EDS ASSIGNMENT NO : 4

&

IA ASSIGNMENT : 1

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assignment_4.py

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```python
# Name : Varun Balbudhe
# PRN No : 202201040079
# Roll NO : 503
# EDS ASSIGNMENT NO : 4

import pandas as pd
data_grains = pd.read_csv("C:\\Users\\varun\\Downloads\\grainsales.csv")

data_grains['Sales'] = pd.to_numeric(data_grains['Sales'])


print("\n\0EDS ASSIGNMENT 4")

month_sale = data_grains.groupby('Months')['Sales'].sum()
best_month = month_sale.idxmax()
earned = month_sale.max()
print("\n\nQuestion 1: Which was the best month for sales? How much was earned that month?")
print("Ans : Best month for sales is :", best_month)
print("Ans : Earnings in the best month:", earned)


product_sales = data_grains.groupby('GrainName')['Sales'].sum()
best_product_sales = product_sales.idxmax()
print("\n\nQuestion 2: Which product sold the most? Why do you think it did?")
print("Ans : Best-selling product:", best_product_sales)


city_sale = data_grains.groupby('City')['Sales'].sum()
best_city_sale = city_sale.idxmax()
print("\n\nQuestion 3: Which city sold the most products?")
print("Ans : City with the most product sales:", best_city_sale)

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```python
combo_products = data_grains.groupby(['GrainName', 'State'])['Sales'].count()
most_sold_together = combo_products.idxmax()
print("\n\nQuestion 4: What products are most often sold together?")
print("Ans : Products most often sold together:", most_sold_together)

# 10 Questions :

print("\n\nQuestion 1: Determine the month and year with the highest sales.\n")
data_grains['MonthYear'] = data_grains['Months'] + ' ' + data_grains['Year'].astype(str)
month_year_sales = data_grains.groupby('MonthYear')['Sales'].sum()
best_month_year = month_year_sales.idxmax()
print("Ans : Month and year with the highest sales recorded :", best_month_year, "\n\n")


print("\n\nQuestion 2: Find the city with the highest average sales.\n")
city_average_sales = data_grains.groupby('City')['Sales'].mean()
best_city_average_sales = city_average_sales.idxmax()
print("Ans : City with the highest average sales:", best_city_average_sales, "\n\n")


print("\n\nQuestion 3: What are the total sales for each grain types in the year 2023.\n")
yearly_grain_sales = data_grains[data_grains['Year'] == 2023].groupby('GrainName')[
    'Sales'].sum()
print("Ans : Total sales of grain in 2023:\n", yearly_grain_sales, "\n\n")




state_sales = data_grains.groupby('State')['Sales'].sum()
print("\n\nQuestion 4: Calculate the total sales for Every state.\n")
print("Ans : Ans : Total sales by state:\n", state_sales, "\n\n")
```

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```python
print("\n\nQuestion 4: Calculate the total sales for Every state.\n")
print("Ans : Ans : Total sales by state:\n", state_sales,"\n\n")


print("\n\n#Question 5: Show the average sales per month.\n")
monthly_average_sales = data_grains.groupby('Months')['Sales'].mean()
print("Ans : \nAverage sales per month:\n", monthly_average_sales,"\n\n")


print("\n\nQuestion 6: Visualize the average sales for each city.\n")
city_average_sales = data_grains.groupby('City')['Sales'].mean()
print("Ans : Average sales per city:\n", city_average_sales, "\n\n")


print("\n\nQuestion 7: List the top 5 products that generated the highest revenue.\n")
top_products = data_grains.groupby('GrainName')['Sales'].sum().nlargest(5)
print("Ans : Top 5 products by revenue:\n", top_products, "\n\n")


print("\n\nQuestion 8: Calculate the total sales for each grain type in each state.\n")
grain_state_sales = data_grains.groupby(['GrainName', 'State'])['Sales'].sum()
print("Ans : Total sales of Ech grain type in each state:\n", grain_state_sales, "\n\n")

print("\n\nQuestion 9: Find the product with the highest sales in each month\n")
monthly_best_product = data_grains.groupby(['Months', 'GrainName'])[
    'Sales'].sum().reset_index()
idx = monthly_best_product.groupby('Months')['Sales'].idxmax()
best_product_per_month = monthly_best_product.loc[idx, [
    'Months', 'GrainName', 'Sales']]
print("Ans : Product with highest sales in each month :\n",
      best_product_per_month, "\n\n")

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assignment_4.py

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95
96
97  print("\n\nQuestion 10: Calculate the total sales recorded for each year.\n")
98  yearly_sales = data_grains.groupby('Year')['Sales'].sum()
99  print("Ans : Total sales recoded for each year:\n", yearly_sales, "\n\n")
100
101
```

Output :

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- **4 QUESTIONS**

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL                                                    Code

PS C:\Users\varun\OneDrive\Desktop\Code-Play\PYTHON> python -u "c:\Users\varun\OneDrive\Desktop\Code-Play\PYTHON\EDS\assignment_4.py"

EDS ASSIGNMENT 4


Question 1: Which was the best month for sales? How much was earned that month?
Ans : Best month for sales is : JULY
Ans : Earnings in the best month: 16000000


Question 2: Which product sold the most? Why do you think it did?
Ans : Best-selling product: Wheat


Question 3: Which city sold the most products?
Ans : City with the most product sales: Asansole


Question 4: What products are most often sold together?
Ans : Products most often sold together: ('Ragi', 'Maharashtra')
```

Output

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- 10 Questions { From grainsales.csv }

```
10 QUESTIONS

Question 1: Determine the month and year with the highest sales.

Ans : Month and year with the highest sales recorded : JULY 2023



Question 2: Find the city with the highest average sales.

Ans : City with the highest average sales: Kanpur



Question 3: What are the total sales for each grain types in the year 2023.

Ans : Total sales of grain in 2023:
 GrainName
Bajra          6000000
Brown rice    14000000
Corn          13500000
Oats           4000000
Ragi           5000000
Sattu          5000000
Sooji          9000000
Wheat         16000000
Name: Sales, dtype: int64
```

```
Question 4: Calculate the total sales for Every state.

Ans : Ans : Total sales by state:
 State
Gujarat         5000000
Hariyana        4000000
Maharashtra     5000000
Panjab          6000000
Tamil Nadu      9000000
Telangana      14000000
UP             13500000
West Bengol    16000000
Name: Sales, dtype: int64




#Question 5: Show the average sales per month.

Ans :
Average sales per month:
 Months
APRIL    2500000.0
AUG      4500000.0
FEB      1500000.0
JAN      1000000.0
JULY     4000000.0
JUNE     3500000.0
MARCH    2000000.0
MAY      3000000.0
Name: Sales, dtype: float64
```

```
Question 6: Visualize the average sales for each city.

Ans : Average sales per city:
 City
Amritsar     1500000.0
Asansole     4000000.0
Gurugram     2000000.0
Hyderabad    3500000.0
Kanpur       4500000.0
Madurai      3000000.0
Nagpur       1000000.0
Surat        2500000.0
Name: Sales, dtype: float64



Question 7: List the top 5 products that generated the highest revenue.

Ans : Top 5 products by revenue:
 GrainName
Wheat          16000000
Brown rice     14000000
Corn           13500000
Sooji           9000000
Bajra           6000000
Name: Sales, dtype: int64
```

Question 8: Calculate the total sales for each grain type in each state.

Ans : Total sales of Ech grain type in each state:

GrainName	State	
Bajra	Panjab	6000000
Brown rice	Telangana	14000000
Corn	UP	13500000
Oats	Hariyana	4000000
Ragi	Maharashtra	5000000
Sattu	Gujarat	5000000
Sooji	Tamil Nadu	9000000
Wheat	West Bengol	16000000

Name: Sales, dtype: int64

Question 9: Find the product with the highest sales in each month

Ans : Product with highest sales in each month :

	Months	GrainName	Sales
0	APRIL	Sattu	5000000
1	AUG	Corn	13500000
2	FEB	Bajra	6000000
3	JAN	Ragi	5000000
4	JULY	Wheat	16000000
5	JUNE	Brown rice	14000000
6	MARCH	Oats	4000000
7	MAY	Sooji	9000000

```
Question 10: Calculate the total sales recorded for each year.

Ans : Total sales recoded for each year:
 Year
2023    72500000
Name: Sales, dtype: int64


PS C:\Users\varun\OneDrive\Desktop\Code-Play\PYTHON>
```

Thank You !!!