7. 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.

CODE:

import pandas as pd

order\_data = pd.read\_csv(r'C:\Users\hp\Desktop\order\_data.csv', parse\_dates=["Order\_Date"])

orders\_per\_customer = order\_data['Customer\_ID'].value\_counts().sort\_index()

print("1. Total number of orders by each customer:")

print(orders\_per\_customer)

average\_quantity\_per\_product = order\_data.groupby('Product\_Name')['Order\_Quantity'].mean()

print("\n2. Average order quantity for each product:")

print(average\_quantity\_per\_product)

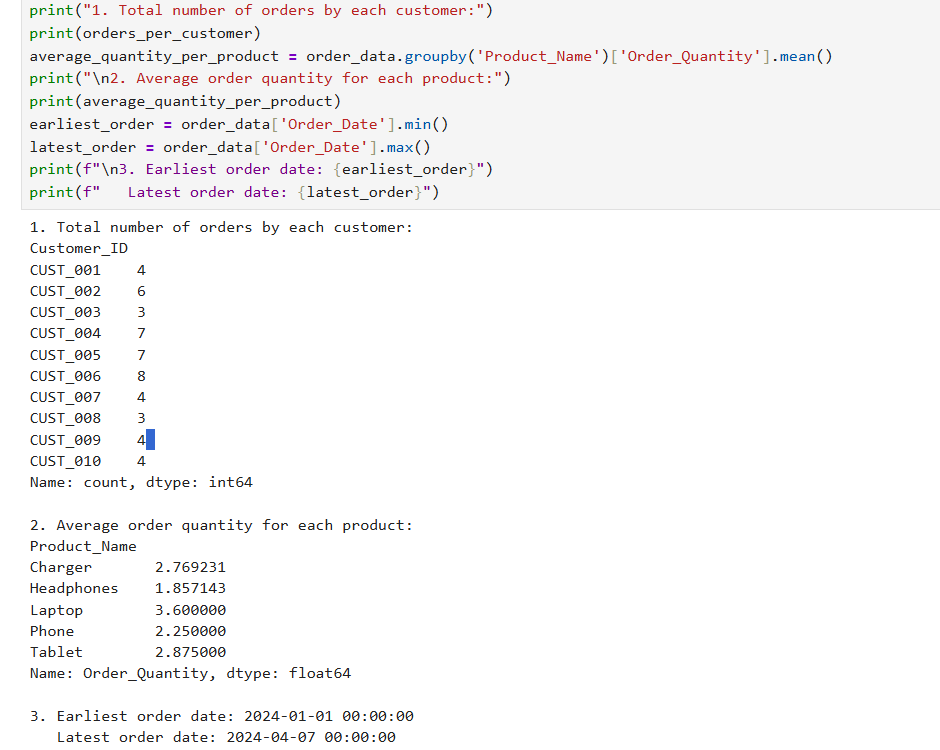
earliest\_order = order\_data['Order\_Date'].min()

latest\_order = order\_data['Order\_Date'].max()

print(f"\n3. Earliest order date: {earliest\_order}")

print(f" Latest order date: {latest\_order}")

OUTPUT:



DATASET:

|  |  |  |  |
| --- | --- | --- | --- |
| Customer\_ID | Order\_Date | Product\_Name | Order\_Quantity |
| CUST\_006 | ######## | Tablet | 1 |
| CUST\_006 | ######## | Phone | 1 |
| CUST\_010 | ######## | Charger | 1 |
| CUST\_005 | ######## | Charger | 2 |
| CUST\_001 | ######## | Laptop | 1 |
| CUST\_008 | ######## | Charger | 1 |
| CUST\_009 | ######## | Tablet | 3 |
| CUST\_002 | ######## | Headphones | 1 |
| CUST\_007 | ######## | Laptop | 5 |
| CUST\_002 | ######## | Laptop | 2 |
| CUST\_009 | ######## | Tablet | 3 |
| CUST\_005 | ######## | Tablet | 4 |
| CUST\_010 | ######## | Phone | 2 |
| CUST\_006 | ######## | Laptop | 5 |
| CUST\_010 | ######## | Phone | 2 |
| CUST\_004 | ######## | Charger | 5 |
| CUST\_002 | ######## | Laptop | 5 |
| CUST\_001 | ######## | Laptop | 4 |
| CUST\_004 | ######## | Headphones | 2 |
| CUST\_005 | ######## | Laptop | 4 |
| CUST\_002 | ######## | Charger | 4 |
| CUST\_004 | ######## | Phone | 2 |
| CUST\_002 | ######## | Phone | 1 |
| CUST\_007 | ######## | Headphones | 1 |
| CUST\_005 | ######## | Charger | 4 |
| CUST\_008 | ######## | Phone | 3 |
| CUST\_006 | ######## | Tablet | 4 |
| CUST\_003 | ######## | Charger | 4 |
| CUST\_006 | ######## | Charger | 4 |
| CUST\_006 | ######## | Headphones | 1 |
| CUST\_004 | ######## | Phone | 1 |
| CUST\_005 | ######## | Charger | 1 |
| CUST\_002 | ######## | Phone | 4 |
| CUST\_010 | ######## | Tablet | 3 |
| CUST\_003 | ######## | Headphones | 1 |
| CUST\_009 | ######## | Tablet | 2 |
| CUST\_004 | ######## | Headphones | 2 |
| CUST\_003 | ######## | Charger | 2 |
| CUST\_008 | ######## | Headphones | 5 |
| CUST\_007 | ######## | Laptop | 4 |
| CUST\_005 | ######## | Phone | 2 |
| CUST\_009 | ######## | Phone | 4 |
| CUST\_004 | ######## | Laptop | 2 |
| CUST\_006 | ######## | Tablet | 3 |
| CUST\_001 | ######## | Laptop | 4 |
| CUST\_004 | ######## | Charger | 2 |
| CUST\_001 | ######## | Charger | 1 |
| CUST\_006 | ######## | Phone | 4 |
| CUST\_007 | ######## | Charger | 5 |
| CUST\_005 | ######## | Phone | 1 |
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