MEDICAL INVENTORY OPTIMIZATION

(By sadnya kolhe)

The EDA performed on the data set using python(google colab)

 # To mount the data set from google drive.

Code:-

```
from google.colab import drive
drive.mount('/content/drive')
import pandas as pd
import numpy as np
```

Result:-

#To read the csv file

Code:
```
import pandas as pd

d=pd.read_csv('/content/drive/MyDrive/python colab/csvfile.csv')
df=pd.DataFrame(d)
print(d
```

Result:-

-

```
+ Code   + Text

import pandas as pd
d=pd.read_csv('/content/drive/MyDrive/python colab/csvfile.csv')
df=pd.DataFrame(d)
print(d)

       Typeofsales   Patient_ID    Specialisation         Dept  Dateofbill  \
0             Sale  12018097019   Specialisation2  Department1   5/23/2022
1             Sale  12018122049  Specialisation31  Department1   12/8/2022
2           Return  12018094803   Specialisation1  Department1   4/30/2022
3             Sale  12018108817   Specialisation3  Department1   8/20/2022
4             Sale  12018112921   Specialisation3  Department1   9/21/2022
...            ...          ...               ...          ...         ...
14213         Sale  12018030540   Specialisation8  Department1    5/2/2022
14214         Sale  12018073853   Specialisation8  Department1   7/10/2022
14215         Sale  12018085318   Specialisation7  Department1   1/31/2022
14216         Sale  12018117516   Specialisation8  Department1  12/14/2022
14217         Sale  12018006903   Specialisation8  Department1    4/9/2022

       Quantity  ReturnQuantity  Final_Cost  Final_Sales  RtnMRP Formulation  \
0             1               0      62.766        69.64     0.0       Form1
1             1               0      64.622        72.40     0.0       Form1
2             0               1      76.800         0.00    86.0       Form1
3             1               0      74.962        86.00     0.0       Form1
4             1               0      74.962        86.00     0.0       Form1
...         ...             ...         ...          ...     ...         ...
14213       100               0      57.024      4050.00     0.0       Form1
14214       100               0     170.980      4300.00     0.0       Form1
14215       100               0     170.980      4600.00     0.0       Form1
14216       100               0      57.024      4055.00     0.0       Form1
14217       100               0      57.024      4050.00     0.0       Form1

                       DrugName              SubCat              SubCat1
0      ACEBROPHYLLINE 100MG CAP  TABLETS & CAPSULES  RESPIRATORY SYSTEM
1      ACEBROPHYLLINE 100MG CAP  TABLETS & CAPSULES  RESPIRATORY SYSTEM
2      ACEBROPHYLLINE 200MG TAB  TABLETS & CAPSULES  RESPIRATORY SYSTEM
3      ACEBROPHYLLINE 200MG TAB  TABLETS & CAPSULES  RESPIRATORY SYSTEM
4      ACEBROPHYLLINE 200MG TAB  TABLETS & CAPSULES  RESPIRATORY SYSTEM
...                         ...                 ...                 ...
14213                       NaN                 NaN                 NaN
14214                       NaN                 NaN                 NaN
14215                       NaN                 NaN                 NaN
14216                       NaN                 NaN                 NaN
14217                       NaN                 NaN                 NaN

[14218 rows x 14 columns]
```

#To see the first entries

Code:

d.head()

Result:-

```
[ ] d.head()
```

1 to 5 of 5 entries Filter

index	Typeofsales	Patient_ID	Specialisation	Dept	Dateofbill	Quantity	ReturnQuantity	Final_Cost	Final_Sales	RtnMRP	Formulation	DrugName	SubCat	SubCat1
0	Sale	12018097019	Specialisation2	Department1	5/23/2022	1	0	62.766	69.64	0.0	Form1	ACEBROPHYLLINE 100MG CAP	TABLETS & CAPSULES	RESPIRATORY SYSTEM
1	Sale	12018122049	Specialisation31	Department1	12/8/2022	1	0	64.622	72.4	0.0	Form1	ACEBROPHYLLINE 100MG CAP	TABLETS & CAPSULES	RESPIRATORY SYSTEM
2	Return	12018094803	Specialisation1	Department1	4/30/2022	0	1	76.8	0.0	86.0	Form1	ACEBROPHYLLINE 200MG TAB	TABLETS & CAPSULES	RESPIRATORY SYSTEM
3	Sale	12018108817	Specialisation3	Department1	8/20/2022	1	0	74.962	86.0	0.0	Form1	ACEBROPHYLLINE 200MG TAB	TABLETS & CAPSULES	RESPIRATORY SYSTEM
4	Sale	12018112921	Specialisation3	Department1	9/21/2022	1	0	74.962	86.0	0.0	Form1	ACEBROPHYLLINE 200MG TAB	TABLETS & CAPSULES	RESPIRATORY SYSTEM

Show 25 per page

Like what you see? Visit the data table notebook to learn more about interactive tables.

#To see last entries

Code:-d.tail()

Result:-

```
d.tail()
```

	Typeofsales	Patient_ID	Specialisation	Dept	Dateofbill	Quantity	ReturnQuantity	Final_Cost	Final_Sales	RtnMRP	Formulation	DrugName	SubCat	SubCat1
14213	Sale	12018030540	Specialisation8	Department1	5/2/2022	100	0	57.024	4050.0	0.0	Form1	NaN	NaN	NaN
14214	Sale	12018073853	Specialisation8	Department1	7/10/2022	100	0	170.980	4300.0	0.0	Form1	NaN	NaN	NaN
14215	Sale	12018085318	Specialisation7	Department1	1/31/2022	100	0	170.980	4600.0	0.0	Form1	NaN	NaN	NaN
14216	Sale	12018117516	Specialisation8	Department1	12/14/2022	100	0	57.024	4055.0	0.0	Form1	NaN	NaN	NaN
14217	Sale	12018006903	Specialisation8	Department1	4/9/2022	100	0	57.024	4050.0	0.0	Form1	NaN	NaN	NaN

 # To check the information of the data set

Code:-d.info()

Result:-

```
d.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 14218 entries, 0 to 14217
Data columns (total 14 columns):
 #   Column          Non-Null Count  Dtype
---  ------          --------------  -----
 0   Typeofsales     14218 non-null  object
 1   Patient_ID      14218 non-null  int64
 2   Specialisation  14218 non-null  object
 3   Dept            14218 non-null  object
 4   Dateofbill      14218 non-null  object
 5   Quantity        14218 non-null  object
 6   ReturnQuantity  14218 non-null  int64
 7   Final_Cost      14218 non-null  float64
 8   Final_Sales     14218 non-null  float64
 9   RtnMRP          14218 non-null  float64
 10  Formulation     13565 non-null  object
 11  DrugName        12550 non-null  object
 12  SubCat          12550 non-null  object
 13  SubCat1         12526 non-null  object
dtypes: float64(3), int64(2), object(9)
memory usage: 1.5+ MB
```

#To check the number of null values in parameter

Code:-d.isnull().sum()

Result :-

```
d.isnull().sum()
```

```
Typeofsales          0
Patient_ID           0
Specialisation       0
Dept                 0
Dateofbill           0
Quantity             0
ReturnQuantity       0
Final_Cost           0
Final_Sales          0
RtnMRP               0
Formulation        653
DrugName          1668
SubCat            1668
SubCat1           1692
dtype: int64
```

 # To describe the data:-

Code:-d.describe()

Result:-

```
d.describe()
```

	Patient_ID	ReturnQuantity	Final_Cost	Final_Sales	RtnMRP
count	1.421800e+04	14218.000000	14218.000000	14218.000000	14218.000000
mean	1.201809e+10	0.291954	124.823957	234.038300	29.126755
std	2.810229e+04	1.643322	464.782794	671.261572	182.262335
min	1.201800e+10	0.000000	40.000000	0.000000	0.000000
25%	1.201808e+10	0.000000	44.928000	47.815000	0.000000
50%	1.201809e+10	0.000000	53.650000	86.424000	0.000000
75%	1.201811e+10	0.000000	77.800000	181.000000	0.000000
max	1.201813e+10	50.000000	33178.000000	39490.000000	8014.000000

 # To know the shape :

Codee:-df.shape

Result:-

```
df.shape
```

```
(14218, 14)
```

```
[ ]
```

#To drop the null data

Code:-

Data_without_null =data.dropna()

Print(data_without_null)

Result:-

```
data_without_null = data.dropna()
print(data_without_null)
```

```
      Typeofsales   Patient_ID    Specialisation         Dept  Dateofbill  \
0            Sale  12018097019   Specialisation2  Department1   5/23/2022
1            Sale  12018122049  Specialisation31  Department1   12/8/2022
2          Return  12018094803   Specialisation1  Department1   4/30/2022
3            Sale  12018108817   Specialisation3  Department1   8/20/2022
4            Sale  12018112921   Specialisation3  Department1   9/21/2022
...           ...          ...               ...          ...         ...
14213        Sale  12018030540   Specialisation8  Department1    5/2/2022
14214        Sale  12018073853   Specialisation8  Department1   7/10/2022
14215        Sale  12018085318   Specialisation7  Department1   1/31/2022
14216        Sale  12018117516   Specialisation8  Department1  12/14/2022
14217        Sale  12018006903   Specialisation8  Department1    4/9/2022

      Quantity  ReturnQuantity  Final_Cost  Final_Sales  RtnMRP
0            1               0      62.766        69.64     0.0
1            1               0      64.622        72.40     0.0
2            0               1      76.800         0.00    86.0
3            1               0      74.962        86.00     0.0
4            1               0      74.962        86.00     0.0
...        ...             ...         ...          ...     ...
14213      100               0      57.024      4050.00     0.0
14214      100               0     170.980      4300.00     0.0
14215      100               0     170.980      4600.00     0.0
14216      100               0      57.024      4055.00     0.0
14217      100               0      57.024      4050.00     0.0
```