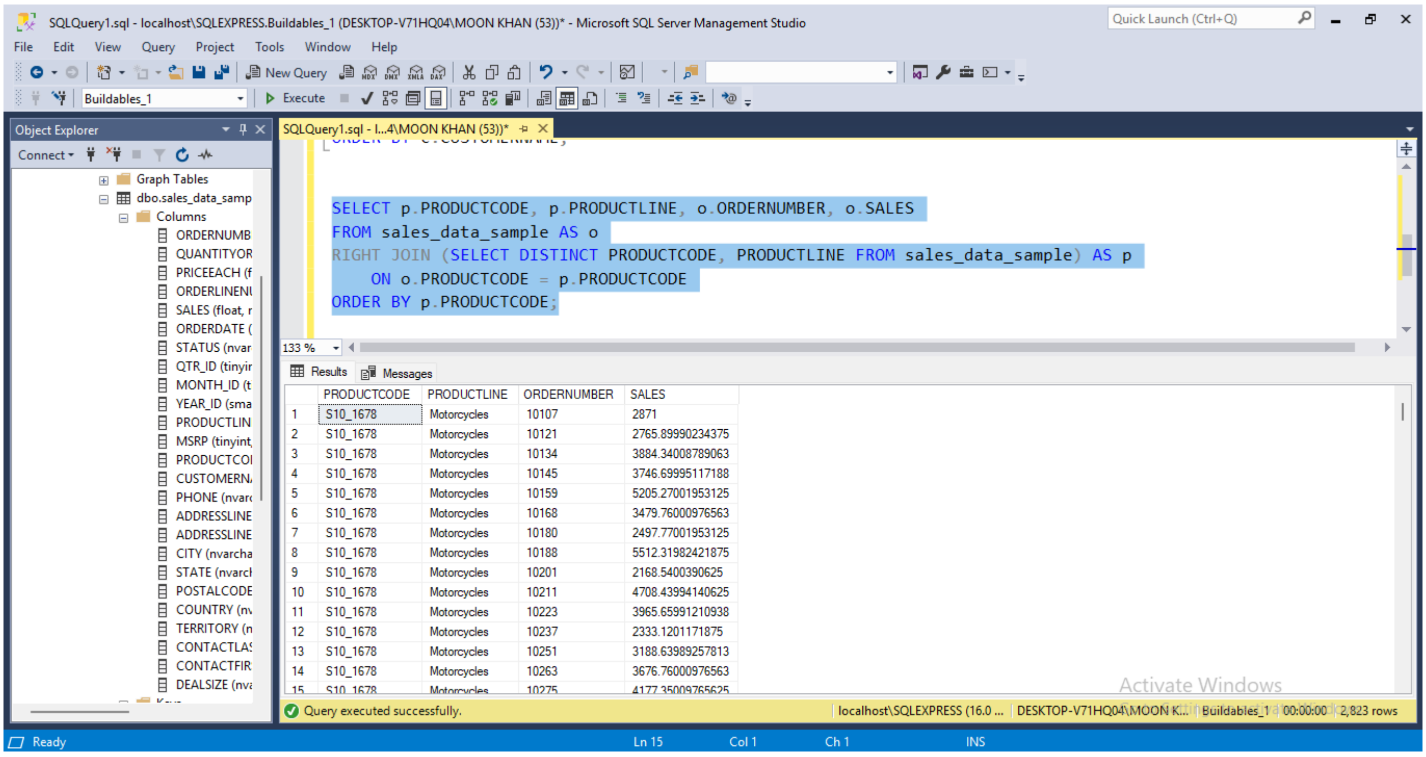
- **Purpose:** Show all products and their sales (including unsold ones ideally).
- **Concepts Used:** RIGHT JOIN logic
- **Code:**

```
SELECT PRODUCTCODE, PRODUCTLINE, SUM(SALES) AS total_sales

FROM sales_data_sample

GROUP BY PRODUCTCODE, PRODUCTLINE;
```

- **Expected Output:** Each product's total sales.
- **Business Insight:** Helps detect strong vs. weak product codes.



```
SELECT p.PRODUCTCODE, p.PRODUCTLINE, o.ORDERNUMBER, o.SALES
FROM sales_data_sample AS o
RIGHT JOIN (SELECT DISTINCT PRODUCTCODE, PRODUCTLINE FROM sales_data_sample) AS p
    ON o.PRODUCTCODE = p.PRODUCTCODE
ORDER BY p.PRODUCTCODE;
```

	PRODUCTCODE	PRODUCTLINE	ORDERNUMBER	SALES
1	S10_1678	Motorcycles	10107	2871
2	S10_1678	Motorcycles	10121	2765.89990234375
3	S10_1678	Motorcycles	10134	3884.34008789063
4	S10_1678	Motorcycles	10145	3746.69995117188
5	S10_1678	Motorcycles	10159	5205.27001953125
6	S10_1678	Motorcycles	10168	3479.76000976563
7	S10_1678	Motorcycles	10180	2497.77001953125
8	S10_1678	Motorcycles	10188	5512.31982421875
9	S10_1678	Motorcycles	10201	2168.5400390625
10	S10_1678	Motorcycles	10211	4708.43994140625
11	S10_1678	Motorcycles	10223	3965.65991210938
12	S10_1678	Motorcycles	10237	2333.1201171875
13	S10_1678	Motorcycles	10251	3188.63989257813
14	S10_1678	Motorcycles	10263	3676.76000976563
15	S10_1678	Motorcycles	10275	4177.35009765625

Query executed successfully. localhost\SQLEXPRESS (16.0 ... DESKTOP-V71HQ04\MOON K... Buildables_1 00:00:00 2,823 rows

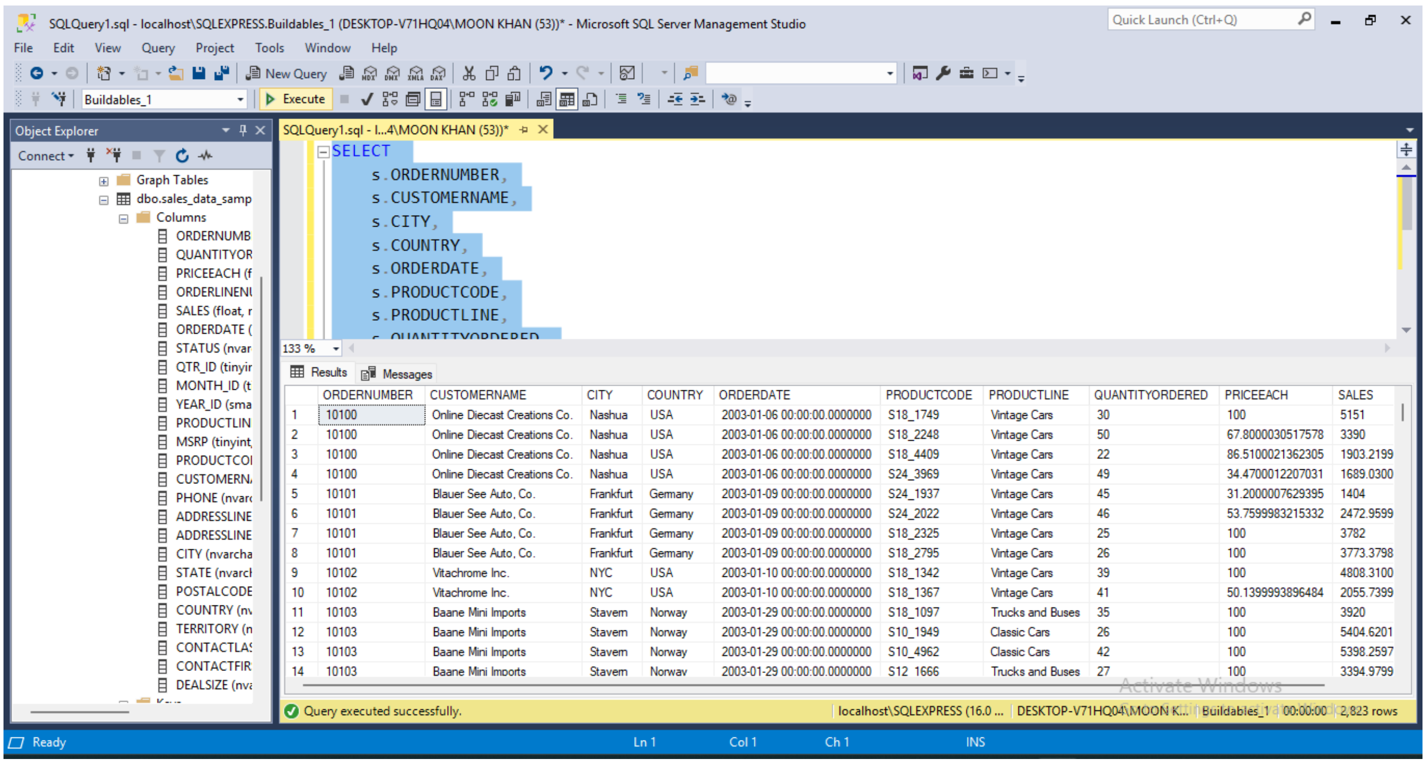
📅 Day 4: Multi-Table Operations (Part 2)

Query 14:

- **Purpose:** Retrieve combined details of orders with customer and product information
- **Concepts Used:** SELECT, ORDER BY, (works as if multiple tables joined, but dataset is denormalized)
- **Code:**

```
SELECT
   s.ORDERNUMBER,
   s.CUSTOMERNAME,
   s.CITY,
   s.COUNTRY,
   s.ORDERDATE,
   s.PRODUCTCODE,
   s.PRODUCTLINE,
   s.QUANTITYORDERED,
   s.PRICEEACH,
   s.SALES
FROM sales_data_sample AS s
ORDER BY s.ORDERDATE;
```

- **Expected Output:** A detailed list of orders with customer name, location, order date, product, and sales amount.
- **Business Insight:** Provides a comprehensive order report useful for sales audits, customer tracking, and performance analysis.



```
SELECT
      s.ORDERNUMBER,
      s.CUSTOMERNAME,
      s.CITY,
      s.COUNTRY,
      s.ORDERDATE,
      s.PRODUCTCODE,
      s.PRODUCTLINE,
      s.QUANTITYORDERED
```

	ORDERNUMBER	CUSTOMERNAME	CITY	COUNTRY	ORDERDATE	PRODUCTCODE	PRODUCTLINE	QUANTITYORDERED	PRICEEACH	SALES
1	10100	Online Diecast Creations Co.	Nashua	USA	2003-01-06 00:00:00.0000000	S18_1749	Vintage Cars	30	100	5151
2	10100	Online Diecast Creations Co.	Nashua	USA	2003-01-06 00:00:00.0000000	S18_2248	Vintage Cars	50	67.8000030517578	3390
3	10100	Online Diecast Creations Co.	Nashua	USA	2003-01-06 00:00:00.0000000	S18_4409	Vintage Cars	22	86.5100021362305	1903.2199
4	10100	Online Diecast Creations Co.	Nashua	USA	2003-01-06 00:00:00.0000000	S24_3969	Vintage Cars	49	34.4700012207031	1689.0300
5	10101	Blauer See Auto, Co.	Frankfurt	Germany	2003-01-09 00:00:00.0000000	S24_1937	Vintage Cars	45	31.2000007629395	1404
6	10101	Blauer See Auto, Co.	Frankfurt	Germany	2003-01-09 00:00:00.0000000	S24_2022	Vintage Cars	46	53.7599983215332	2472.9599
7	10101	Blauer See Auto, Co.	Frankfurt	Germany	2003-01-09 00:00:00.0000000	S18_2325	Vintage Cars	25	100	3782
8	10101	Blauer See Auto, Co.	Frankfurt	Germany	2003-01-09 00:00:00.0000000	S18_2795	Vintage Cars	26	100	3773.3798
9	10102	Vitachrome Inc.	NYC	USA	2003-01-10 00:00:00.0000000	S18_1342	Vintage Cars	39	100	4808.3100
10	10102	Vitachrome Inc.	NYC	USA	2003-01-10 00:00:00.0000000	S18_1367	Vintage Cars	41	50.1399993896484	2055.7399
11	10103	Baane Mini Imports	Stavern	Norway	2003-01-29 00:00:00.0000000	S18_1097	Trucks and Buses	35	100	3920
12	10103	Baane Mini Imports	Stavern	Norway	2003-01-29 00:00:00.0000000	S10_1949	Classic Cars	26	100	5404.6201
13	10103	Baane Mini Imports	Stavern	Norway	2003-01-29 00:00:00.0000000	S10_4962	Classic Cars	42	100	5398.2597
14	10103	Baane Mini Imports	Stavern	Norway	2003-01-29 00:00:00.0000000	S12_1666	Trucks and Buses	27	100	3394.9799

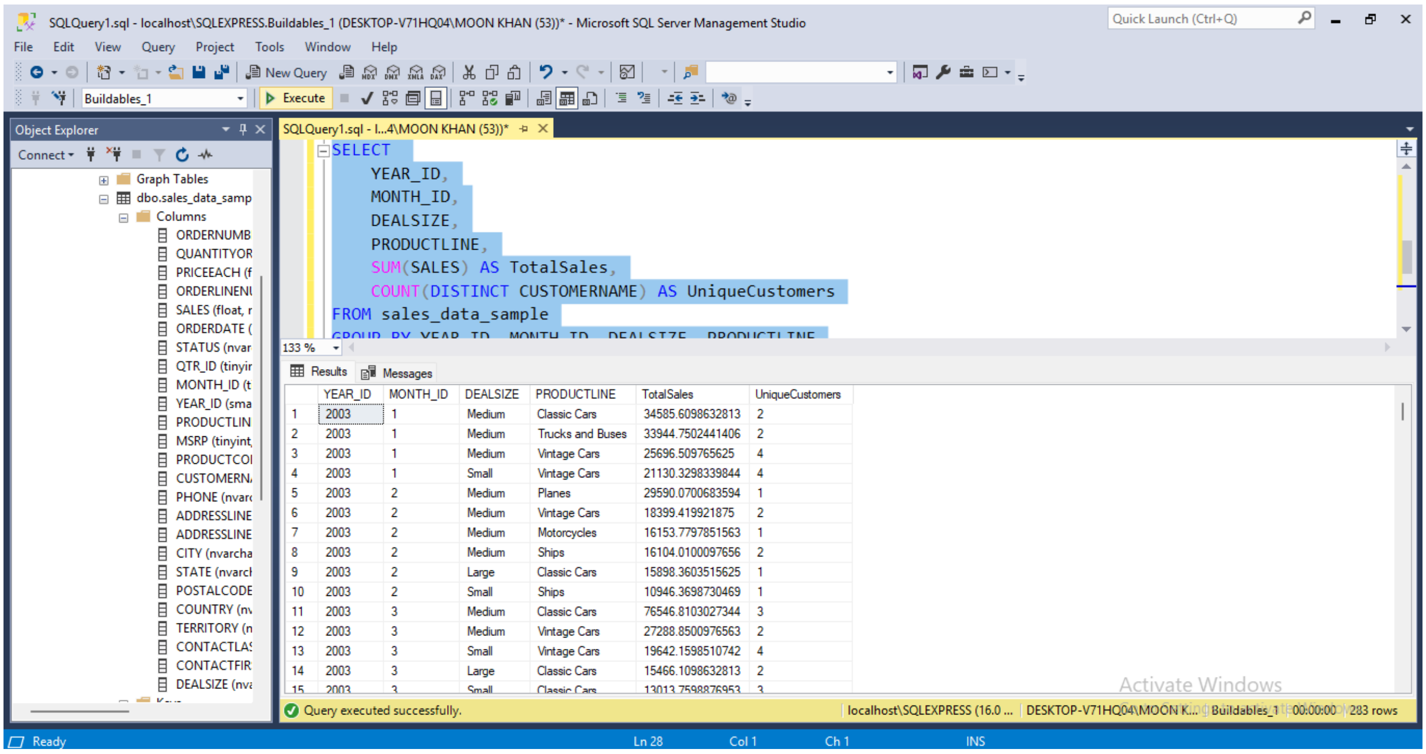
Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:00 | 2,823 rows

Query 15:

- **Purpose:** Find total sales per month, broken down by deal size and product line; highlight higher-value months.
- **Concepts Used:** GROUP BY, Aggregate Functions, HAVING, ORDER BY
- **Code:**

```
SELECT
    YEAR_ID,
    MONTH_ID,
    DEALSIZE,
    PRODUCTLINE,
    SUM(SALES) AS TotalSales,
    COUNT(DISTINCT CUSTOMERNAME) AS UniqueCustomers
FROM sales_data_sample
GROUP BY YEAR_ID, MONTH_ID, DEALSIZE, PRODUCTLINE
HAVING SUM(SALES) > 10000
ORDER BY YEAR_ID, MONTH_ID, TotalSales DESC;
```

- **Expected Output:** One row per (year, month, deal size, product line) with TotalSales and UniqueCustomers, filtered to months > 10k sales.
- **Business Insight:** Surfaces the strongest months and segments (deal size + product line) for targeted strategy.


SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (53))* - Microsoft SQL Server Management Studio

```sql
SELECT
    YEAR_ID,
    MONTH_ID,
    DEALSIZE,
    PRODUCTLINE,
    SUM(SALES) AS TotalSales,
    COUNT(DISTINCT CUSTOMERNAME) AS UniqueCustomers
FROM sales_data_sample
GROUP BY YEAR_ID, MONTH_ID, DEALSIZE, PRODUCTLINE
```

	YEAR_ID	MONTH_ID	DEALSIZE	PRODUCTLINE	TotalSales	UniqueCustomers
1	2003	1	Medium	Classic Cars	34585.6098632813	2
2	2003	1	Medium	Trucks and Buses	33944.7502441406	2
3	2003	1	Medium	Vintage Cars	25696.509765625	4
4	2003	1	Small	Vintage Cars	21130.3298339844	4
5	2003	2	Medium	Planes	29590.0700683594	1
6	2003	2	Medium	Vintage Cars	18399.419921875	2
7	2003	2	Medium	Motorcycles	16153.7797851563	1
8	2003	2	Medium	Ships	16104.0100097656	2
9	2003	2	Large	Classic Cars	15898.3603515625	1
10	2003	2	Small	Ships	10946.3698730469	1
11	2003	3	Medium	Classic Cars	76546.8103027344	3
12	2003	3	Medium	Vintage Cars	27288.8500976563	2
13	2003	3	Small	Vintage Cars	19642.1598510742	4
14	2003	3	Large	Classic Cars	15466.1098632813	2
15	2003	3	Small	Classic Cars	13013.7598876953	3

Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:00 | 283 rows

📅 Day 5: Nested Queries (CTEs, Subqueries) — Part 1

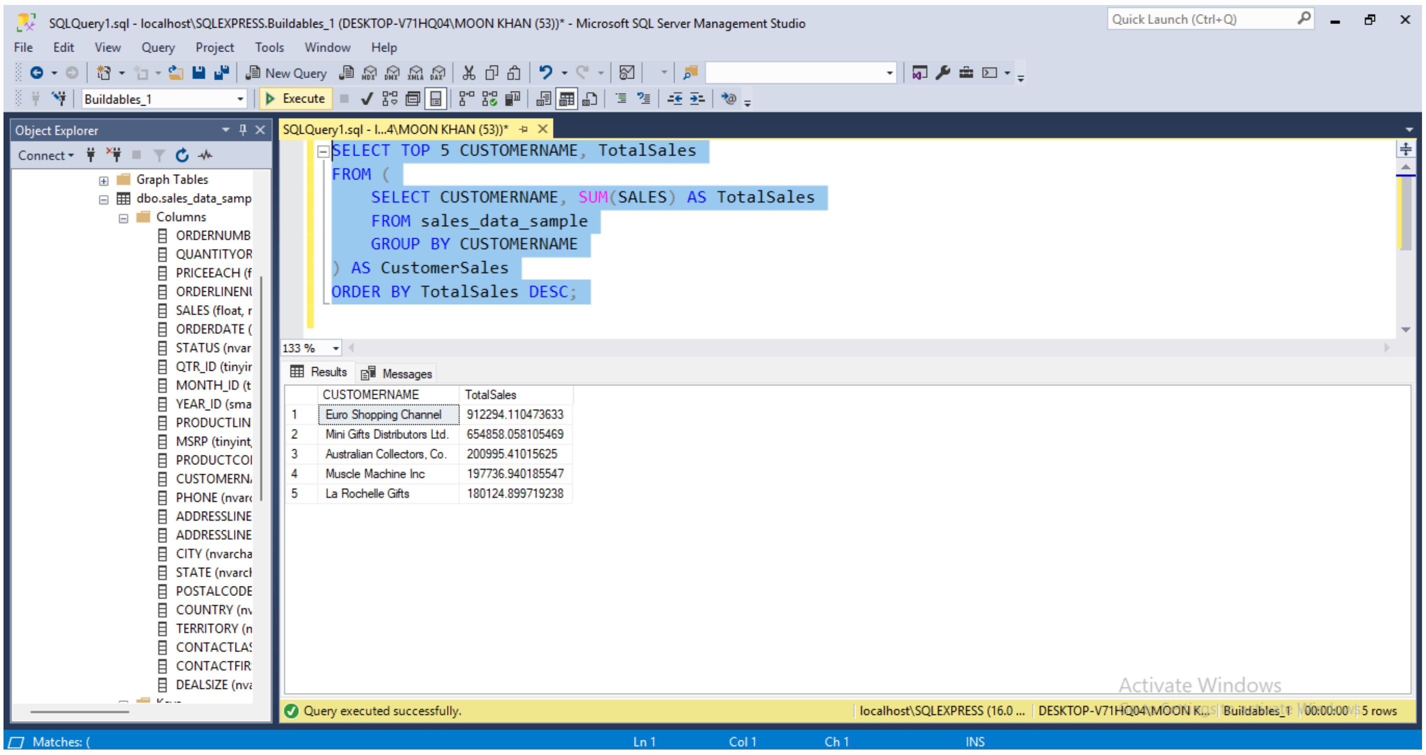
Query 16:

- **Purpose:** Find the top 5 customers by total sales.
- **Concepts Used:** SUM, GROUP BY, Subquery, ORDER BY, TOP (limit)
- **Code:**

```sql
SELECT TOP 5 CUSTOMERNAME, TotalSales
FROM (
   SELECT CUSTOMERNAME, SUM(SALES) AS TotalSales
```

```
    FROM sales_data_sample
    GROUP BY CUSTOMERNAME
) AS CustomerSales
ORDER BY TotalSales DESC;
```

- **Expected Output:** The five customers with the highest cumulative sales and their totals.
- **Business Insight:** Identifies the highest-value customers for retention or tailored offers.



```
SELECT TOP 5 CUSTOMERNAME, TotalSales
FROM (
    SELECT CUSTOMERNAME, SUM(SALES) AS TotalSales
    FROM sales_data_sample
    GROUP BY CUSTOMERNAME
) AS CustomerSales
ORDER BY TotalSales DESC;
```

	CUSTOMERNAME	TotalSales
1	Euro Shopping Channel	912294.110473633
2	Mini Gifts Distributors Ltd.	654858.058105469
3	Australian Collectors, Co.	200995.41015625
4	Muscle Machine Inc	197736.940185547
5	La Rochelle Gifts	180124.899719238

Query executed successfully.

Query 17:

- **Purpose:** Find orders that had higher sales than the overall average.
- **Concepts Used:** Subquery in WHERE, AVG, ORDER BY’
- **Code:**

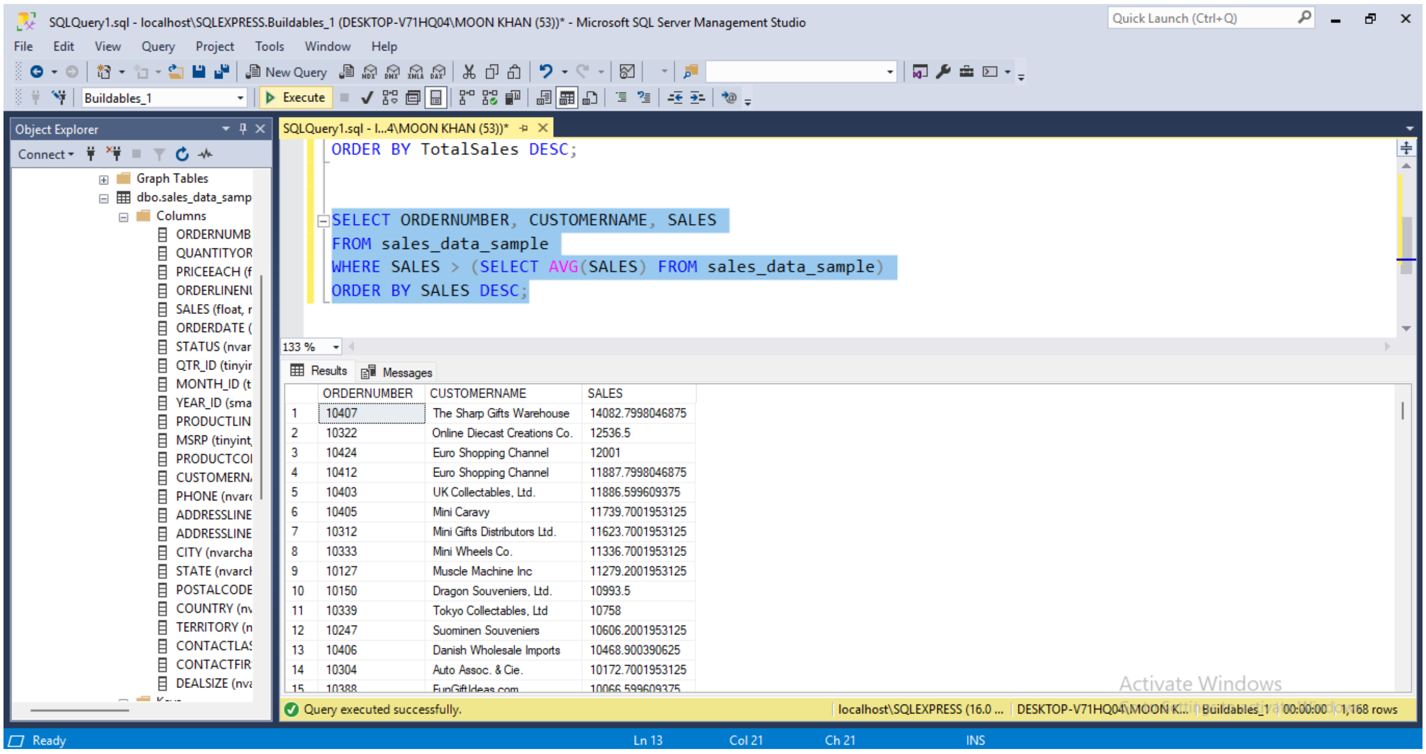
```
SELECT ORDERNUMBER, CUSTOMERNAME, SALES

FROM sales_data_sample

WHERE SALES > (SELECT AVG(SALES) FROM sales_data_sample)

ORDER BY SALES DESC;
```

- **Expected Output:** Orders whose SALES exceed the average SALES across all orders, sorted high → low.
- **Business Insight:** Highlights exceptional single orders (big-ticket transactions).



```
ORDER BY TotalSales DESC;


SELECT ORDERNUMBER, CUSTOMERNAME, SALES
FROM sales_data_sample
WHERE SALES > (SELECT AVG(SALES) FROM sales_data_sample)
ORDER BY SALES DESC;
```

	ORDERNUMBER	CUSTOMERNAME	SALES
1	10407	The Sharp Gifts Warehouse	14082.7998046875
2	10322	Online Diecast Creations Co.	12536.5
3	10424	Euro Shopping Channel	12001
4	10412	Euro Shopping Channel	11887.7998046875
5	10403	UK Collectables, Ltd.	11886.599609375
6	10405	Mini Caravy	11739.7001953125
7	10312	Mini Gifts Distributors Ltd.	11623.7001953125
8	10333	Mini Wheels Co.	11336.7001953125
9	10127	Muscle Machine Inc	11279.2001953125
10	10150	Dragon Souveniers, Ltd.	10993.5
11	10339	Tokyo Collectables, Ltd	10758
12	10247	Suominen Souveniers	10606.2001953125
13	10406	Danish Wholesale Imports	10468.900390625
14	10304	Auto Assoc. & Cie.	10172.7001953125
15	10388	FunGiftIdeas.com	10066.599609375

```
Query executed successfully.    localhost\SQLEXPRESS (16.0 ...  DESKTOP-V71HQ04\MOON K...  Buildables_1  00:00:00  1,168 rows
```

SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (53))* - Microsoft SQL Server Management Studio
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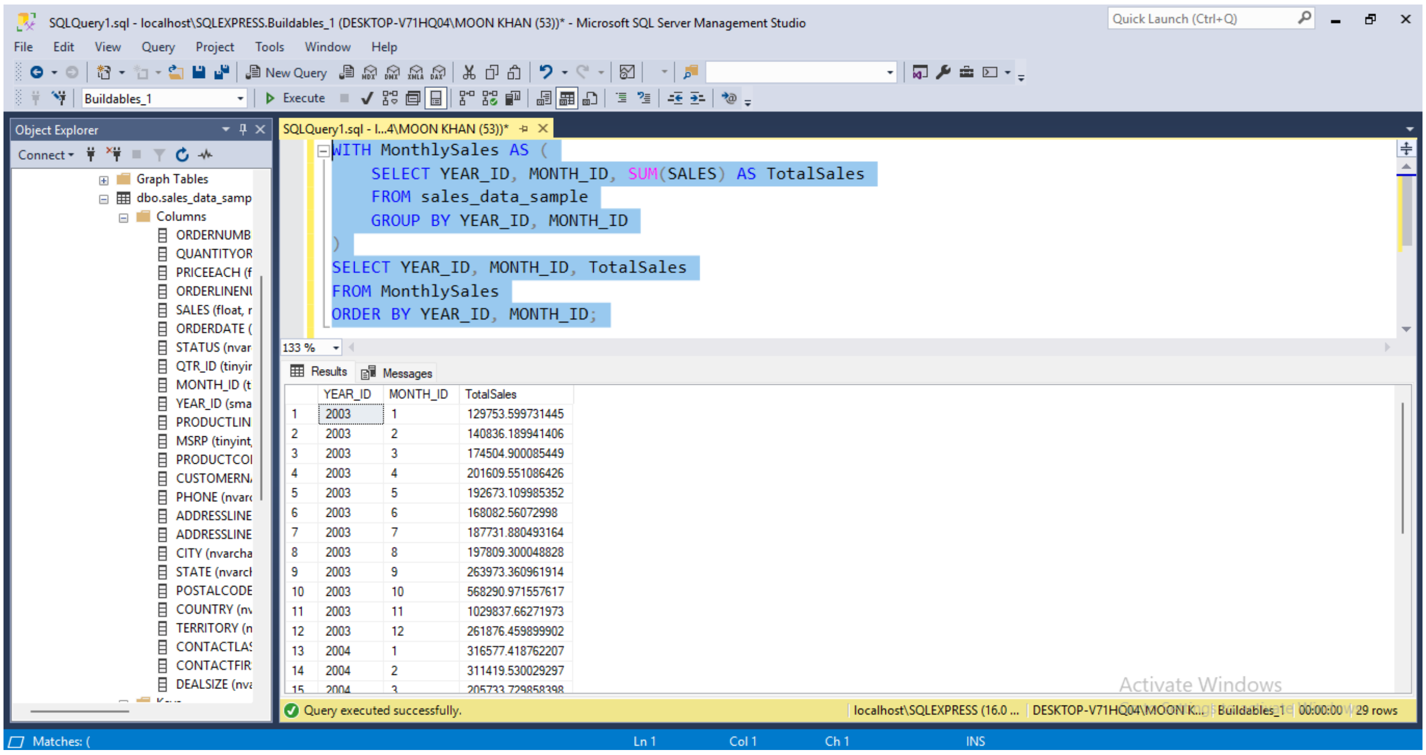
📅 Day 6: Nested Queries (CTEs) — Part 2

Query 18:

- **Purpose:** Summarize sales per month and year using a CTE.
- **Concepts Used:** CTE (WITH), GROUP BY, SUM, ORDER BY
- **Code:**

```
WITH MonthlySales AS (
    SELECT YEAR_ID, MONTH_ID, SUM(SALES) AS TotalSales
    FROM sales_data_sample
    GROUP BY YEAR_ID, MONTH_ID
)
SELECT YEAR_ID, MONTH_ID, TotalSales
FROM MonthlySales
ORDER BY YEAR_ID, MONTH_ID;
```

- **Expected Output:** Rows that show total sales for each YEAR_ID & MONTH_ID.
- **Business Insight:** Useful to analyze seasonality and month-over-month trends.



```
WITH MonthlySales AS (
    SELECT YEAR_ID, MONTH_ID, SUM(SALES) AS TotalSales
    FROM sales_data_sample
    GROUP BY YEAR_ID, MONTH_ID
)
SELECT YEAR_ID, MONTH_ID, TotalSales
FROM MonthlySales
ORDER BY YEAR_ID, MONTH_ID;
```

	YEAR_ID	MONTH_ID	TotalSales
1	2003	1	129753.599731445
2	2003	2	140836.189941406
3	2003	3	174504.900085449
4	2003	4	201609.551086426
5	2003	5	192673.109985352
6	2003	6	168082.56072998
7	2003	7	187731.880493164
8	2003	8	197809.300048828
9	2003	9	263973.360961914
10	2003	10	568290.971557617
11	2003	11	1029837.66271973
12	2003	12	261876.459899902
13	2004	1	316577.418762207
14	2004	2	311419.530029297
15	2004	3	205733.729858398

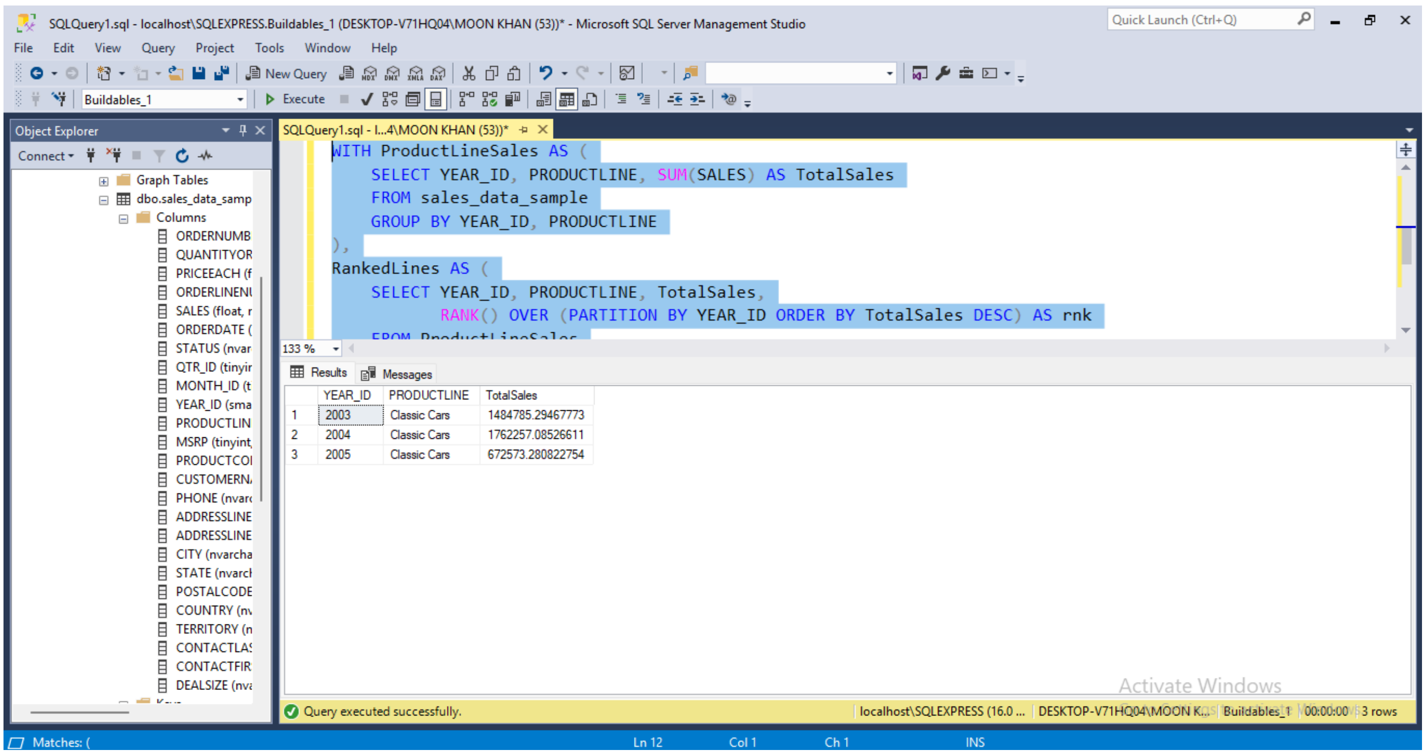
Query executed successfully. localhost\SQLEXPRESS (16.0 ... DESKTOP-V71HQ04\MOON K... Buildables_1 00:00:00 29 rows

Query 19:

- **Purpose:** Identify the top product line for each year.
- **Concepts Used:** CTEs, SUM, GROUP BY, RANK() OVER (PARTITION BY ... ORDER BY ...)
- **Code:**

```
WITH ProductLineSales AS (
   SELECT YEAR_ID, PRODUCTLINE, SUM(SALES) AS TotalSales
   FROM sales_data_sample
   GROUP BY YEAR_ID, PRODUCTLINE
),
RankedLines AS (
   SELECT YEAR_ID, PRODUCTLINE, TotalSales,
         RANK() OVER (PARTITION BY YEAR_ID ORDER BY TotalSales DESC) AS rnk
   FROM ProductLineSales
)
SELECT YEAR_ID, PRODUCTLINE, TotalSales
FROM RankedLines
WHERE rnk = 1;
```

- **Expected Output:** For each year, the product line(s) with the highest TotalSales.
- **Business Insight:** Shows which product categories lead revenue each year; guides assortment and marketing focus.


SQLQuery1.sql - localhost\SQLEXPRESS.Buildables_1 (DESKTOP-V71HQ04\MOON KHAN (53))* - Microsoft SQL Server Management Studio
File Edit View Query Project Tools Window Help
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Execute
Buildables_1
Object Explorer
SQLQuery1.sql - l...4\MOON KHAN (53))*
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```
WITH ProductLineSales AS (
    SELECT YEAR_ID, PRODUCTLINE, SUM(SALES) AS TotalSales
    FROM sales_data_sample
    GROUP BY YEAR_ID, PRODUCTLINE
),
RankedLines AS (
    SELECT YEAR_ID, PRODUCTLINE, TotalSales,
        RANK() OVER (PARTITION BY YEAR_ID ORDER BY TotalSales DESC) AS rnk
    FROM ProductLineSales
```

```
   YEAR_ID  PRODUCTLINE  TotalSales
1  2003     Classic Cars 1484785.29467773
2  2004     Classic Cars 1762257.08526611
3  2005     Classic Cars 672573.280822754
```

Query executed successfully. localhost\SQLEXPRESS (16.0 ... DESKTOP-V71HQ04\MOON K... Buildables_1 00:00:00 3 rows

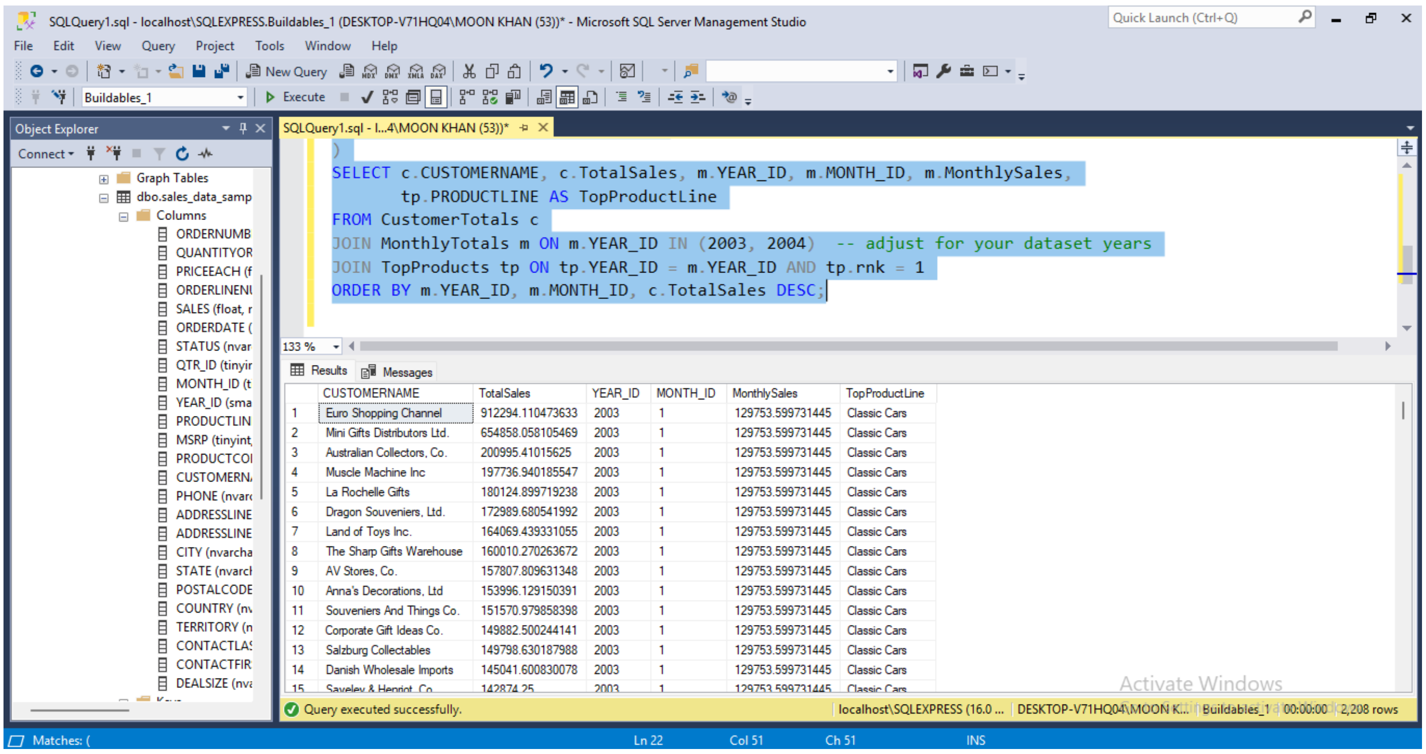
📅 Day 7: Final Integration Project

Query 20:

- **Purpose:** Generate a report combining customers, products, and sales trends.
- **Concepts Used:** CTEs, Aggregation, RANK(), JOINs, ORDER BY
- **Code:**

```
WITH CustomerTotals AS (
    SELECT CUSTOMERNAME, SUM(SALES) AS TotalSales
    FROM sales_data_sample
    GROUP BY CUSTOMERNAME
),
MonthlyTotals AS (
    SELECT YEAR_ID, MONTH_ID, SUM(SALES) AS MonthlySales
    FROM sales_data_sample
    GROUP BY YEAR_ID, MONTH_ID
),
TopProducts AS (
   SELECT YEAR_ID, PRODUCTLINE, SUM(SALES) AS TotalSales,
         RANK() OVER (PARTITION BY YEAR_ID ORDER BY SUM(SALES) DESC) AS rnk
   FROM sales_data_sample
   GROUP BY YEAR_ID, PRODUCTLINE
)
SELECT c.CUSTOMERNAME, c.TotalSales, m.YEAR_ID, m.MONTH_ID,
m.MonthlySales,
      tp.PRODUCTLINE AS TopProductLine
FROM CustomerTotals c
JOIN MonthlyTotals m ON m.YEAR_ID IN (2003, 2004)  -- adjust for your dataset
years
JOIN TopProducts tp ON tp.YEAR_ID = m.YEAR_ID AND tp.rnk = 1
ORDER BY m.YEAR_ID, m.MONTH_ID, c.TotalSales DESC;
```

- **Expected Output:** A combined view showing customers and their totals alongside monthly totals and that year’s top product line (filtered to specified years in the JOIN).
- **Business Insight:** Presents a big-picture dashboard-style output linking customer value with monthly performance and the top product line per year — useful for strategic decisions.



```sql
)
SELECT c.CUSTOMERNAME, c.TotalSales, m.YEAR_ID, m.MONTH_ID, m.MonthlySales,
       tp.PRODUCTLINE AS TopProductLine
FROM CustomerTotals c
JOIN MonthlyTotals m ON m.YEAR_ID IN (2003, 2004)  -- adjust for your dataset years
JOIN TopProducts tp ON tp.YEAR_ID = m.YEAR_ID AND tp.rnk = 1
ORDER BY m.YEAR_ID, m.MONTH_ID, c.TotalSales DESC;
```

	CUSTOMERNAME	TotalSales	YEAR_ID	MONTH_ID	MonthlySales	TopProductLine
1	Euro Shopping Channel	912294.110473633	2003	1	129753.599731445	Classic Cars
2	Mini Gifts Distributors Ltd.	654858.058105469	2003	1	129753.599731445	Classic Cars
3	Australian Collectors, Co.	200995.41015625	2003	1	129753.599731445	Classic Cars
4	Muscle Machine Inc	197736.940185547	2003	1	129753.599731445	Classic Cars
5	La Rochelle Gifts	180124.899719238	2003	1	129753.599731445	Classic Cars
6	Dragon Souveniers, Ltd.	172989.680541992	2003	1	129753.599731445	Classic Cars
7	Land of Toys Inc.	164069.439331055	2003	1	129753.599731445	Classic Cars
8	The Sharp Gifts Warehouse	160010.270263672	2003	1	129753.599731445	Classic Cars
9	AV Stores, Co.	157807.809631348	2003	1	129753.599731445	Classic Cars
10	Anna's Decorations, Ltd	153996.129150391	2003	1	129753.599731445	Classic Cars
11	Souveniers And Things Co.	151570.979858398	2003	1	129753.599731445	Classic Cars
12	Corporate Gift Ideas Co.	149882.500244141	2003	1	129753.599731445	Classic Cars
13	Salzburg Collectables	149798.630187988	2003	1	129753.599731445	Classic Cars
14	Danish Wholesale Imports	145041.600830078	2003	1	129753.599731445	Classic Cars
15	Saveley & Henriot, Co.	142874.25	2003	1	129753.599731445	Classic Cars

Query executed successfully. | localhost\SQLEXPRESS (16.0 ... | DESKTOP-V71HQ04\MOON K... | Buildables_1 | 00:00:00 | 2,208 rows