

**NAME : Shubham Solanke**

**ROLL NO. : 762**

**PRN : 202201090103**

**DIV : G3**

### **Lab Assignment:**

Read any real-life dataset. Store the data into Data Frames. Identify 10 grains for the given dataset.

Implement all 20 grains using Pandas methods. The Sample Grains for Sales Dataset as:

- Which was the best month for sales? How much was earned that month?
- Which product sold the most? Why do you think it did?
- Which city sold the most products?
- What Products are most often sold together?

```
import pandas as pd from
itertools
import combinations from collections import
Counter

df = pd.read_csv('/content/grainsales (2).csv')
print(df)

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

monthly_sales =
df.groupby('Months')['Sales'].sum()
```

```

best_month = monthly_sales.idxmax() earnings =
monthly_sales.loc[best_month] print("The best month for sales was",
best_month) print("The earnings for that month were", earnings)
    product_sales = df.groupby('GrainName')['Sales'].sum()
best_product
= product_sales.idxmax() print("The product that sold
the most is", best_product)
    city_sales = df.groupby('City')['Sales'].sum()
best_city
= city_sales.idxmax() print("The city that sold the most
products is", best_city)

# Read the CSV file into a DataFrame df = pd.read_csv('/content/grainsales
(2).csv')

# Group the data by sales and create a list of products for each sale
grouped_sales = df.groupby('Sales')['GrainName'].apply(list)

# Create a list of all product combinaons for each sale product_combinaons
= [list(combinaons(products, 2)) for products in grouped_sales]

# Flatten the list of combinaons
flatened_combinaons = [item for sublist in product_combinaons for item in
sublist]

# Count the occurrences of each product combinaon combinaon_counts =

```

```
Counter(flattened_combinaons)
```

```
# Find the most common product combinaons
```

```
most_common_combinaons = combinaon_counts.most_common()
```

```
# Print the result
```

```
print("The most frequently sold product combinaons are:") for combinaon,
```

```
count in most_common_combinaons:
```

```
    print(combinaon[0], "and", combinaon[1], "- Sold together", count, "mes")
```

## OUTPUT:

```
      GrainName      State      City Months  Year  Sales
0          Ragi  Maharashtra      Nagpur   JAN   2023  1000000
1          Bajra      Panjab    Amritsar   FEB   2023  1500000
2          Ragi  Maharashtra      Nagpur   JAN   2023
1000000
3          Bajra      Panjab    Amritsar   FEB   2023  1500000  4
          Ragi  Maharashtra      Nagpur   JAN   2023  1000000
5          Bajra      Panjab    Amritsar   FEB   2023  1500000
6          Oats      Hariyana    Gurugram  MARCH   2023  2000000
7          Sattu      Gujarat      Surat  APRIL   2023  2500000
8          Sooji      Tamil Nadu    Madurai   MAY   2023  3000000
9      Brown rice      Telangana  Hyderabad   JUNE   2023
3500000
10         Wheat  West Bengal    Asansole   JULY   2023  4000000
11         Corn              UP      Kanpur    AUG   2023  4500000
12         Ragi  Maharashtra      Nagpur   JAN   2023  1000000
13         Bajra      Panjab    Amritsar   FEB   2023  1500000
14         Oats      Hariyana    Gurugram  MARCH   2023  2000000
15         Sattu      Gujarat      Surat  APRIL   2023  2500000
16         Sooji      Tamil Nadu    Madurai   MAY   2023  3000000
```

17	Brown rice	Telangana	Hyderabad	JUNE	2023	3500000
18	Wheat	West Bengal	Asansole	JULY	2023	4000000
19	Corn	UP	Kanpur	AUG	2023	4500000
20	Sooji	Tamil Nadu	Madurai	MAY	2023	3000000
21	Brown rice	Telangana	Hyderabad	JUNE	2023	3500000
22	Wheat	West Bengal	Asansole	JULY	2023	4000000
23	Corn	UP	Kanpur	AUG	2023	4500000
24	Ragi	Maharashtra	Nagpur	JAN	2023	1000000
25	Brown rice	Telangana	Hyderabad	JUNE	2023	3500000
26	Wheat	West Bengal	Asansole	JULY	2023	4000000

The best month for sales was JULY

The earnings for that month were 16000000

The product that sold the most is Wheat

The city that sold the most products is Asansole The most frequently sold product combinations are:

Ragi and Ragi - Sold together 10 times

Bajra and Bajra - Sold together 6 times

Brown rice and Brown rice - Sold together 6 times

Wheat and Wheat - Sold together 6 times

Sooji and Sooji - Sold together 3 times

Corn and Corn - Sold together 3 times

Oats and Oats - Sold together 1 times

Sattu and Sattu - Sold together 1 times