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Coding Practical 1: Basic SQL Syntax

The image shows two separate instances of the Microsoft Power BI Data Studio interface, each displaying a query editor and a results pane.

Top Window:

- Query Editor:** The code entered is:

```
1 SELECT
2 *
3 FROM
4 sales2025.retail2025.retail_sales_dataset;
```

- Results:** A table showing 10 rows of sales data with columns: TRANSACTION_ID, DATE, CUSTOMER_ID, GENDER, AGE, PRODUCT_CATEGORY, QUANTITY, PRICE_PER_UNIT, and TOTAL.

	TRANSACTION_ID	DATE	CUSTOMER_ID	GENDER	AGE	PRODUCT_CATEGORY	QUANTITY	PRICE_PER_UNIT	TOTAL
1	1	2023-11-24	CUST001	Male	34	Beauty	3	50	
2	2	2023-02-27	CUST002	Female	26	Clothing	2	500	
3	3	2023-01-13	CUST003	Male	50	Electronics	1	30	
4	4	2023-05-21	CUST004	Male	37	Clothing	1	500	
5	5	2023-05-06	CUST005	Male	30	Beauty	2	50	
6	6	2023-04-25	CUST006	Female	45	Beauty	1	30	
7	7	2023-03-13	CUST007	Male	46	Clothing	2	25	
8	8	2023-02-22	CUST008	Male	30	Electronics	4	25	
9	9	2023-12-13	CUST009	Male	63	Electronics	2	300	
10	10	2023-10-07	CUST010	Female	52	Clothing	4	50	

Bottom Window:

 - Query Editor:** The code entered is:

```
5
6 SELECT
7 TRANSACTION_ID,
8 DATE,
9 CUSTOMER_ID
10 FROM
    sales2025.retail2025.retail_sales_dataset;
```

 - Results:** A table showing 9 rows of transaction details with columns: TRANSACTION_ID, DATE, and CUSTOMER_ID.

	TRANSACTION_ID	DATE	CUSTOMER_ID
1		2023-11-24	CUST001
2		2023-02-27	CUST002
3		2023-01-13	CUST003
4		2023-05-21	CUST004
5		2023-05-06	CUST005
6		2023-04-25	CUST006
7		2023-03-13	CUST007
8		2023-02-22	CUST008
9		2023-12-13	CUST009

Right Panel: Shows a preview of another query named "Untitled 1" with the following code:

```
1 select
2 col
3 from
4 table
5 limit
6 100;
```

Load data from cloud storage SalesNM.sql +

My Workspace > SalesNM.sql

ACCOUNTADMIN • COMPUTE_WH (X-Small) Choose database ...

```

9   FROM
10     sales2025.retail2025.retail_sales_dataset;
11   SELECT
12     DISTINCT PRODUCT_CATEGORY
13   FROM
14     sales2025.retail2025.retail_sales_dataset;

```

Results (just now)

Table Chart

PRODUCT_CATEGORY

Clothing
Beauty
Electronics

Load data from cloud storage SalesNM.sql +

My Workspace > SalesNM.sql

ACCOUNTADMIN • COMPUTE_WH (X-Small) Choose database ...

```

14     sales2025.retail2025.retail_sales_dataset;
15   SELECT
16     DISTINCT GENDER
17   FROM
18     sales2025.retail2025.retail_sales_dataset;
19   SELECT

```

Results (just now)

Table Chart

GENDER

Male
Female

Load data from cloud storage SalesNM.sql +

My Workspace > SalesNM.sql

ACCOUNTADMIN • COMPUTE_WH (X-Small) Choose database ...

```

19   SELECT
20     *
21   FROM
22     sales2025.retail2025.retail_sales_dataset
23   WHERE
24     AGE > 40;

```

Results (just now)

Table Chart

# TRANSACTION_ID	DATE	A CUSTOMER_ID	A GENDER	# AGE	A PRODUCT_CATEGORY	# QUANTITY	# PRICE_PER_UNIT	# TOTAL_AMOUNT
1	3	CUST003	Male	50	Electronics	1	30	30
2	6	CUST006	Female	45	Beauty	1	30	30
3	7	CUST007	Male	46	Clothing	2	25	50
4	9	CUST009	Male	63	Electronics	2	300	600
5	10	CUST010	Female	52	Clothing	4	50	200
6	14	CUST014	Male	64	Clothing	4	30	120
7	15	CUST015	Female	42	Electronics	4	500	2000
8	18	CUST018	Female	47	Electronics	2	25	50
9	19	CUST019	Female	62	Clothing	2	25	50

Query History

```

25
26     *
27   FROM
28     sales2025.retail2025.retail_sales_dataset
29 WHERE
30   "PRICE_PER_UNIT" BETWEEN 100
31   AND 500;

```

Results (just now)

Table

Chart

#	# TRANSACTION_ID	DATE	A CUSTOMER_ID	A GENDER	# AGE	A PRODUCT_CATEGORY	# QUANTITY	# PRICE_PER_UNIT	# TOTAL_AMOUNT
1	2	2023-02-27	CUST002	Female	26	Clothing	2	500	1000
2	4	2023-05-21	CUST004	Male	37	Clothing	1	500	500
3	9	2023-12-13	CUST009	Male	63	Electronics	2	300	600
4	13	2023-08-05	CUST013	Male	22	Electronics	3	500	1500
5	15	2023-01-16	CUST015	Female	42	Electronics	4	500	2000
6	16	2023-02-17	CUST016	Male	19	Clothing	3	500	1500
7	20	2023-11-05	CUST020	Male	22	Clothing	3	300	900
8	21	2023-01-14	CUST021	Female	50	Beauty	1	500	500
9	24	2023-11-20	CUST024	Female	40	Clothing	1	300	300

```

32
33     *
34   FROM
35     sales2025.retail2025.retail_sales_dataset
36 WHERE
37   "PRODUCT_CATEGORY" IN ('Beauty', 'Electronics');

```

Results (just now)

Table

Chart

#	# TRANSACTION_ID	DATE	A CUSTOMER_ID	A GENDER	# AGE	A PRODUCT_CATEGORY	# QUANTITY	# PRICE_PER_UNIT	# TOTAL_AMOUNT
1	1	2023-11-24	CUST001	Male	34	Beauty	3	50	150
2	3	2023-01-13	CUST003	Male	50	Electronics	1	30	30
3	5	2023-05-06	CUST005	Male	30	Beauty	2	50	100
4	6	2023-04-25	CUST006	Female	45	Beauty	1	30	30
5	8	2023-02-22	CUST008	Male	30	Electronics	4	25	100
6	9	2023-12-13	CUST009	Male	63	Electronics	2	300	600
7	12	2023-10-30	CUST012	Male	35	Beauty	3	25	75
8	13	2023-08-05	CUST013	Male	22	Electronics	3	500	1500
9	15	2023-01-16	CUST015	Female	42	Electronics	4	500	2000

```

38
39     *
40   FROM
41     SALES2025.RETAIL2025.RETAIL_SALES_DATASET
42 WHERE
43   "PRODUCT_CATEGORY" <> 'Clothing';

```

Results (just now)

Table

Chart

#	# TRANSACTION_ID	DATE	A CUSTOMER_ID	A GENDER	# AGE	A PRODUCT_CATEGORY	# QUANTITY	# PRICE_PER_UNIT	# TOTAL_AMOUNT
1	1	2023-11-24	CUST001	Male	34	Beauty	3	50	150
2	3	2023-01-13	CUST003	Male	50	Electronics	1	30	30
3	5	2023-05-06	CUST005	Male	30	Beauty	2	50	100
4	6	2023-04-25	CUST006	Female	45	Beauty	1	30	30
5	8	2023-02-22	CUST008	Male	30	Electronics	4	25	100
6	9	2023-12-13	CUST009	Male	63	Electronics	2	300	600
7	12	2023-10-30	CUST012	Male	35	Beauty	3	25	75
8	13	2023-08-05	CUST013	Male	22	Electronics	3	500	1500

```

44
45     SELECT
46     *
47   FROM
48     SALES2025.RETAIL2025.RETAIL_SALES_DATASET
49 WHERE
50   QUANTITY >= 3;
51
52     SELECT

```

Results (just now)

#	# TRANSACTION_ID	DATE	CUSTOMER_ID	GENDER	AGE	PRODUCT_CATEGORY	QUANTITY	PRICE_PER_UNIT	TOTAL_AMOUNT	
1		1	2023-11-24	CUST001	Male	34	Beauty	3	50	150
2		8	2023-02-22	CUST008	Male	30	Electronics	4	25	100
3		10	2023-10-07	CUST010	Female	52	Clothing	4	50	200
4		12	2023-10-30	CUST012	Male	35	Beauty	3	25	75
5		13	2023-08-05	CUST013	Male	22	Electronics	3	500	1500
6		14	2023-01-17	CUST014	Male	64	Clothing	4	30	120
7		15	2023-01-16	CUST015	Female	42	Electronics	4	500	2000
8		16	2023-02-17	CUST016	Male	19	Clothing	3	500	1500

```

50
51     SELECT
52       COUNT(*) AS TOTAL_TRANSACTION
53   FROM
54     SALES2025.RETAIL2025.RETAIL_SALES_DATASET;
55
56     SELECT
57       AVG(Age) AS average_age

```

Results (just now)

#	TOTAL_TRANSACTION
1	1000

```

54     SELECT
55       AVG(Age) AS average_age
56   FROM
57     SALES2025.RETAIL2025.RETAIL_SALES_DATASET;

```

Results (just now)

#	AVERAGE_AGE
1	41.392000

```

58     SELECT
59       SUM(Quantity) AS total_quantity_sold
60   FROM
61     SALES2025.RETAIL2025.RETAIL_SALES_DATASET;

```

Results (just now)

#	TOTAL_QUANTITY SOLD
1	2514

```

62     SELECT
63       MAX(total_amount) AS total_amount_spent
64   FROM
65     SALES2025.RETAIL2025.RETAIL_SALES_DATASET;

```

Results (just now)

#	TOTAL_AMOUNT_SPENT
1	2000

```
66     SELECT
67         MIN(price_per_unit)
68     FROM
69         sales2025.retail2025.retail_sales_dataset;
```

Results (just now)	
000	# MIN(PRICE_PER_UNIT)
1	25

```
70     SELECT
71         COUNT(TRANSACTION_ID) AS number_of_transactions
72     FROM
73         SALES2025.RETAIL2025.RETAIL_SALES_DATASET
74     GROUP BY
75         product_category;
```

Results (just now)	
000	# NUMBER_OF_TRANSACTIONS
1	307
2	351
3	342

```
76     SELECT
77         SUM(QUANTITY * PRICE_PER_UNIT) AS TOTAL_REVENUE
78     FROM
79         SALES2025.RETAIL2025.RETAIL_SALES_DATASET
80     GROUP BY
81         GENDER;
```

Results (just now)	
000	# TOTAL_REVENUE
1	223160
2	232840

```
82     SELECT
83         SUM(TOTAL_AMOUNT) / SUM(QUANTITY) AS AVERAGE_PRICE_PER_UNIT
84     FROM
85         sales2025.retail2025.retail_sales_dataset
86     GROUP BY
87         PRODUCT_CATEGORY;
88 
```

Results (just now)	
000	# AVERAGE_PRICE_PER_UNIT
1	186.141375
2	174.026846
3	184.811543

```
88     SELECT
89         AVG(QUANTITY) AS AVERAGE_QUANTITY
90     FROM
91         SALES2025.RETAIL2025.RETAIL_SALES_DATASET
92     GROUP BY
93         PRODUCT_CATEGORY
94     HAVING
95         AVERAGE_QUANTITY > 2;
```

Results (just now)	
000	# AVERAGE_QUANTITY
1	2.511401
2	2.547009
3	2.482456

```

96   SELECT
97     CUSTOMER_ID,
98     TOTAL_AMOUNT,CASE
99       when(quantity * PRICE_PER_UNIT) > 1000 THEN 'HIGH'
100      ELSE 'LOW'
101    END AS spending_level
102  FROM
103    sales2025.retail2025.retail_sales_dataset;

```

Results (just now)

Table | Chart

#	CUSTOMER_ID	TOTAL_AMOUNT	SPENDING_LEVEL
1	CUST001	150	LOW
2	CUST002	1000	LOW
3	CUST003	30	LOW
4	CUST004	500	LOW
5	CUST005	100	LOW
6	CUST006	30	LOW

```

105  SELECT
106    CUSTOMER_ID,
107    AGE,CASE
108      WHEN AGE<30 THEN 'Youth'
109      WHEN AGE BETWEEN 30 and 59
110      THEN 'Adult'
111      WHEN AGE>=60 THEN 'Senior'
112    END AS AGE_GROUP
113  FROM
114    sales2025.retail2025.retail_sales_dataset

```

Results (just now)

Table | Chart

#	CUSTOMER_ID	AGE	AGE_GROUP
1	CUST001	34	Adult
2	CUST002	26	Youth
3	CUST003	50	Adult
4	CUST004	37	Adult
5	CUST005	30	Adult
6	CUST006	45	Adult