Pivot Tables

July 26, 2022

1 Pivot Table

- Pivot table is a very powerful tool to create summary and to dig deeper and have insights from the data.
- Pivot table is a very important tool in Excel but we can use it here in Pandas as well with pivot_table()
- Syntax- dataframe_object.pivot_table(index,columns,values,aggfunc)
- In pivot_table() we generally pass the four above mentioned arguments.
- index= Pass the column name that we want as the index.
- columns= Pass the column names that we want as columns.
- values= Pass the column name that we want to perform operation on
- aggfunc= Pass the operation_name that we want to perform. Eg.- 'mean','count','sum' etc.

2 Importing the libraries

[1]:
```
import numpy as np
import pandas as pd
```

3 Loading the dataset

[34]:
```
data=pd.read_excel("C:\\Users\\ashis\\OneDrive\\Documents\\Sales Data.xlsx")
data.head()
```

[34]:

	Year	Month	Type	Salesperson	Region	Sales	Units	Order
0	2013	January	Ice Cream	Bishop	West	2395.5	1597	1
1	2013	January	Ice Cream	Bishop	West	11761.5	7841	2
2	2013	January	Frozen Yogurt	Bishop	West	8943.0	5962	3
3	2013	January	Ice Cream	Bishop	West	2395.5	1597	4
4	2013	January	Ice Cream	Bishop	West	11761.5	7841	5

4 Pivot Table

- pivot_table()

5 Region wise sales, order and units analysis of different products

[19]:
```
data.pivot_table(index='Year',columns='Type',aggfunc='sum')
```

[19]:
```
             Order                                          Sales            \
Type Frozen Yogurt Ice Cream Popsicles Tasty Treats Frozen Yogurt Ice Cream
Year
2013            61        62        31           56       76272.0   53117.0
2014           949      1246       327          648       76272.0   52283.0
2015          1837      2430       623         1240       76272.0   52283.0

                                    Units
Type Popsicles Tasty Treats Frozen Yogurt Ice Cream Popsicles Tasty Treats
Year
2013    7107.0      35172.0         50848     39880      4738        23448
2014    7107.0      35172.0         50848     39880      4738        23448
2015    7107.0      35172.0         50848     39880      4738        23448
```

6 Number of salespersons Region wise

[12]:
```
data[['Salesperson','Region',]].
 ↪pivot_table(index='Region',values='Salesperson',fill_value=0,aggfunc='count')
```

[12]:
```
         Salesperson
Region
Central           24
North             12
South              6
West              18
```

7 Year wise order summary

[16]:
```
data[['Year','Order']].pivot_table(index='Year',values='Order',aggfunc='sum')
```

[16]:
```
      Order
Year
2013    210
2014   3170
2015   6130
```

8 Product wise sales and units sold summary

[18]:
```
data[['Type','Sales','Units']].
↪pivot_table(index='Type',values=['Sales','Units'],aggfunc='sum')
```

[18]:
```
                  Sales   Units
Type
Frozen Yogurt  228816.0  152544
Ice Cream      157683.0  119640
Popsicles       21321.0   14214
Tasty Treats   105516.0   70344
```

9 Region wise average sales

[24]:
```
data[['Region','Sales']].
↪pivot_table(index='Region',values='Sales',aggfunc='mean')
```

[24]:
```
             Sales
Region
Central  11694.75
North     6061.75
South     3553.50
West      7700.00
```

10 Year wise each product's order summary

[26]:
```
data[['Year','Order','Type']].
↪pivot_table(index='Year',columns='Type',values=['Order'],aggfunc='sum')
```

[26]:
```
              Order
Type Frozen Yogurt Ice Cream Popsicles Tasty Treats
Year
2013            61        62        31           56
2014           949      1246       327          648
2015          1837      2430       623         1240
```

11 Sales summary of each salesperson

[27]:
```
data[['Salesperson','Sales']].
↪pivot_table(index='Salesperson',values='Sales',aggfunc='sum')
```

[27]:
```
                Sales
Salesperson
Bishop       138600.0
```

```
Lee          140337.0
Parker        72741.0
Pullen        21321.0
Watson       140337.0
```

12 Sales summary of each sales person Region wise

[29]:
```
data[['Salesperson','Region','Sales']].
↪pivot_table(index='Salesperson',columns='Region',values='Sales',aggfunc='sum',fill_value=0)
```

[29]:
```
Region       Central  North  South    West
Salesperson
Bishop             0      0      0  138600
Lee           140337      0      0       0
Parker             0  72741      0       0
Pullen             0      0  21321       0
Watson        140337      0      0       0
```

13 Product wise sales summary of each salesperson

[30]:
```
data[['Salesperson','Type','Sales']].
↪pivot_table(index='Salesperson',columns='Type',values='Sales',aggfunc='sum',fill_value=0)
```

[30]:
```
Type         Frozen Yogurt  Ice Cream  Popsicles  Tasty Treats
Salesperson
Bishop               53658      84942          0             0
Lee                  87579          0          0         52758
Parker                   0      72741          0             0
Pullen                   0          0      21321             0
Watson               87579          0          0         52758
```

14 Product wise units sold by each salesperson

[31]:
```
data[['Salesperson','Type','Units']].
↪pivot_table(index='Salesperson',columns='Type',values='Units',aggfunc='sum',fill_value=0)
```

[31]:
```
Type         Frozen Yogurt  Ice Cream  Popsicles  Tasty Treats
Salesperson
Bishop               35772      56628          0             0
Lee                  58386          0          0         35172
Parker                   0      63012          0             0
Pullen                   0          0      14214             0
Watson               58386          0          0         35172
```

15 Product wise number of orders by each salesperson

[32]:
```
data[['Salesperson','Type','Order']].
↪pivot_table(index='Salesperson',columns='Type',values='Order',aggfunc='sum',fill_value=0)
```

[32]:

Type	Frozen Yogurt	Ice Cream	Popsicles	Tasty Treats
Salesperson				
Bishop	915	1812	0	0
Lee	936	0	0	942
Parker	0	1926	0	0
Pullen	0	0	981	0
Watson	996	0	0	1002

16 Product wise number of orders by each salesperson in each region

[33]:
```
data[['Salesperson','Type','Order','Region']].
↪pivot_table(index='Salesperson',columns=['Type','Region'],values='Order',aggfunc='sum',fill
```

[33]:

Type	Frozen Yogurt		Ice Cream		Popsicles	Tasty Treats
Region	Central	West	North	West	South	Central
Salesperson						
Bishop	0	915	0	1812	0	0
Lee	936	0	0	0	0	942
Parker	0	0	1926	0	0	0
Pullen	0	0	0	0	981	0
Watson	996	0	0	0	0	1002

17 Thank you

[ ]:
```

```