LAB DAY-2 EXPERIMENTS

Exp-6

```
prices = [100, 250, 150]
quantities = [2, 1, 3]
discount_rate = 10
tax_rate = 5
subtotal = sum(p*q for p, q in zip(prices, quantities))
discount = subtotal * (discount_rate/100)
after_discount = subtotal - discount
tax = after_discount * (tax_rate/100)
total_cost = after_discount + tax
print("Total Cost =", total_cost)
```

output:

Exp-7

```
import pandas as pd
order_data = pd.DataFrame({
   "customer_id":[1,2,1,3,2],
   "order_date":pd.to_datetime(["2025-01-01","2025-01-03","2025-01-05","2025-01-07","2025-01-10"]),
   "product_name":["A","B","A","C","B"],
   "order_quantity":[2,1,3,1,2]
})
print(order_data.groupby("customer_id").size())
print(order_data.groupby("product_name")["order_quantity"].mean())
print(order_data["order_date"].min(), order_data["order_date"].max())
```

output:

```
customer_id
1    2
2    2
3    1
dtype: int64
product_name
A    2.5
B    1.5
C    1.0
```

Exp-8

```
import pandas as pd
sales = pd.DataFrame({
   "product_name":["A","B","A","C","B","A","D"],
   "quantity_sold":[5,2,3,4,6,1,8]
})
print(sales.groupby("product_name")["quantity_sold"]
     .sum()
     .sort_values(ascending=False)
     .head(5))
```

Output:

```
product_name
A    9
B    8
D    8
C    4
Name: quantity_sold, dtype: int64
```

Exp-9

```
import pandas as pd
property_data = pd.DataFrame({
   "property_id":[1,2,3,4],
   "location":["X","Y","X","Z"],
   "bedrooms":[3,5,4,6],
   "area_sqft":[1200,2000,1500,3000],
   "price":[50,80,60,120]
})

print(property_data.groupby("location")["price"].mean())
print((property_data["bedrooms"] > 4).sum())
print(property_data.loc[property_data["area_sqft"].idxmax()])
```

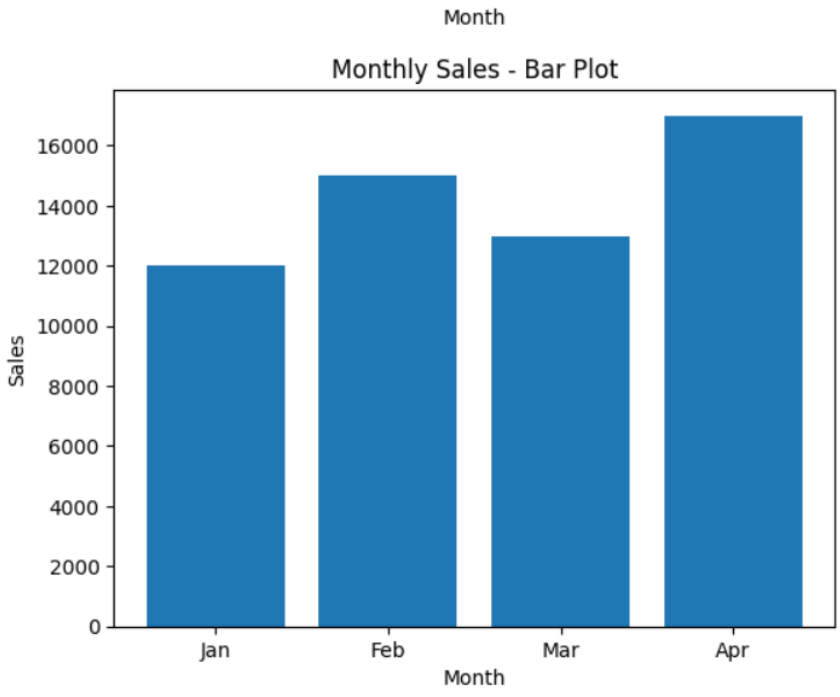
```
location
X     55.0
Y     80.0
Z    120.0
Name: price, dtype: float64
2
property_id       4
location          Z
bedrooms          6
area_sqft      3000
price           120
```

Exp-10

```
months = ["Jan","Feb","Mar","Apr"]
sales = [12000,15000,13000,17000]
import matplotlib.pyplot as plt
plt.plot(months, sales)
```

```
plt.xlabel("Month")
plt.ylabel("Sales")
plt.title("Monthly Sales - Line Plot")
plt.show()
import matplotlib.pyplot as plt
plt.bar(months, sales)
plt.xlabel("Month")
plt.ylabel("Sales")
plt.title("Monthly Sales - Bar Plot")
plt.show()
```

output:

- 

...


Monthly Sales - Line Plot
17000
16000
15000
14000
13000
12000
Sales
Jan
Feb
Mar
Apr
Month