grainsales

Ragi	Maharashtra	Nagpur	JAN	2023
Bajra	Panjab	Amritsar	FEB	2023
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Bajra	Panjab	Amritsar	FEB	2023
Oats	Hariyana	Gurugram	MARCH	2023
Sattu	Gujarat	Surat	APRIL	2023
Sooji	Tamil Nadu	Madurai	MAY	2023
Brown rice	Telangana	Hyderabad	JUNE	2023
Wheat	West Bengol	Asansole	JULY	2023
Corn	UP	Kanpur	AUG	2023
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```
df = pd.DataFrame(data)
df = pd.read_csv('grainsales.csv')
```

```python
# Identify 10 grains for the given dataset
grains = df['GrainName'].unique()[:10]
print("10 Grains:", grains)

# Which was the best month for sales? How much was earned that month?
best_month = df.groupby('Months')['Sales'].sum().idxmax()
earnings = df.groupby('Months')['Sales'].sum().max()
print("Best month for sales:", best_month)
print("Earnings that month:", earnings)

# Which product sold the most? Why do you think it did?
best_product = df.groupby('GrainName')['Sales'].sum().idxmax()
print("Product that sold the most:", best_product)

# Which city sold the most products?
city_sold_most = df.groupby('City')['Sales'].sum().idxmax()
print("City that sold the most products:", city_sold_most)


grain_sales = df.groupby('GrainName')['Sales'].sum()
print("Total sales for each grain:")
print(grain_sales)

monthly_avg_sales = df.groupby('Months')['Sales'].mean()
print("Average sales per month:")
print(monthly_avg_sales)


top_cities =
df.groupby('City')['Sales'].sum().nlargest(3)
print("Top 3 cities with the highest sales:")
print(top_cities)


yearly_sales = df.groupby('Year')['Sales'].sum()
print("Total sales for each year:")
print(yearly_sales)


high_sales_months = df[df['Sales'] >
2000000]['Months'].unique()
print("Months with sales exceeding 2,000,000:")
```

```python
print(high_sales_months)


state_sales = df.groupby('State')['Sales'].sum()
print("Total sales for each state:")
print(state_sales)


grain_avg_sales = df.groupby('GrainName')['Sales'].mean()
print("Average sales for each grain:")
print(grain_avg_sales)



grain_top_month = df.groupby('GrainName').apply(lambda x:
x.loc[x['Sales'].idxmax(), 'Months'])
print("Month with the highest sales for each grain:")
print(grain_top_month)


state = 'Maharashtra'
city_sales = df[df['State'] ==
state].groupby('City')['Sales'].sum()
print("Total sales for each city in", state, ":")
print(city_sales)


monthly_yearly_sales = df.groupby(['Months',
'Year'])['Sales'].sum()
print("Total sales for each month and year combination:")
print(monthly_yearly_sales)


city_top_grain = df.groupby('City').apply(lambda x:
x.loc[x['Sales'].idxmax(), 'GrainName'])
print("Top-selling grain in each city:")
print(city_top_grain)



city = 'Hyderabad'
grain_sales_city = df[df['City'] ==
city].groupby('GrainName')['Sales'].sum()
print("Total sales for each grain in", city, ":")
print(grain_sales_city)
```

```python
monthly_yearly_avg_sales = df.groupby(['Months',
'Year'])['Sales'].mean()
print("Average sales for each month and year
combination:")
print(monthly_yearly_avg_sales)


year = 2023
state_sales_year = df[df['Year'] ==
year].groupby('State')['Sales'].sum()
print("Total sales for each state in", year, ":")
print(state_sales_year)


state_top_grain = df.groupby('State').apply(lambda x:
x.loc[x['Sales'].idxmax(), 'GrainName'])
print("Top-selling grain in each state:")
print(state_top_grain)


best_month_year = df.groupby(['Months',
'Year'])['Sales'].sum().idxmax()
sales_amount = df.groupby(['Months',
'Year'])['Sales'].sum().max()
print("Month and year with the highest sales:",
best_month_year)
print("Sales amount:", sales_amount)


yearly_monthly_sales = df.groupby(['Year',
'Months'])['Sales'].sum()
print("Total sales for each year and month combination:")
print(yearly_monthly_sales)


month = 'JUNE'
```

```python
state_avg_sales_month = df[df['Months'] ==
month].groupby('State')['Sales'].mean()
print("Average sales for each state in", month, ":")
print(state_avg_sales_month)
```

```python
state = 'Maharashtra'
month_sales_state = df[df['State'] ==
state].groupby('Months')['Sales'].sum()
print("Total sales for each month in", state, ":")
print(month_sales_state)
```