WALMART SALES DATA ANALYSIS WITH SQL

1. **Calculate Total Sales per Product Line**

   Question: How can you calculate the total sales for each Product line in the WalmartSalesData table by summing the Total for each product line?

   Solution:

```
SELECT Product_line, SUM(Total) AS total_sales
FROM WalmartSalesData
GROUP BY Product_line;
```

   Output:

	Product_line	total_sales
1	Fashion accessories	54305.8951845169
2	Health and beauty	49193.7389202118
3	Electronic accessories	54337.531457901
4	Food and beverages	56144.8439311981
5	Sports and travel	55122.8265810013
6	Home and lifestyle	53861.9131307602

2. **Count the Number of Sales Transactions for Each Payment Method**

   Question: How can you count the number of sales transactions for each Payment method in the WalmartSalesData table?

   Solution:

```
SELECT Payment, COUNT(Payment) AS transaction_count
FROM WalmartSalesData
GROUP BY Payment;
```

   Output:

	Payment	transaction_count
1	Ewallet	345
2	Cash	344
3	Credit card	311

3. **Find the Number of Customers per Gender**

   Question: How can you find the number of customers (Customer type) for each gender (Gender) in the WalmartSalesData table?

   Solution:

```
SELECT Gender, COUNT(DISTINCT Customer_type) AS number_of_customers
FROM WalmartSalesData
GROUP BY Gender;
```

   Output:

	Gender	number_of_customers
1	Female	2
2	Male	2

4. **Calculate the Total Revenue and Average Gross Margin Percentage for Each Product Line**

Question: How can you calculate the total revenue (Total) and the average Gross margin percentage for each Product line in the WalmartSalesData table, and also filter the results to include only product lines with total revenue greater than $10,000?

Solution:

```
SELECT Product_line,
       SUM(Total) AS total_revenue,
       AVG(gross_margin_percentage) AS avg_margin_percentage
FROM WalmartSalesData
GROUP BY Product_line
HAVING SUM(Total) > 10000;
```

Output:

	Product_line	total_revenue	avg_margin_percentage
1	Fashion accessories	54305.8951845169	4.7619047164917
2	Health and beauty	49193.7389202118	4.7619047164917
3	Electronic accessories	54337.531457901	4.7619047164917
4	Food and beverages	56144.8439311981	4.7619047164917
5	Sports and travel	55122.8265810013	4.7619047164917
6	Home and lifestyle	53861.9131307602	4.7619047164917

5. **Calculate the Highest Gross Income for Each Branch in a Specific Date Range**

Question: How can you find the highest Gross income for each Branch between two specific dates, say '2019-01-01' and '2019-12-31', in the WalmartSalesData table?

Solution:

```
SELECT Branch, MAX(gross_income) AS highest_gross_income
FROM WalmartSalesData
WHERE Date BETWEEN '2019-01-01' AND '2019-12-31'
GROUP BY Branch;
```

Output:

	Branch	highest_gross_income
1	A	49.4900016784668
2	C	49.6500015258789
3	B	48.689998626709

6. **Find the Branches that Have Sold More Than the Average Quantity Across All Products**

Question: How can you find the branches that have sold more than the average Quantity across all products in the WalmartSalesData table?

Solution:

```
SELECT Branch, SUM(Quantity) AS total_quantity
FROM WalmartSalesData
GROUP BY Branch
HAVING SUM(Quantity) > (SELECT AVG(Quantity) FROM WalmartSalesData);
```

Output:

	Branch	total_quantity
1	A	1859
2	C	1831
3	B	1820

7. Find the Top 5 Products Based on Revenue and Rating

Question: How can you find the top 5 products (based on Product line) with the highest total revenue and the highest average Rating in the WalmartSalesData table? Sort the result first by total revenue and then by average rating.

Solution:

```
SELECT TOP 5 Product_line,
             SUM(Total) AS total_revenue,
             AVG(Rating) AS avg_rating
FROM WalmartSalesData
GROUP BY Product_line
ORDER BY total_revenue DESC, avg_rating DESC;
```

Output:

	Product_line	total_revenue	avg_rating
1	Food and beverages	56144.8439311981	7.11321838970842
2	Sports and travel	55122.8265810013	6.91626506253897
3	Electronic accessories	54337.531457901	6.92470588123097
4	Fashion accessories	54305.8951845169	7.02921346600136
5	Home and lifestyle	53861.9131307602	6.8375

8. Total Sales by City and Gender

Question: How can you retrieve the total sales (Total) for each city and gender, along with the average rating (Rating) for each group? Include only the cities where total sales are above the average total sales across all cities.

Solution:

```
SELECT City, Gender,
       SUM(Total) AS total_sales,
       AVG(Rating) AS avg_rating
FROM WalmartSalesData
GROUP BY City, Gender
HAVING SUM(Total) > (SELECT AVG(Total) FROM WalmartSalesData);
```

Output:

	City	Gender	total_sales	avg_rating
1	Naypyitaw	Male	48883.2434949875	6.97200000762939
2	Mandalay	Male	53269.3772163391	6.76235291537117
3	Naypyitaw	Female	61685.4631233215	7.15786516264583
4	Yangon	Male	52931.2034282684	7.19608939559766
5	Mandalay	Female	52928.2949714661	6.8765432069331
6	Yangon	Female	53269.1669712067	6.83913041938166

9. **Total Sales and Gross Income by Product Line and City with Rating Filter**

Question: What are the total sales and gross income for each product line and city, but only for cities where the average rating is above 4?

Solution:

```
SELECT Product_line, City,
       SUM(Total) AS total_sales,
       SUM(gross_income) AS total_gross_income
FROM WalmartSalesData
GROUP BY Product_line, City
HAVING AVG(Rating) > 4;
```

Output:

	Product_line	City	total_sales	total_gross_income
1	Food and beverages	Naypyitaw	23766.8549594879	1131.75499236584
2	Home and lifestyle	Yangon	22417.195514679	1067.48549884558
3	Fashion accessories	Naypyitaw	21560.0701627731	1026.66999572515
4	Sports and travel	Mandalay	19988.1991157532	951.819000005722
5	Health and beauty	Mandalay	19980.6600799561	951.460004508495
6	Sports and travel	Yangon	19372.6994094849	922.509499132633
7	Electronic accessories	Naypyitaw	18968.9744625092	903.284489512444
8	Electronic accessories	Yangon	18317.1135635376	872.243504524231
9	Home and lifestyle	Mandalay	17549.1645393372	835.674499869347
10	Food and beverages	Yangon	17163.1004638672	817.290498495102

10. **Revenue and COGS Breakdown by Gender, Payment Method, and Product Line Details.**

Question: What is the total revenue (Total), total COGS, and total gross income for each gender, payment method, and product line?

Solution:

```
SELECT Gender, Payment, Product_line,
       SUM(Total) AS total_revenue,
       SUM(COGS) AS total_cogs,
       SUM(gross_income) AS total_gross_income
FROM WalmartSalesData
GROUP BY Gender, Payment, Product_line
ORDER BY total_revenue DESC, total_cogs DESC;
```

Output:

	Gender	Payment	Product_line	total_revenue	total_cogs	total_gross_income
1	Female	Cash	Food and beverages	12826.1279716492	12215.3600254059	610.767994880676
2	Female	Ewallet	Fashion accessories	11492.6909637451	10945.420003891	547.270996332169
3	Male	Ewallet	Electronic accessories	11364.6434288025	10823.4699478149	541.173500418663
4	Female	Ewallet	Home and lifestyle	11295.1020317078	10757.2398757935	537.86200106144
5	Female	Cash	Electronic accessories	11214.7139034271	10680.6800518036	534.033996462822
6	Female	Credit card	Food and beverages	11009.7435359955	10485.4698848724	524.273498058319
7	Male	Credit card	Health and beauty	10368.8339881897	9875.08002853394	493.75400185585
8	Male	Cash	Health and beauty	10204.3620223999	9718.4399356842	485.92199921608
9	Male	Ewallet	Health and beauty	10059.5565643311	9580.5299911499	479.026501655579
10	Male	Ewallet	Home and lifestyle	9994.73997020721	9518.8000831604	475.940000772476