**Aggregation practice problems:**

**Sample Data**

| **sale\_id** | **product\_id** | **quantity** | **unit\_price** | **sale\_date** | **customer\_region** |
| --- | --- | --- | --- | --- | --- |
| 1 | 103 | 5 | 14.68851 | 30-09-2023 | West |
| 2 | 103 | 8 | 46.85674 | 24-08-2023 | North |
| 3 | 100 | 2 | 36.62423 | 12-09-2023 | North |
| 4 | 102 | 2 | 10.52815 | 12-07-2023 | West |
| 5 | 104 | 3 | 37.25123 | 04-10-2023 | East |

1. **Total Amount and Average Sale Value:**

Calculate the total amount and the average value of a sale transaction across all sales and name it as total amount and average respectively.

1. **Highest and Lowest Sale Value by Product:**

For each product, find the highest and lowest sale values (where sale value is **quantity \* unit\_price**) and name it as highest sale values and lowest sale values respectively.

1. **Count of Sales and Average Quantity per Region:**

Count the number of sales and calculate the average quantity sold per transaction in each customer region and name it as sales\_count and average quantity respectively.

1. **Monthly Sales Summary:**

For each month, calculate the total number of sales, the total amount, and the average sale value.

1. **Product Performance Analysis:**

For each product, calculate the total amount, the average unit price, and the count of sales transactions.

1. **Yearly Sales Overview:**

Calculate the total amount, average sale value, and total number of sales for the entire year.

1. **Regional Maximum and Minimum Sale Values:**

Determine the maximum and minimum sale values in each customer region.

1. **Quarterly Sales Aggregation:**

For each quarter of the year, calculate the total amount and the average quantity sold.

1. **Product Popularity by Region:**

For each region, find the most sold product (based on quantity) and its total amount.

1. **Annual Sales Distribution:**

Analyze the distribution of sales by calculating the sum, average, and count of sales for the first half of the year (January to June) compared to the second half (July to December).