

```
print("Nespresso CRM Analysis Project")
```

Nespresso CRM Analysis Project

```
import pandas as pd
data = pd.read_excel("RD.xlsx")
data
```

	Invoice Type	INVOICENUMBER	INVOICEDATE	Channel	Item Group	\
0	Invoice	EINC-152524	2023-01-01	CRC	B2C Capsules	
1	Invoice	EINC-152524	2023-01-01	CRC	B2C Capsules	
2	Invoice	EINC-152524	2023-01-01	CRC	B2C Capsules	
3	Invoice	EINC-152524	2023-01-01	CRC	B2C Capsules	
4	Invoice	EINC-152524	2023-01-01	CRC	B2C Capsules	
...
73587	Invoice	EINC-304454	2024-10-31	CRC	B2C Capsules	
73588	Invoice	EINC-304481	2024-10-31	CRC	B2C Capsules	
73589	Invoice	EINC-304481	2024-10-31	CRC	B2C Capsules	
73590	Invoice	EINC-304481	2024-10-31	CRC	B2C Capsules	
73591	Invoice	EINC-304453	2024-10-31	CRC	B2C Capsules	

	PRODUCTNUMBER		PRODUCTNAME	QUANTITY	
CUSTOMERACCOUNT					
0	773100	BC CCA TRF 1100305515	30	كوكو ترافل	
1	760800	Paris Espresso	30		
1100305515					
2	756800	Ristretto Italy 1100305515	180	ريستريتو	
3	772800	BC Van Ecler 1100305515	30	فانيلا اكليبر	
4	776400	Freddo Intenso	30		
1100305515					
...	
...					
73587	776500	ISP ARPEGGIO 20x53g R70	120		
2100600447					
73588	776500	ISP ARPEGGIO 20x53g R70	120		
1100905041					
73589	776500	ISP ARPEGGIO 20x53g R70	60		
1100905041					
73590	774600	ISP RIST DECAF 20x57g R70	60		
1100905041					
73591	776500	ISP ARPEGGIO 20x53g R70	30	C-	
046867					

[73592 rows x 9 columns]

```
print("Calculate Total Active Customers")
print("The Total Active Customers In 2023 & 2024")
IS:",len(data["CUSTOMERACCOUNT"].unique()))
```

Calculate Total Active Customers

The Total Active Customers In 2023 & 2024 Is: 11454

```
print("Calculate Active Customers In 2023")
print("The Total Active Customers In 2023 Is:",
len(data[(data["INVOICEDATE"]>="2023-1-1") &
(data["INVOICEDATE"]<="2023-12-31")]["CUSTOMERACCOUNT"].unique()))
```

Calculate Active Customers In 2023

The Total Active Customers In 2023 Is: 8612

```
print("Calculate Active Customers In 2024")
print("The Total Active Customers In 2024 Is:",
len(data[(data["INVOICEDATE"]>="2024-1-1") &
(data["INVOICEDATE"]<="2024-12-31")]["CUSTOMERACCOUNT"].unique()))
```

Calculate Active Customers In 2024

The Total Active Customers In 2024 Is: 4247

```
data[(data["INVOICEDATE"]>="2024-1-1") & (data["INVOICEDATE"]<="2024-12-31")]["CUSTOMERACCOUNT"].unique()
```

```
array(['1100201438', '1100215113', '1100220303', ..., '2100600447',
      '1100905041', 'C-046867'], dtype=object)
```

```
data[(data["INVOICEDATE"]>="2023-1-1") & (data["INVOICEDATE"]<="2023-12-31")]["CUSTOMERACCOUNT"].unique()
```

```
array(['1100305515', '1100912816', '1100903570', ..., '1100215113',
      '1100900496', 'C-051797'], dtype=object)
```

```
i = 0
for CustomerAccount in data[(data["INVOICEDATE"]>="2024-1-1") &
(data["INVOICEDATE"]<="2024-12-31")]["CUSTOMERACCOUNT"].unique():
    if CustomerAccount in data[(data["INVOICEDATE"]>="2023-1-1") &
(data["INVOICEDATE"]<="2023-12-31")]["CUSTOMERACCOUNT"].unique():
        i = i + 1
print(i)
```

1405

```
i = 0
for CustomerAccount in data[(data["INVOICEDATE"]>="2024-1-1") &
(data["INVOICEDATE"]<="2024-12-31")]["CUSTOMERACCOUNT"].unique():
    if CustomerAccount not in data[(data["INVOICEDATE"]>="2023-1-1") &
(data["INVOICEDATE"]<="2023-12-31")]["CUSTOMERACCOUNT"].unique():
        i = i + 1
print(i)
```

2842

```
print(1405 + 2842)
```

4247

```
print("New Customers In 2024:",2842)
print("Existing Customers In 2024:",1405)
```

New Customers In 2024: 2842
Existing Customers In 2024: 1405

```
print("Attrition Rate")
print("Attrition Rate = ",round(((8612 - 4247) / 8612) * 100,2),"%")
```

Attrition Rate
Attrition Rate = 50.69 %

```
print("Sold Capsules 2023 & 2024")
print("Total Sold Capsules In 2023 & 2024 IS:",sum(data["QUANTITY"]))
```

Sold Capsules 2023 & 2024
Total Sold Capsules In 2023 & 2024 IS: 5614653

```
print("Sold Capsules In 2023 IS:",
sum(data[(data["INVOICEDATE"]>="2023-1-1") &
(data["INVOICEDATE"]<="2023-12-31")]["QUANTITY"])))
```

Sold Capsules In 2023 IS: 4124253

```
print("Sold Capsules In 2024 IS:",
sum(data[(data["INVOICEDATE"]>="2024-1-1") &
(data["INVOICEDATE"]<="2024-12-31")]["QUANTITY"])))
```

Sold Capsules In 2024 IS: 1490400

```
print("Number of Orders 2023 & 2024")
print("Total Sold Capsules In 2023 & 2024
IS:",data["INVOICENUMBER"].nunique())
```

Number of Orders 2023 & 2024
Total Sold Capsules In 2023 & 2024 IS: 20816

```
print("Number of Orders In 2023 IS:",
data[(data["INVOICEDATE"]>="2023-1-1") & (data["INVOICEDATE"]<="2023-
12-31")]["INVOICENUMBER"].nunique())
```

Number of Orders In 2023 IS: 14188

```
print("Number of Orders In 2024 IS:",
data[(data["INVOICEDATE"]>="2024-1-1") & (data["INVOICEDATE"]<="2024-
12-31")]["INVOICENUMBER"].nunique())
```

Number of Orders In 2024 IS: 6628

```
print("Average Order Size in Caps 2023 & 2024:",
sum(data["QUANTITY"]) / data["INVOICENUMBER"].nunique())
```

Average Order Size in Caps 2023 & 2024: 269.7277574942352

```
print("Average Order Size in Caps 2023 IS:", 4124253 / 14188)
```

Average Order Size in Caps 2023 IS: 290.6860022554271

```
print("Average Order Size in Caps 2024 IS:", 1490400 / 6628)
```

Average Order Size in Caps 2024 IS: 224.86421243210623

```
print("*****")
```

```
#data
```

```
DataFrame = pd.DataFrame(data)
```

DataFrame

	Invoice Type	INVOICENUMBER	INVOICEDATE	Channel	Item Group	\
0	Invoice	EINC-152524	2023-01-01	CRC	B2C Capsules	
1	Invoice	EINC-152524	2023-01-01	CRC	B2C Capsules	
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...
73587	Invoice	EINC-304454	2024-10-31	CRC	B2C Capsules	
73588	Invoice	EINC-304481	2024-10-31	CRC	B2C Capsules	
73589	Invoice	EINC-304481	2024-10-31	CRC	B2C Capsules	
73590	Invoice	EINC-304481	2024-10-31	CRC	B2C Capsules	
73591	Invoice	EINC-304453	2024-10-31	CRC	B2C Capsules	

	PRODUCTNUMBER	PRODUCTNAME	QUANTITY	
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1	760800	Paris Espresso	30	
1100305515				
2	756800	Ristretto Italy 1100305515	180	ریستریٹو
3	772800	BC Van Ecler 1100305515	30	فانیلا اکلیر
4	776400	Freddo Intenso	30	
1100305515				
...
...				
73587	776500	ISP ARPEGGIO 20x53g R70	120	
2100600447				
73588	776500	ISP ARPEGGIO 20x53g R70	120	
1100905041				
73589	776500	ISP ARPEGGIO 20x53g R70	60	
1100905041				
73590	774600	ISP RIST DECAF 20x57g R70	60	

```
1100905041
73591          776500      ISP ARPEGGIO 20x53g R70      30      C-
046867
```

```
[73592 rows x 9 columns]
```

```
groupbyCustomer23 = DataFrame[(data["INVOICEDATE"]>="2023-1-1") &
(data["INVOICEDATE"]<="2023-12-31")].groupby("CUSTOMERACCOUNT")
["QUANTITY"].sum()
```

```
groupbyCustomer23
```

```
CUSTOMERACCOUNT
```

```
220022014      450
1000000112     1110
1000000694      750
1000000704     2100
1000000705      120
```

```
...
```

```
C-051948        90
C-052001         60
C-052050     1500
C-052056         60
C-052073         60
```

```
Name: QUANTITY, Length: 8612, dtype: int64
```

```
Ultimate = 0
```

```
Intensive = 0
```

```
Regular = 0
```

```
Moderate = 0
```

```
for quantity in groupbyCustomer23:
```

```
    if quantity >= 1921:
```

```
        Ultimate = Ultimate + 1
```

```
    elif quantity >= 721:
```

```
        Intensive = Intensive + 1
```

```
    elif quantity >= 361:
```

```
        Regular = Regular + 1
```

```
    else:
```

```
        Moderate = Moderate + 1
```

```
print("Base.")
```

```
print("Ultimate Base =", Ultimate)
```

```
print("Intensive Base =", Intensive)
```

```
print("Regular Base =", Regular)
```

```
print("Moderate Base =", Moderate)
```

```
Base.
```

```
Ultimate Base = 340
```

```
Intensive Base = 973
```

```
Regular Base = 1298
```

```
Moderate Base = 6001
```

```
print("Sum Of All Segments Base:",Ultimate + Intensive + Regular + Moderate)
TotalBase = Ultimate + Intensive + Regular + Moderate
```

Sum Of All Segments Base: 8612

```
print("Weight.")
print("Ultimate Weight =", round((Ultimate / TotalBase) * 100,2))
print("Intensive Weight =", round((Intensive / TotalBase) * 100,2))
print("Regular Weight =", round((Regular / TotalBase) * 100,2))
print("Moderate Weight =", round((Moderate / TotalBase) * 100,2))
```

Weight.

Ultimate Weight = 3.95

Intensive Weight = 11.3

Regular Weight = 15.07

Moderate Weight = 69.68

```
groupByCustomer24 = DataFrame[(data["INVOICEDATE"]>="2024-1-1") &
(data["INVOICEDATE"]<="2024-12-31")].groupBy("CUSTOMERACCOUNT")
[ "QUANTITY"].sum()
```

groupByCustomer24

CUSTOMERACCOUNT

1000000065	120
1000000320	240
1000000462	390
1000000481	180
1000000512	90

...

C-058631	180
C-058641	180
C-058657	390
C-058664	390
C-058695	390

Name: QUANTITY, Length: 4247, dtype: int64

Ultimate = 0

Intensive = 0

Regular = 0

Moderate = 0

```
for quantity in groupbyCustomer24:
```

```
    if quantity >= 1921:
```

```
        Ultimate = Ultimate + 1
```

```
    elif quantity >= 721:
```

```
        Intensive = Intensive + 1
```

```
    elif quantity >= 361:
```

```
        Regular = Regular + 1
```

```
    else:
```

```
        Moderate = Moderate + 1
```

```

print("Base.")
print("Ultimate Base =", Ultimate)
print("Intensive Base =", Intensive)
print("Regular Base =", Regular)
print("Moderate Base =", Moderate)

Base.
Ultimate Base = 141
Intensive Base = 307
Regular Base = 469
Moderate Base = 3330

print("Sum Of All Segments Base:", Ultimate + Intensive + Regular +
Moderate)
TotalBase = Ultimate + Intensive + Regular + Moderate

Sum Of All Segments Base: 4247

print("Weight.")
print("Ultimate Weight =", round((Ultimate / TotalBase) * 100,2))
print("Intensive Weight =", round((Intensive / TotalBase) * 100,2))
print("Regular Weight =", round((Regular / TotalBase) * 100,2))
print("Moderate Weight =", round((Moderate / TotalBase) * 100,2))

Weight.
Ultimate Weight = 3.32
Intensive Weight = 7.23
Regular Weight = 11.04
Moderate Weight = 78.41

Ultimate = 0
Intensive = 0
Regular = 0
Moderate = 0
for quantity in groupbyCustomer24:
    if quantity >= 1921:
        Ultimate = Ultimate + quantity
    elif quantity >= 721:
        Intensive = Intensive + quantity
    elif quantity >= 361:
        Regular = Regular + quantity
    else:
        Moderate = Moderate + quantity
print("Base.")
print("Ultimate Capsules =", Ultimate)
print("Intensive Capsules =", Intensive)
print("Regular Capsules =", Regular)
print("Moderate Capsules =", Moderate)

Base.
Ultimate Capsules = 553230

```

```
Intensive Capsules = 355290
Regular Capsules = 250290
Moderate Capsules = 331590
```

```
print("Sum Of All Segments Capsules:",Ultimate + Intensive + Regular +
Moderate)
```

```
TotalBase = Ultimate + Intensive + Regular + Moderate
```

```
Sum Of All Segments Capsules: 1490400
```

```
print("Weight.")
print("Ultimate Weight =", round((Ultimate / TotalBase) * 100,2))
print("Intensive Weight =", round((Intensive / TotalBase) * 100,2))
print("Regular Weight =", round((Regular / TotalBase) * 100,2))
print("Moderate Weight =", round((Moderate / TotalBase) * 100,2))
```

```
Weight.
```

```
Ultimate Weight = 37.12
```

```
Intensive Weight = 23.84
```

```
Regular Weight = 16.79
```

```
Moderate Weight = 22.25
```

```
print("*****")
*****
```

```
*****
*****
```

```
print("The Summary Of Analysis")
```

```
The Summary Of Analysis
```


The Total Active Customers In 2023 Is: 8612.

The Total Active Customers In 2024 Is: 4247.

New Customers In 2024 IS: 2842.

Exicting Customers In 2024 IS: 1405

Attrition Rate In 2024 IS: 50.69 %

Sold Capsules In 2023 IS: 4124253

Sold Capsules In 2024 IS: 1490400

Number of Orders In 2023 IS: 14188

Number of Orders In 2024 IS: 6628

Average Order Size in Caps 2023 IS: 290.68

Average Order Size in Caps 2024 IS: 224.86

Please fill in number of customers in every segment

2023

Base.

Ultimate Base = 340

Intensive Base = 973

Regular Base = 1298

Moderate Base = 6001

Sum Of All Segments Base: 8612

Weight.

Ultimate Weight = 3.95

Intensive Weight = 11.3

Regular Weight = 15.07

Moderate Weight = 69.68

2024

Base.

Ultimate Base = 141

Intensive Base = 307

Regular Base = 469

Moderate Base = 3330

Sum Of All Segments Base: 4247

Weight.

Ultimate Weight = 3.32

Intensive Weight = 7.23

Regular Weight = 11.04

Moderate Weight = 78.41

2024

Base.

Ultimate Capsules = 553230

Intensive Capsules = 355290

Regular Capsules = 250290

Moderate Capsules = 331590

Sum Of All Segments Base: 1490400

Weight.

Ultimate Weight = 37.12

Intensive Weight = 23.84

Regular Weight = 16.79

Moderate Weight = 22.25

>>>>>>>>>>>>>>>The End Thank
You<<<<<<<<<<<<<<<<