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Roll No. - 745

Batch – G3

Assignment No. 4

Problem Statement:-

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

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

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

Programme:-

```
import pandas as pd
data=pd.read_csv('/content/coffee1.csv')
print(data)
```

```
#find nan
nan_df=data[data.isnull().any(axis=1)]
display(nan_df.head())
data=data.dropna(how='all')
data.head()
```

```
data['Number of
Bags']=pd.to_numeric(data['Number of Bags'])
```

```
data['Bag Weight']=pd.to_numeric(data['Bag
Weight'])
data['Aroma']=pd.to_numeric(data['Aroma'])
data['Flavor']=pd.to_numeric(data['Flavor'])
data['Aftertaste']=pd.to_numeric(data['Aftertast
e'])
data['Acidity']=pd.to_numeric(data['Acidity'])
data['Balance']=pd.to_numeric(data['Balance'])
data['Sweetness']=pd.to_numeric(data['Sweetness'
])
data['Moisture
Percentage']=pd.to_numeric(data['Moisture
Percentage'])
data['Category Two
Defects']=pd.to_numeric(data['Category Two
Defects'])
data
```

```
#1.sum of bags of cofee
sum_number_of_bags=data['Number of Bags'].sum()
print(sum_number_of_bags)

#2.number of countries yielding coffee
count_number_of_countries=data['Country of
Origin'].count()
print(count_number_of_countries)

#3.Total production of coffee
sum_of_bags_weight=data['Bag Weight'].sum()
print(sum_of_bags_weight)

#4.average moisture level
average_moisture_level=data['Flavor'].mean()
print(average_moisture_level)
```

```
#5.Average number of bags of coffee.
average_number_of_bags=data['Number of
Bags'].mean()
print(average_number_of_bags)

#6.What is average aroma scale of coffee?
average_aroma_scale=data['Aroma'].mean()
print(average_aroma_scale)

#7.Lowest grade for flavor.
lowest_grade_count=data['Flavor'].min()
print(lowest_grade_count)

#8.Average grade for acidity.
average_acidity=data['Acidity'].mean()
print(average_acidity)

#9.coffee with highest flavor grade.
country_with_highest_flavour_grade=data['Flavor'
].max()
print(country_with_highest_flavour_grade)

#10.How many countries are producing yellowish
color coffee
count_countries=data[data['Color']=='yellowish']
.count()
print("number of countries producing yellowish
coffee",count_countries[[0]])

#11.How many countries are producing green color
coffee
count_countries=data[data['Color']=='green'].cou
nt()
```

```
print("number of countries producing  
green coffee are", count_countries[[0]])  
  
#12.Minimum grade for balance.  
minimum_balance_grade=data['Balance'].min()  
print(minimum_balance_grade)  
  
#13.sum of all category two effects  
all_category_two_effects=data['Category Two  
Defects'].sum()  
print(all_category_two_effects)  
  
#14.Highest moisture level  
highest_moisture_level=data['Moisture  
Percentage'].max()  
print(highest_moisture_level)  
  
#15.Average aftertaste grade  
average_aftertaste_grade=data['Aftertaste'].mean()  
print(average_aftertaste_grade)  
  
#16. Lowest moisture level  
lowest_moisture_level=data['Moisture  
Percentage'].min()  
print(lowest_moisture_level)  
  
#17. minimum aftertaste grade  
min_aftertaste_grade=data['Aftertaste'].min()  
print(min_aftertaste_grade)  
  
#18. minimum number of bags  
min_number_of_bags=data['Number of Bags'].min()  
print(min_number_of_bags)
```

```

#19.highest grade for acidity.
highest_acidity=data['Acidity'].max()
print(highest_acidity)

#20.Total grade for balance.
all_balance_grade=data['Balance'].sum()
print(all_balance_grade)

```

Unnamed: 0		Country of Origin	Number of Bags	Bag
0	1	Colombia	1.0	
35.0				
1	2	Taiwan	1.0	
80.0				
2	3	Laos	19.0	
25.0				
3	4	Costa Rica	1.0	
22.0				
4	5	Colombia	2.0	
24.0				
5	6	Guatemala	5.0	
30.0				
6	7	Taiwan	1.0	
27.0				
7	8	Taiwan	1.0	
90.0				
8	9	Taiwan	1.0	
30.0				
9	10	Tanzania, United Republic Of	320.0	
60.0				
10	11	Ethiopia	10.0	
30.0				
11	12	Guatemala	5.0	
15.0				
12	13	Taiwan	1.0	
60.0				
13	14	Ethiopia	40.0	
60.0				
14	15	Colombia	70.0	
35.0				
15	16	Taiwan	1.0	
60.0				
16	17	Ethiopia	8.0	
5.0				

17	18	Taiwan	5.0
2.0			
18	19	NaN	NaN
NaN			
19	20	Tanzania, United Republic Of	200.0
30.0			
20	21	Guatemala	8.0
30.0			
21	22	Taiwan	1.0
20.0			
22	23	Thailand	2.0
1.0			
23	24	Colombia	6.0
5.0			
24	25	Taiwan	4.0
50.0			
25	26	Brazil	25.0
60.0			
26	27	Taiwan	1.0
100.0			
27	28	Taiwan	1.0
90.0			
28	29	Taiwan	1.0
85.0			
29	30	United States (Hawaii)	80.0
15.0			
30	31	Taiwan	3.0
48.0			
31	32	Taiwan	3.0
50.0			
32	33	Taiwan	4.0
5.0			
33	34	Ethiopia	320.0
60.0			

	Aroma	Flavor	Aftertaste	Acidity	Balance	Sweetness	\
0	8.58	8.50	8.42	8.58	8.42	10.0	
1	8.50	8.50	7.92	8.00	8.25	10.0	
2	8.33	8.42	8.08	8.17	8.17	10.0	
3	8.08	8.17	8.17	8.25	8.08	10.0	
4	8.33	8.33	8.08	8.25	7.92	10.0	
5	8.33	8.33	8.25	7.83	8.17	10.0	
6	8.33	8.17	8.08	8.00	8.25	10.0	
7	8.25	8.25	8.17	8.00	8.08	10.0	
8	8.08	8.08	8.25	8.08	8.00	10.0	
9	8.08	8.17	8.08	8.17	8.00	10.0	
10	8.08	8.25	8.00	NaN	7.92	10.0	
11	8.08	8.00	8.00	7.75	8.17	10.0	
12	8.08	8.00	8.08	8.08	8.00	10.0	
13	7.67	8.17	8.00	8.33	8.00	NaN	
14	8.08	8.00	8.08	7.92	8.00	10.0	
15	8.17	8.08	8.00	7.92	7.92	10.0	

16	8.17	8.08	7.92	8.17	7.92	10.0
17	8.00	8.17	8.00	7.92	7.92	10.0
18	NaN	NaN	NaN	NaN	NaN	NaN
19	8.17	8.00	7.92	7.92	7.75	10.0
20	8.00	7.92	8.08	7.92	8.00	10.0
21	8.08	8.00	7.92	7.92	7.83	10.0
22	7.67	8.00	7.83	8.00	8.00	10.0
23	8.08	8.00	7.83	8.17	7.83	10.0
24	7.83	8.00	7.92	8.00	7.92	10.0
25	7.83	8.08	7.83	7.92	7.83	10.0
26	7.92	7.92	8.00	7.92	7.92	10.0
27	8.17	8.08	7.92	8.00	7.83	10.0
28	8.00	8.00	8.00	7.92	7.92	10.0
29	8.00	7.92	8.00	7.83	8.00	10.0
30	8.00	8.00	7.83	7.83	7.92	10.0
31	7.92	8.00	7.83	7.92	7.83	10.0
32	8.08	8.17	7.67	7.83	7.92	10.0
33	7.67	7.83	7.83	8.00	8.00	10.0

	Moisture	Percentage	Color	Category	Two Defects
0		11.8	green		3.0
1		10.5	blue-green		0.0
2		10.4	yellowish		2.0
3		11.8	green		0.0
4		11.6	yellow-green		2.0
5		10.7	green		2.0
6		9.1	green		0.0
7		10.0	yellow green		1.0
8		10.8	greenish		0.0
9		11.0	greenish		0.0
10		11.8	greenish		1.0
11		11.5	brownish		1.0
12		11.9	green		0.0
13		11.6	yellow- green		2.0
14		10.6	green		0.0
15		10.2	green		0.0
16		11.3	green		2.0
17		10.3	yellow-green		0.0
18		NaN	NaN		NaN
19		10.0	greenish		0.0
20		11.6	yellowish		0.0
21		10.4	green		0.0
22		9.8	browish-green		5.0
23		11.3	brownish		2.0
24		10.6	bluish-green		0.0
25		11.3	green		3.0
26		9.1	green		2.0
27		10.6	green		0.0
28		10.2	blue-green		0.0
29		9.3	green		0.0
30		11.4	bluish-green		0.0
31		10.8	green		0.0

32	11.3	green	0.0
33	9.9	green	3.0

	Unnamed: 0	Country of Origin	Number of Bags	Bag Weight	Aroma	Flavor	Aftertaste	Acidity	Balance	Sweetness	Moisture Percentage	Color	Category Two Defects
10	11	Ethiopia	10.0	30.0	8.08	8.25	8.0	NaN	7.92	10.0	11.8	greenish	1.0
13	14	Ethiopia	40.0	60.0	7.67	8.17	8.0	8.33	8.00	NaN	11.6	yellow-green	2.0
18	19	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN



	Unnamed: 0	Country of Origin	Number of Bags	Bag Weight	Aroma	Flavor	Aftertaste	Acidity	Balance	Sweetness	Moisture Percentage	Color	Category Two Defects
0	1	Colombia	1.0	35.0	8.58	8.50	8.42	8.58	8.42	10.0	11.8	green	3.0
1	2	Taiwan	1.0	80.0	8.50	8.50	7.92	8.00	8.25	10.0	10.5	blue-green	0.0
2	3	Laos	19.0	25.0	8.33	8.42	8.08	8.17	8.17	10.0	10.4	yellowish	2.0
3	4	Costa Rica	1.0	22.0	8.08	8.17	8.17	8.25	8.08	10.0	11.8	green	0.0
4	5	Colombia	2.0	24.0	8.33	8.33	8.08	8.25	7.92	10.0	11.6	yellow-green	2.0

	Unnamed: 0	Country of Origin	Number of Bags	Bag Weight	Aroma	Flavor	Aftertaste	Acidity	Balance	Sweetness	Moisture Percentage	Color	Category Two Defects	
0	1	Colombia	1.0	35.0	8.58	8.50	8.42	8.58	8.42	10.0	11.8	green	3.0	
1	2	Taiwan	1.0	80.0	8.50	8.50	7.92	8.00	8.25	10.0	10.5	blue-green	0.0	
2	3	Laos	19.0	25.0	8.33	8.42	8.08	8.17	8.17	10.0	10.4	yellowish	2.0	
3	4	Costa Rica	1.0	22.0	8.08	8.17	8.17	8.25	8.08	10.0	11.8	green	0.0	
4	5	Colombia	2.0	24.0	8.33	8.33	8.08	8.25	7.92	10.0	11.6	yellow-green	2.0	
5	6	Guatemala	5.0	30.0	8.33	8.33	8.25	7.83	8.17	10.0	10.7	green	2.0	
6	7	Taiwan	1.0	27.0	8.33	8.17	8.08	8.00	8.25	10.0	9.1	green	0.0	
7	8	Taiwan	1.0	90.0	8.25	8.25	8.17	8.00	8.08	10.0	10.0	yellow green	1.0	
8	9	Taiwan	1.0	30.0	8.08	8.08	8.25	8.08	8.00	10.0	10.8	greenish	0.0	
9	10	Tanzania, United Republic Of	320.0	60.0	8.08	8.17	8.08	8.17	8.00	10.0	11.0	greenish	0.0	
10	11	Ethiopia	10.0	30.0	8.08	8.25	8.00	NaN	7.92	10.0	11.8	greenish	1.0	
11	12	Guatemala	5.0	15.0	8.08	8.00	8.00	7.75	8.17	10.0	11.5	brownish	1.0	
12	13	Taiwan	1.0	60.0	8.08	8.00	8.08	8.08	8.00	10.0	11.9	green	0.0	
13	14	Ethiopia	40.0	60.0	7.67	8.17	8.00	8.33	8.00	NaN	11.6	yellow-green	2.0	
14	15	Colombia	70.0	35.0	8.08	8.00	8.08	7.92	8.00	10.0	10.6	green	0.0	
15	16	Taiwan	1.0	60.0	8.17	8.08	8.00	7.92	7.92	10.0	10.2	green	0.0	
16	17	Ethiopia	8.0	5.0	8.17	8.08	7.92	8.17	7.92	10.0	11.3	green	2.0	
17	18	Taiwan	5.0	2.0	8.00	8.17	8.00	7.92	7.92	10.0	10.3	yellow-green	0.0	
18	19	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	
19	20	Tanzania, United Republic Of	200.0	30.0	8.17	8.00	7.92	7.92	7.75	10.0	10.0	greenish	0.0	
20	21	Guatemala	8.0	30.0	8.00	7.92	8.08	7.92	8.00	10.0	11.6	yellowish	0.0	
21	22	Taiwan	1.0	20.0	8.08	8.00	7.92	7.92	7.83	10.0	10.4	green	0.0	
22	23	Thailand	2.0	1.0	7.67	8.00	7.83	8.00	8.00	10.0	9.8	brownish-green	5.0	
23	24	Colombia	6.0	5.0	8.08	8.00	7.83	8.17	7.83	10.0	11.3	brownish	2.0	
24	25	Taiwan	4.0	50.0	7.83	8.00	7.92	8.00	7.92	10.0	10.6	bluish-green	0.0	
25	26	Brazil	25.0	60.0	7.83	8.08	7.83	7.92	7.83	10.0	11.3	green	3.0	
26	27	Taiwan	1.0	100.0	7.92	7.92	8.00	7.92	7.92	10.0	9.1	green	2.0	
27	28	Taiwan	1.0	90.0	8.17	8.08	7.92	8.00	7.83	10.0	10.6	green	0.0	
28	29	Taiwan	1.0	85.0	8.00	8.00	8.00	7.92	7.92	10.0	10.2	blue-green	0.0	
29	30	United States (Hawaii)	80.0	15.0	8.00	7.92	8.00	7.83	8.00	10.0	9.3	green	0.0	
30	31	Taiwan	3.0	48.0	8.00	8.00	7.83	7.83	7.92	10.0	11.4	bluish-green	0.0	


```
1151.0
33
1339.0
8.10878787878788

34.878787878787875
8.08
7.83
8.01625
8.5
number of countries producing yellowish coffee Unnamed: 0      2
dtype: int64
number of countries producing green coffee are Unnamed: 0      16
dtype: int64
7.75
31.0
11.9
7.99969696969697
9.1
7.67
1.0
8.58
263.68999999999994
```