Practical No:04

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Code:

```
import pandas as pd
df=pd.read_csv('grainsales.csv')
print(df)

bmsa=df.groupby('Months')['Sales'].sum().max()
bms=df.groupby('Months')['Sales'].sum().idxmax()
print('1)best month of sales is : ',bms,'total sale is :\n ',bmsa)

bcsa=df.groupby('City')['Sales'].sum().max()
bcs=df.groupby('City')['Sales'].sum().idxmax()
print('2)city with best of sales is : ',bcs,'total sale is :\n ',bcsa)

bcpco=df.groupby('City')['Sales'].count().max()
bcp=df.groupby('City')['Sales'].count().idxmax()
print('3)the city which sold most of the product is :\n ',bcp,',count is :',bcpco)

rgts=df.groupby(['GrainName','Year'])['Sales'].get_group('Ragi',2022).sum()
print('4)total sales of Ragi in year 2022:',rgts)
```

```
bby=df.groupby([(df['GrainName']=='Bajra')&(df['Year']<2020)])['Sales'].sum()
print('5)total sale of Bajra before year 2020 :',bby)

tswm=df.groupby([(df['GrainName']=='Wheat')&(df['State']=='Maharastra')])['Sales'].sum()
print('6)total sale of Wheat in Maharastra :\n',tswm)

tjans=df.groupby('Months')['Sales'].get_group('JAN').sum()
print('7)total sales of JAN moths from 2010 :\n',tjans)

j=df.groupby([(df['GrainName']=='Ragi')&(df['Months']=='JAN')])['Sales'].sum()
f=df.groupby([(df['GrainName']=='Ragi')&(df['Months']=='FEB')])['Sales'].sum()
print('8)total sales of ragi in month of jan and feb :\n',j+f)

bajamrt=df.groupby([(df['GrainName']=='Bajra')&(df['City']=='Amritsar')])['Sales'].max()
print('9)highest sale of bajra from Amritser :\n ',bajamrt)

msms=df.groupby('Months')['Sales'].count().idxmax()
print('10) most suitable month of sale (reapeted most time) from 2010 :\n',msms)

sum_sales_per_grain = df.groupby('GrainName')['Sales'].sum()
print('11)the sum of sales for each grain\n',sum_sales_per_grain)

y2020sale=df.groupby('Year')['Sales'].get_group(2022).sum()
print('12)total sales of year 2022\n',y2020sale)
```

```
statesale=df.groupby('State')['Sales'].count().idxmax()
print('13)the state with most sales:\n ',statesale)

max_saleper_month = df.groupby('Months')['Sales'].max()
print('14)Find the maximum sale of each month\n',max_saleper_month)

max_saleper_year = df.groupby('Year')['Sales'].max()
print('15)maximum sale of each year\n',max_saleper_year)

sum_saleper_grain = df.groupby('GrainName')['Sales'].sum()
print('16)the sum of sales for each grain\n',sum_saleper_grain)

n=df[(df['Year']==2023)&(df['State']=='Maharastra')]['GrainName']
print('17)Product sold in maharastra in year 2023\n',n)

r1=df.groupby('State')['GrainName'].get_group(('Gujarat'))
print('18)the product belons to gujrat\n',r1)

r4=df[(df['GrainName']=='Corn')&(df['Year']==2022)]
print('19)corn sale in year 2022\n',r4)

min_sale_per_year = df.groupby('Year')['Sales'].min()
print('20)the minimum sale of each year\n',min_sale_per_year)
```

Output:

	GrainName	State	City	Months	Year	Sales
0	Ragi	Maharashtra	Nagpur	JAN	2011	1000000
1	Bajra	Panjab	Amritsar	FEB	2022	1500000
2	Ragi	Maharashtra	Nagpur	JAN	2015	1000000
3	Bajra	Panjab	Amritsar	FEB	2023	1500000
4	Ragi	Maharashtra	Nagpur	JAN	2016	1000000
5	Bajra	Panjab	Amritsar	FEB	2022	1500000
6	Oats	Hariyana	Gurugram	MARCH	2016	2000000
7	Sattu	Gujarat	Surat	APRIL	2023	2500000
8	Sooji	Tamil Nadu	Madurai	MAY	2015	3000000
9	Brown rice	Telangana	Hyderabad	JUNE	2022	3500000
10	Wheat	West Bengol	Asansole	JULY	2023	4000000
11	Corn	UP	Kanpur	AUG	2020	4500000
12	Ragi	Maharashtra	Nagpur	JAN	2023	1000000
13	Bajra	Panjab	Amritsar	FEB	2022	1500000
14	Oats	Hariyana	Gurugram	MARCH	2021	2000000
15	Sattu	Gujarat	Surat	APRIL	2023	2500000
16	Sooji	Tamil Nadu	Madurai	MAY	2019	3000000
17	Brown rice	Telangana	Hyderabad	JUNE	2022	3500000
18	Wheat	West Bengol	Asansole	JULY	2022	4000000
19	Corn	UP	Kanpur	AUG	2023	4500000
20	Sooji	Tamil Nadu	Madurai	MAY	2019	3000000
21	Brown rice	Telangana	Hyderabad	JUNE	2023	3500000
22	Wheat	West Bengol	Asansole	JULY	2022	4000000
23	Corn	UP	Kanpur	AUG	2022	4500000
24	Ragi	Maharashtra	Nagpur	JAN	2023	1000000
25	Brown rice	Telangana	Hyderabad	JUNE	2015	3500000
26	Wheat	West Bengol	Asansole	JULY	2023	4000000

1)best month of sales is : JULY total sale is :

16000000

2)city with best of sales is : Asansole total sale is :

16000000

3)the city which sold most of the product is :

Nagpur ,count is : 5

4)total sales of ragi in year 2022 :

1000000

5)total sale of Bajra before year 2020 : False   72500000

Name: Sales, dtype: int64

6)total sale of Wheat in Maharastra :

False   72500000

Name: Sales, dtype: int64

7)total sales of JAN moths from 2010 :

5000000

8)total sales of ragi in month of jan and feb :

False   140000000.0

True   NaN

Name: Sales, dtype: float64

9)highest sale of bajra from Amritser :

False   4500000

True   1500000

Name: Sales, dtype: int64

10) most suitable month of sale (reapeted most time) from 2010 :

JAN

11)the sum of sales for each grain

GrainName

Bajra   6000000

Brown rice   14000000

Corn 13500000

Oats 4000000

Ragi 5000000

Sattu 5000000

Sooji 9000000

Wheat 16000000

Name: Sales, dtype: int64

12)total sales of year 2022

24000000

13)the state with most sales:

Maharashtra

14)Find the maximum sale of each month

Months

APRIL 2500000

AUG 4500000

FEB 1500000

JAN 1000000

JULY 4000000

JUNE 3500000

MARCH 2000000

MAY 3000000

Name: Sales, dtype: int64

15)maximum sale of each year

Year

2011 1000000

2015 3500000

2016 2000000

2019 3000000

2020 4500000

2021 2000000

2022 4500000

2023 4500000

Name: Sales, dtype: int64

16)the sum of sales for each grain

GrainName

Bajra 6000000

Brown rice 14000000

Corn 13500000

Oats 4000000

Ragi 5000000

Sattu 5000000

Sooji 9000000

Wheat 16000000

Name: Sales, dtype: int64

17)Product sold in maharastra in year 2023

Series([], Name: GrainName, dtype: object)

18)the product belons to gujrat

7 Sattu

15 Sattu

Name: GrainName, dtype: object

19)corn sale in year 2022

GrainName State City Months Year Sales

23 Corn UP Kanpur AUG 2022 4500000

20)the minimum sale of each year

Year

2011 1000000

2015 1000000

2016 1000000

2019 3000000

2020 4500000

2021 2000000

2022 1500000

2023 1000000

Name: Sales, dtype: int64