BrightLight Data Analytics Coding Practical

Practical 1: SQL Fundamentals (Snowflake-Basic SQL Syntax)

The following questions are designed to help you build a strong foundation in basic SQL syntax. You are provided with a dataset named **retail_sales_dataset.csv**. Upload this dataset to your Snowflake account and use it to answer the questions below.

Please follow the instructions below carefully:

1. Write one SQL query per question.
   Use proper formatting and indentation where necessary.
2. Each question tests a specific SQL concept.
   Read the question carefully and apply only the concept being tested (e.g., SELECT, WHERE, GROUP BY, etc.).
3. Do not combine multiple SQL concepts unless instructed to.
   For example, if the question asks for a SELECT DISTINCT, don't use WHERE unless specified.
4. Use the correct column names as provided in the dataset
5. Expected Output Columns are provided for each question.
   Your query must return exactly those columns in the result.
6. Don't worry about the actual data.
   Focus on getting the SQL syntax right.
7. Submit your completed SQL queries as a .sql

Table 1: Outlines the name and descriptions of the columns in the provided dataset "*retail_sales_dateset.csv*"

Column Name	Description
Transaction_ID	Unique identifier for each transaction.
Date	The date on which the transaction occurred (format: YYYY-MM-DD).
Customer_ID	Unique identifier for the customer making the purchase.
Gender	Gender of the customer (e.g., Male, Female).
Age	Age of the customer at the time of the transaction.
Product_Category	Category of the product purchased (e.g., Beauty, Clothing, Electronics).
Quantity	Number of product units purchased in the transaction.
Price_per_Unit	Cost of a single unit of the product (in the currency used).
Total_Amount	Total amount spent for the transaction (Quantity × Price per Unit).

Questions

1. SELECT Statement

Q1. Display all columns for all transactions.
Expected output: All columns

PROJECT.PUBLIC Settings Code Versions

```
SELECT
  *
FROM
  "PROJECT"."PUBLIC"."RETAIL_SALES"
```

Results Chart

	TRANSACTION_ID	DATE	CUSTOMER_ID	GENDER	AGE	PRODUCT_CATEGORY	QUANTITY
1	1	2023-11-24	CUST001	Male	34	Beauty	3
2	2	2023-02-27	CUST002	Female	26	Clothing	2
3	3	2023-01-13	CUST003	Male	50	Electronics	1
4	4	2023-05-21	CUST004	Male	37	Clothing	1
5	5	2023-05-06	CUST005	Male	30	Beauty	2
6	6	2023-04-25	CUST006	Female	45	Beauty	1
7	7	2023-03-13	CUST007	Male	46	Clothing	2

Q2. Display only the Transaction ID, Date, and Customer ID for all records.
Expected output: Transaction ID, Date, Customer ID

PROJECT.PUBLIC Settings Code Versions

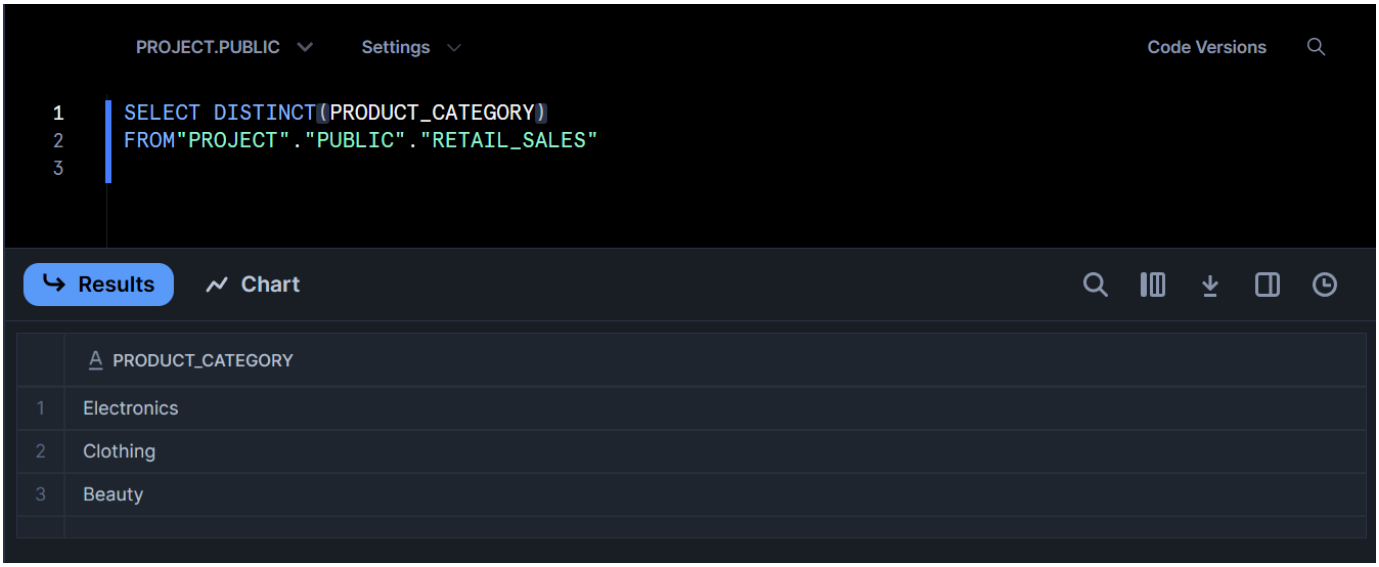
```
SELECT TRANSACTION_ID, DATE, CUSTOMER_ID
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
```

Results Chart

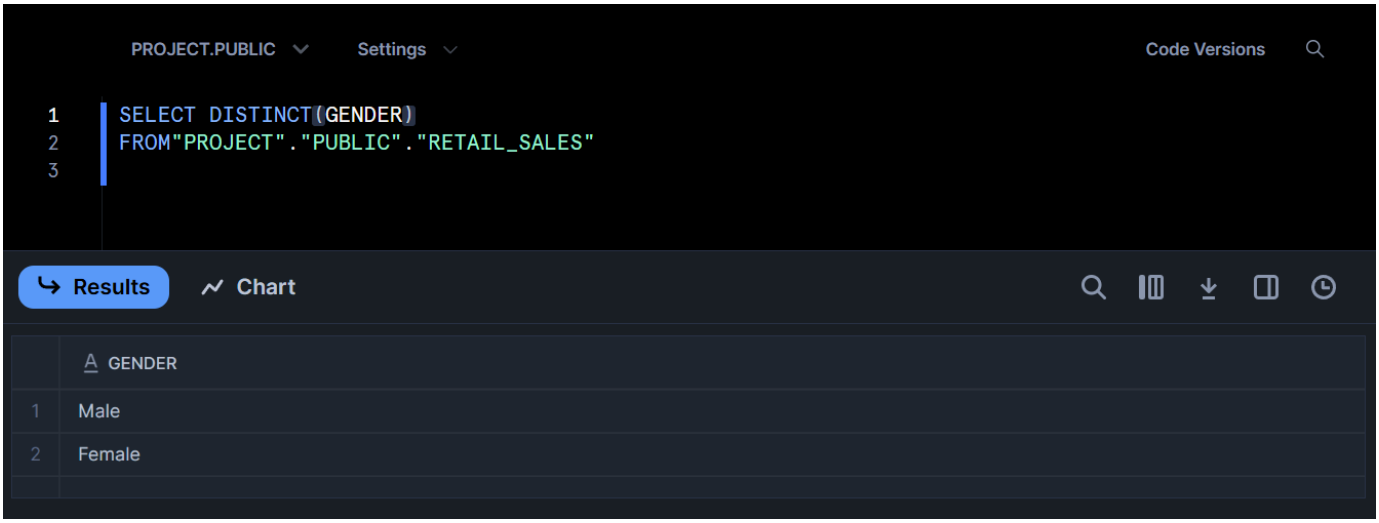
	TRANSACTION_ID	DATE	CUSTOMER_ID
1	1	2023-11-24	CUST001
2	2	2023-02-27	CUST002
3	3	2023-01-13	CUST003
4	4	2023-05-21	CUST004
5	5	2023-05-06	CUST005
6	6	2023-04-25	CUST006
7	7	2023-03-13	CUST007
8	8	2023-02-22	CUST008

2. SELECT DISTINCT Statement

Q3. Display all the distinct product categories in the dataset.
Expected output: Product Category



Q4. Display all the distinct gender values in the dataset.
Expected output: Gender



---

3. WHERE Clause

Q5. Display all transactions where the Age is greater than 40.
Expected output: All columns

PROJECT.PUBLIC Settings Code Versions

```
SELECT *
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
WHERE AGE > 40
```

Results Chart

	TRANSACTION_ID	DATE	CUSTOMER_ID	GENDER	AGE	PRODUCT_CATEGORY	QUANTITY
1	3	2023-01-13	CUST003	Male	50	Electronics	1
2	6	2023-04-25	CUST006	Female	45	Beauty	1
3	7	2023-03-13	CUST007	Male	46	Clothing	2
4	9	2023-12-13	CUST009	Male	63	Electronics	2
5	10	2023-10-07	CUST010	Female	52	Clothing	4
6	14	2023-01-17	CUST014	Male	64	Clothing	4
7	15	2023-01-16	CUST015	Female	42	Electronics	4

Q6. Display all transactions where the Price per Unit is between 100 and 500.

Expected output: All columns

PROJECT.PUBLIC Settings Code Versions

```
SELECT *
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
WHERE PRICE_PER_UNIT BETWEEN 100 AND 500
```

Results Chart

	DATE	CUSTOMER_ID	GENDER	AGE	PRODUCT_CATEGORY	QUANTITY	PRICE_PER_UNIT
1	2023-02-27	CUST002	Female	26	Clothing	2	500
2	2023-05-21	CUST004	Male	37	Clothing	1	500
3	2023-12-13	CUST009	Male	63	Electronics	2	300
4	2023-08-05	CUST013	Male	22	Electronics	3	500
5	2023-01-16	CUST015	Female	42	Electronics	4	500
6	2023-02-17	CUST016	Male	19	Clothing	3	500
7	2023-11-05	CUST020	Male	22	Clothing	3	300

Q7. Display all transactions where the Product Category is either 'Beauty' or 'Electronics'.

Expected output: All columns

PROJECT.PUBLIC Settings Code Versions

```
1  SELECT *
2  FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
3  WHERE PRODUCT_CATEGORY IN('Beauty', 'Electronics')
4
```

Results Chart

	TRANSACTION_ID	DATE	CUSTOMER_ID	GENDER	AGE	PRODUCT_CATEGORY	QUANTITY
1	1	2023-11-24	CUST001	Male	34	Beauty	3
2	3	2023-01-13	CUST003	Male	50	Electronics	1
3	5	2023-05-06	CUST005	Male	30	Beauty	2
4	6	2023-04-25	CUST006	Female	45	Beauty	1
5	8	2023-02-22	CUST008	Male	30	Electronics	4
6	9	2023-12-13	CUST009	Male	63	Electronics	2
7	12	2023-10-30	CUST012	Male	35	Beauty	3

Q8. Display all transactions where the Product Category is **not** 'Clothing'.

Expected output: All columns

PROJECT.PUBLIC Settings Code Versions

```
1  SELECT *
2  FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
3  WHERE PRODUCT_CATEGORY != 'Clothing'
4
```

Results Chart

	TRANSACTION_ID	DATE	CUSTOMER_ID	GENDER	AGE	PRODUCT_CATEGORY	QUANTITY
1	1	2023-11-24	CUST001	Male	34	Beauty	3
2	3	2023-01-13	CUST003	Male	50	Electronics	1
3	5	2023-05-06	CUST005	Male	30	Beauty	2
4	6	2023-04-25	CUST006	Female	45	Beauty	1
5	8	2023-02-22	CUST008	Male	30	Electronics	4
6	9	2023-12-13	CUST009	Male	63	Electronics	2
7	12	2023-10-30	CUST012	Male	35	Beauty	3

Q9. Display all transactions where the Quantity is greater than or equal to 3.
Expected output: All columns

PROJECT.PUBLIC Settings Code Versions

```
SELECT *
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
WHERE QUANTITY >= 3
```

Results Chart

	TRANSACTION_ID	DATE	CUSTOMER_ID	GENDER	AGE	PRODUCT_CATEGORY	QUANTITY
1	1	2023-11-24	CUST001	Male	34	Beauty	3
2	8	2023-02-22	CUST008	Male	30	Electronics	4
3	10	2023-10-07	CUST010	Female	52	Clothing	4
4	12	2023-10-30	CUST012	Male	35	Beauty	3
5	13	2023-08-05	CUST013	Male	22	Electronics	3
6	14	2023-01-17	CUST014	Male	64	Clothing	4
7	15	2023-01-16	CUST015	Female	42	Electronics	4

---

4. Aggregate Functions

Q10. Count the total number of transactions.
Expected output: Total_Transactions

PROJECT.PUBLIC Settings Code Versions

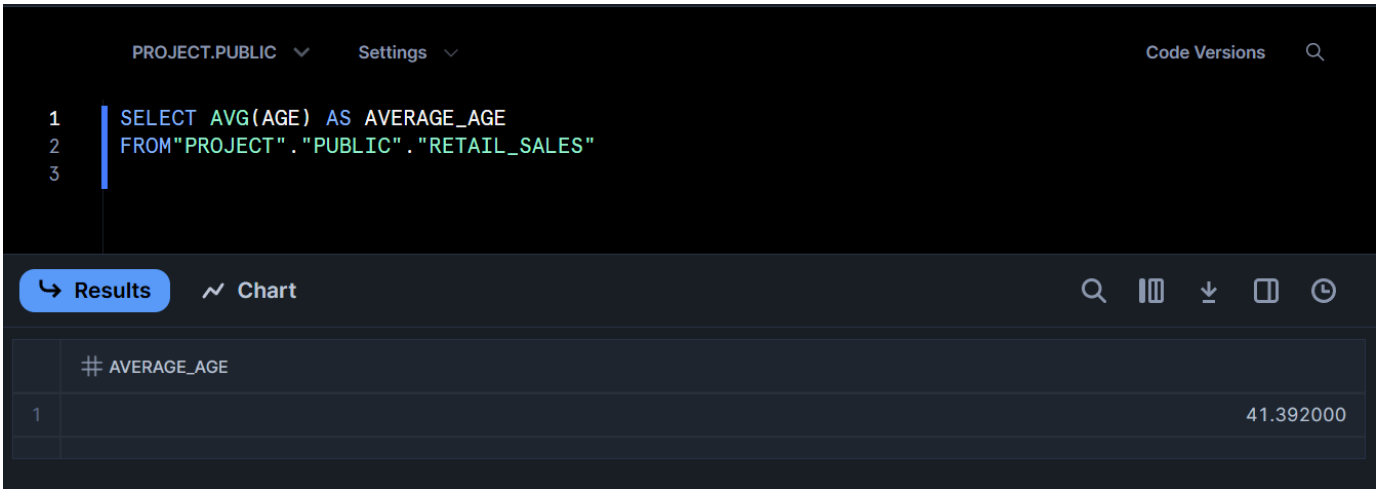
```
SELECT COUNT(*) AS TOTAL_TRANSACTIONS
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
```

Results Chart

	TOTAL_TRANSACTIONS
1	1000

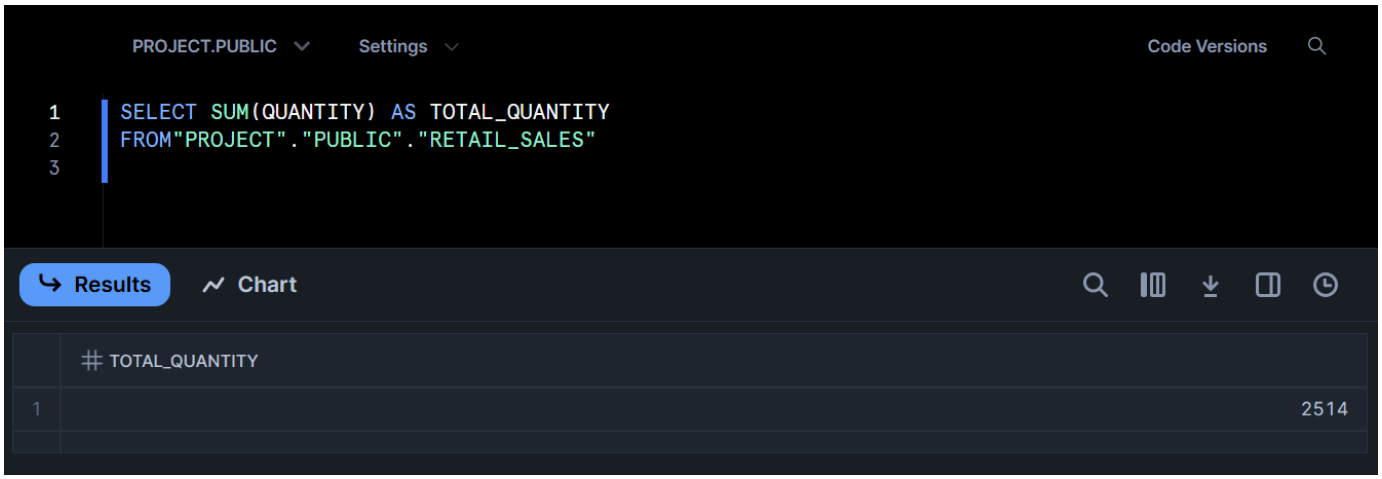
Q11. Find the average Age of customers.

Expected output: Average_Age

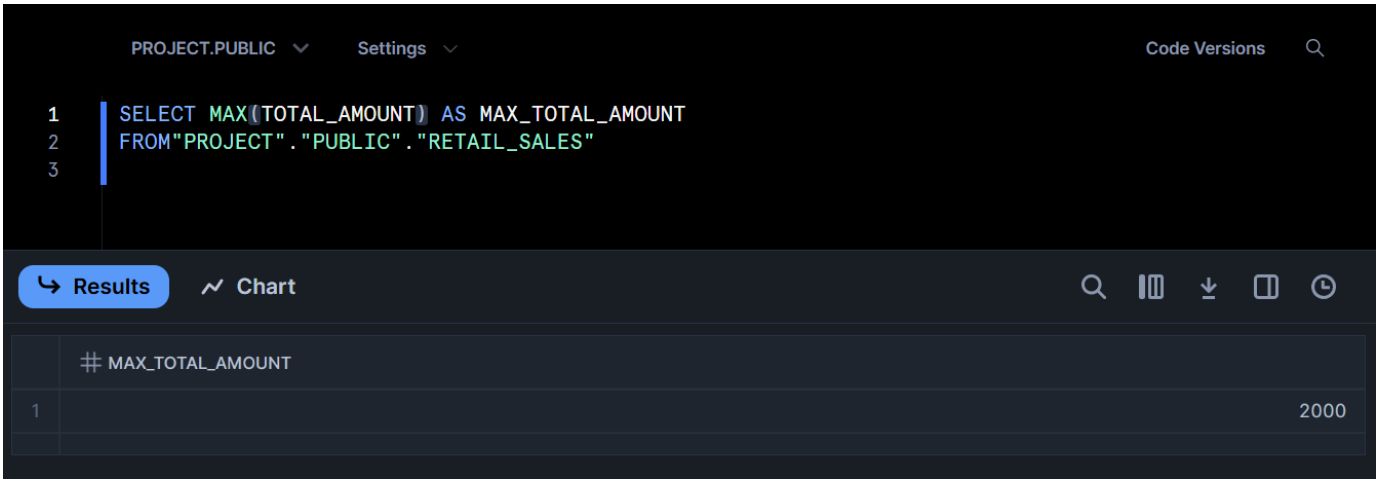


Q12. Find the total quantity of products sold.

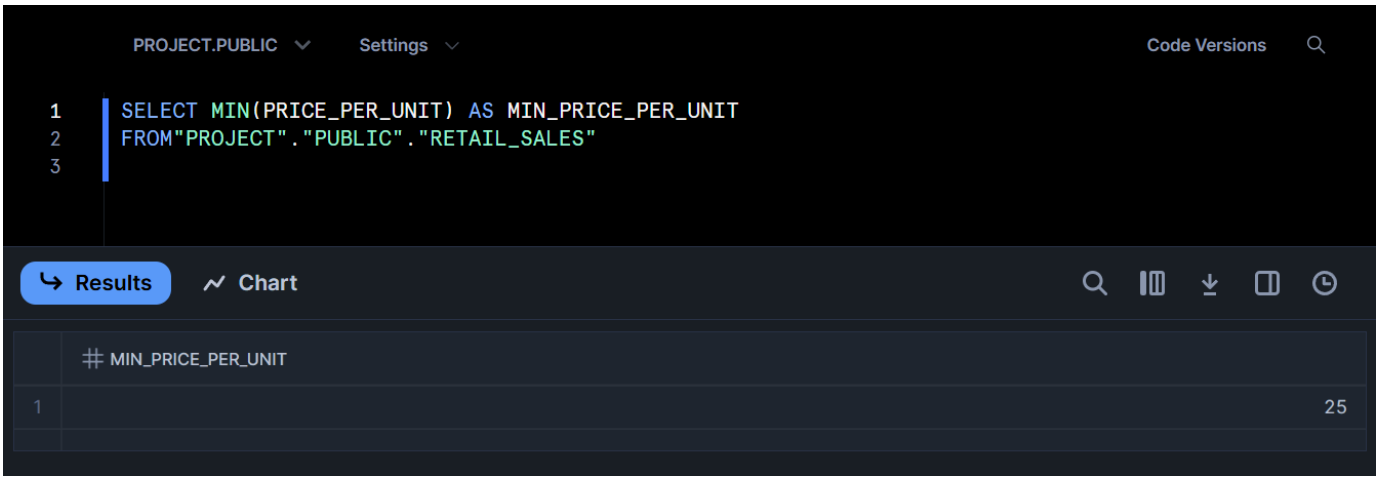
Expected output: Total_Quantity



Q13. Find the maximum Total Amount spent in a single transaction.
Expected output: Max_Total_Amount



Q14. Find the minimum Price per Unit in the dataset.
Expected output: Min_Price_per_Unit



---

5. GROUP BY Statement

Q15. Find the number of transactions per Product Category.
Expected output: Product Category, Transaction_Count

PROJECT.PUBLIC Settings Code Versions

```
SELECT PRODUCT_CATEGORY, COUNT(TRANSACTION_ID) AS TRANSACTION_COUNT
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
GROUP BY PRODUCT_CATEGORY
```

Results Chart

	PRODUCT_CATEGORY	TRANSACTION_COUNT
1	Clothing	351
2	Beauty	307
3	Electronics	342

Q16. Find the total revenue (Total Amount) per gender.

Expected output: Gender, Total_Revenue

PROJECT.PUBLIC Settings Code Versions

```
SELECT GENDER, SUM(TOTAL_AMOUNT) AS TOTAL_REVENUE
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
GROUP BY GENDER
```

Results Chart

	GENDER	TOTAL_REVENUE
1	Male	223160
2	Female	232840

Q17. Find the average Price per Unit per product category.

Expected output: Product Category, Average_Price

PROJECT.PUBLIC Settings Code Versions

```
SELECT PRODUCT_CATEGORY, AVG(PRICE_PER_UNIT) AS AVERAGE_PRICE
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
GROUP BY PRODUCT_CATEGORY
```

Results Chart

	PRODUCT_CATEGORY	AVERAGE_PRICE
1	Clothing	174.287749
2	Beauty	184.055375
3	Electronics	181.900585

6. HAVING Clause

Q18. Find the total revenue per product category where total revenue is greater than 10,000.
Expected output: Product Category, Total_Revenue

```
PROJECT.PUBLIC   Settings                                   Code Versions

1  SELECT PRODUCT_CATEGORY, SUM(TOTAL_AMOUNT) AS TOTAL_REVENUE
2  FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
3  GROUP BY PRODUCT_CATEGORY
4  HAVING SUM(TOTAL_AMOUNT) > 10000
```

Results | Chart

	PRODUCT_CATEGORY	TOTAL_REVENUE
1	Clothing	155580
2	Beauty	143515
3	Electronics	156905

Q19. Find the average quantity per product category where the average is more than 2.
Expected output: Product Category, Average_Quantity

```
PROJECT.PUBLIC   Settings                                   Code Versions

1  SELECT PRODUCT_CATEGORY, AVG(QUANTITY) AS AVERAGE_QUANTITY
2  FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
3  GROUP BY PRODUCT_CATEGORY
4  HAVING AVG(QUANTITY) > 2
```

Results | Chart

	PRODUCT_CATEGORY	AVERAGE_QUANTITY
1	Clothing	2.547009
2	Beauty	2.511401
3	Electronics	2.482456

---

7. CASE Statement

Q20. Display a column called Spending_Level that shows 'High' if Total Amount > 1000, otherwise 'Low'.
Expected output: Transaction ID, Total Amount, Spending_Level

PROJECT.PUBLIC Settings Code Versions

```
SELECT TRANSACTION_ID, TOTAL_AMOUNT,
        CASE
            WHEN TOTAL_AMOUNT > 1000 THEN 'High'
            ELSE 'Low'
        END AS SPENDING_LEVEL
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
```

Results Chart

	TRANSACTION_ID	TOTAL_AMOUNT	SPENDING_LEVEL
1	1	150	Low
2	2	1000	Low
3	3	30	Low
4	4	500	Low
5	5	100	Low
6	6	30	Low
7	7	50	Low

Q21. Display a new column called Age_Group that labels customers as:

- 'Youth' if Age < 30
- 'Adult' if Age is between 30 and 59
- 'Senior' if Age >= 60

Expected output: Customer ID, Age, Age_Group

PROJECT.PUBLIC Settings Code Versions

```
SELECT CUSTOMER_ID, AGE,
        CASE
            WHEN AGE <30 THEN 'Youth'
            WHEN AGE BETWEEN 30 AND 59 THEN 'Adult'
            ELSE 'Senior'
        END AS AGE_GROUP
FROM"PROJECT"."PUBLIC"."RETAIL_SALES"
```

Results 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