Scenario: You are working as a data analyst for an e-commerce company. You have been given a dataset containing information about customer orders, stored in a Pandas DataFrame named order_data. The DataFrame has columns for customer ID, order date, product name, and order quantity. Your task is to analyze the data and answer specific questions about the orders.

Question: Using Pandas DataFrame operations, how would you find the following information from the order_data DataFrame:

1. The total number of orders made by each customer.

2. The average order quantity for each product.

3. The earliest and latest order dates in the dataset.

AIM: To analyze customer purchase data using pandas by grouping records, calculating average quantities for each product, and identifying the earliest and latest order dates in the dataset.

PROCEDURE:

1. Create a pandas DataFrame containing customer orders with IDs, dates, products, and quantities.
2. Group the data by customer_id and count the number of orders each customer made.
3. Group the data by product and calculate the mean quantity ordered for each product.
4. Find the minimum and maximum order dates to determine the date range of purchases.