Name: Muhammad Sheroz StudentID: 9852

Packages

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

Read All Create CSV By Own Structure

Top 3 Sales Product

```
In [ ]:
          DimCst.head()
Out[]:
            CustKey Customer ID Customer Name
                                                  Segment
         0
                        AA-10315
                                        Alex Avila Consumer
                  2
                        AA-10375
                                     Allen Armold Consumer
                        AA-10480
                  3
                                     Andrew Allen Consumer
                        AA-10645
                                    Anna Andreadi Consumer
                        AB-10015
                                   Aaron Bergman Consumer
In [ ]:
          DimLoc.head()
Out[]:
            CityKey
                            City
                                        State
                                                  Country Region
```

Aberdeen South Dakota United States Central

0

1

	CityKey	City	State	Country	Region
1	2	Abilene	Texas	United States	Central
2	3	Akron	Ohio	United States	East
3	4	Albuquerque	New Mexico	United States	West
4	5	Alexandria	Virginia	United States	South

In []:

DimDt.head()

Out[]: Order Date Day Week Month Quarter Year **0** 2014-01-03 3 1 1 1 2014 2014-01-04 4 1 2014 2014-01-05 5 2014 2014-01-06 6 2014 2 2014-01-07 7 2014

In []:

SalesFct.head()

2014-

01-04

Naperville

10003223

Naperville

Out[]: Order **Product** SalesQtyTotal SalesAmtTotal DisAmtTotal ProfAmtTotal CostAmt City ID **Date** 2014-OFF-PA-0 2 16.448 0.2 5.5512 10.8968 Houston 01-03 10000174 2014-OFF-BI-2 8.0 Naperville 3.540 -5.4870 9.0270 01-04 10004094 OFF-LA-

3

OFF-ST-2014-3 0.2 3 Naperville 272.736 -64.7748 337.5108 01-04 10002743

11.784

3

11.784

0.2

4.2717

0.2

7.5123

OFF-AR-Philadelphia 3 19.536 0.2 4.8840 14.6520 01-05 10003478

In []:

2

01-04

SaleCstsFct.head()

Out[]: Order Customer **Product** SalesQtyTotal SalesAmtTotal DisAmtTotal ProfAmtTotal City **Date** ID 2014-OFF-PA-DP-13000 0 Houston 2 16.448 0.2 5.5512 01-03 10000174 OFF-BI-2014-PO-19195 2 3.540 8.0 -5.4870 Naperville 01-04 10004094 2014-OFF-LA-

10003223

PO-19195

4.2717

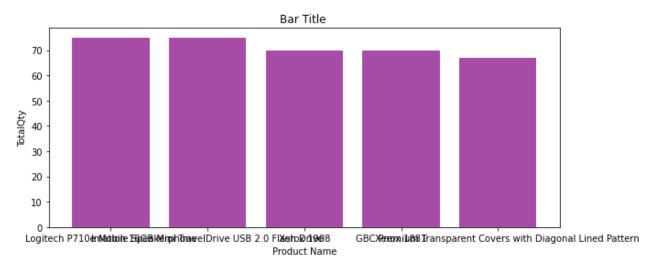
```
Order Customer
                                           Product
                                                    SalesQtyTotal SalesAmtTotal DisAmtTotal ProfAmtTotal
                                     City
             Date
                                            OFF-ST-
             2014-
         3
                    PO-19195
                                Naperville
                                                               3
                                                                        272.736
                                                                                         0.2
                                                                                                   -64.7748
             01-04
                                          10002743
                                           OFF-AR-
             2014-
                        MB-
                                                               3
                                                                                         0.2
                                                                                                    4.8840
                              Philadelphia
                                                                         19.536
             01-05
                       18085
                                          10003478
In [ ]:
          largerst = SaleCstsFct.nlargest(3, 'SalesQtyTotal')
In [ ]:
          largerst
Out[]:
                Order
                       Customer
                                            Product
                                     City
                                                     SalesQtyTotal SalesAmtTotal DisAmtTotal ProfAmtTotal
                 Date
                             ID
                                                 ID
                                            OFF-PA-
                2016-
         4369
                        SJ-20125
                                  Jackson
                                                               16
                                                                         365.440
                                                                                          0.0
                                                                                                   168.1024
                03-15
                                           10001954
                2015-
                                             OFF-BI-
         2807
                       SS-20515 Louisville
                                                               15
                                                                         225.150
                                                                                          0.0
                                                                                                   103.5690
                07-24
                                           10000069
                2014-
                                            OFF-AR-
          112
                       DL-13315
                                  Chicago
                                                               14
                                                                          54.208
                                                                                          0.2
                                                                                                     8.808.8
                02-17
                                           10003631
In [ ]:
          print(largerst['Product ID'])
                  OFF-PA-10001954
         4369
         2807
                  OFF-BI-10000069
         112
                  OFF-AR-10003631
         Name: Product ID, dtype: object
In [ ]:
          top3 = SaleCstsFct.groupby('Product ID').agg(TotalQty = ('SalesQtyTotal' , 'sum'))
In [ ]:
          top3.head()
Out[]:
                            TotalQty
                Product ID
         FUR-BO-10000112
                                  9
         FUR-BO-10000330
                                  10
         FUR-BO-10000362
         FUR-BO-10000468
                                 21
         FUR-BO-10000711
                                 12
In [ ]:
          top3 = top3.nlargest(3,'TotalQty')
          top3
```

```
MuhammadSheroz9852\_assignment\_3
Out[ ]:
                             TotalQty
                 Product ID
          TEC-AC-10003832
                                  75
          OFF-PA-10001970
                                  70
          OFF-BI-10001524
                                  67
In [ ]:
           top3 = pd.merge(top3,DimPrd,on='Product ID')
In [ ]:
           top3
Out[]:
                                                                                           Sub-
                  Product ID TotalQty
                                                                   Product Name
                                                                                                     Category
                                                                                      Category
                    TEC-AC-
                                               Logitech P710e Mobile Speakerphone
          0
                                    75
                                                                                     Accessories
                                                                                                    Technology
                    10003832
                    TEC-AC-
                                          Imation 16GB Mini TravelDrive USB 2.0 Flash
                                    75
                                                                                     Accessories
                                                                                                    Technology
          1
                    10003832
                                                                            Drive
                     OFF-PA-
                                                                                                        Office
          2
                                    70
                                                                      Xerox 1908
                                                                                          Paper
                    10001970
                                                                                                      Supplies
                     OFF-PA-
                                                                                                        Office
          3
                                    70
                                                                      Xerox 1881
                                                                                          Paper
                    10001970
                                                                                                       Supplies
                     OFF-BI-
                                               GBC Premium Transparent Covers with
                                                                                                        Office
                                    67
          4
                                                                                         Binders
                    10001524
                                                                      Diagonal L...
                                                                                                      Supplies
In [ ]:
           top3 = top3[['Product ID','Product Name','TotalQty']]
           top3
Out[]:
                   Product ID
                                                              Product Name
                                                                             TotalQty
          0 TEC-AC-10003832
                                          Logitech P710e Mobile Speakerphone
                                                                                    75
                                                                                    75
             TEC-AC-10003832
                                Imation 16GB Mini TravelDrive USB 2.0 Flash Drive
             OFF-PA-10001970
                                                                  Xerox 1908
                                                                                    70
             OFF-PA-10001970
                                                                  Xerox 1881
                                                                                    70
              OFF-BI-10001524 GBC Premium Transparent Covers with Diagonal L...
                                                                                    67
In [ ]:
           top3_catgy = pd.merge(SaleCstsFct,DimPrd,on='Product ID')
           top3_catgy.head()
```

Out[]:		Order Date	Customer ID	City	Product ID	SalesQtyTotal	SalesAmtTotal	DisAmtTotal	ProfAmtTotal
	0	2014- 01-03	DP-13000	Houston	OFF-PA- 10000174	2	16.448	0.2	5.5512

	Date	ID		ID				
1	2014- 02-24	JH-15430	Medford	OFF-PA- 10000174	4	32.896	0.2	11.1
2	2014- 09-07	LR-17035	Santa Clara	OFF-PA- 10000174	2	20.560	0.0	9.6
3	2014- 09-26	DA-13450	Lancaster	OFF-PA- 10000174	4	32.896	0.2	11.1
4	2015- 12-03	AB-10255	Philadelphia	OFF-PA- 10000174	2	16.448	0.2	5.5
				upby('Pro	duct ID').agg	(TotalQty =	('Category'	, 'sum')
		tgy = top3 tgy.head()		upby('Pro	duct ID').agg TotalC		('Category'	, 'sum')
	op3_ca			upby('Pro			('Category'	, 'sum'))
t	op3_ca	tgy.head()		upby('Pro		Qty	('Category'	, 'sum'))
t FU	Pro R-BO-1	oduct ID 0000112		Furnitu	TotalC FurnitureFurnitu	Qty ure ure	('Category'	, 'sum'))
FU FU	Pro R-BO-10 R-BO-10 R-BO-10	oduct ID 0000112 0000330 0000362	FurnitureFurn	Furnitu	TotalC FurnitureFur	Qty ure ure	('Category'	, 'sum')
FU FU FU	Pro R-BO-10 R-BO-10 R-BO-10 R-BO-10	oduct ID 0000112 0000330 0000362	FurnitureFurn	Furnitu	TotalC FurnitureFurnitu	Oty ure ure ure F	('Category'	, 'sum')
FU FU FU	Pro R-BO-1 R-BO-1 R-BO-1 R-BO-1	oduct ID 0000112 0000330 0000362 0000468 F	FurnitureFurn	Furnitu nitureFurnitu ureFurnitureF	TotalC FurnitureFurnitureFurnitureFurnitureFurnitureFurnitureFurnitureFurnitureFurniture	Oty ure ure ure F	('Category'	, 'sum')

Out[]: <BarContainer object of 5 artists>

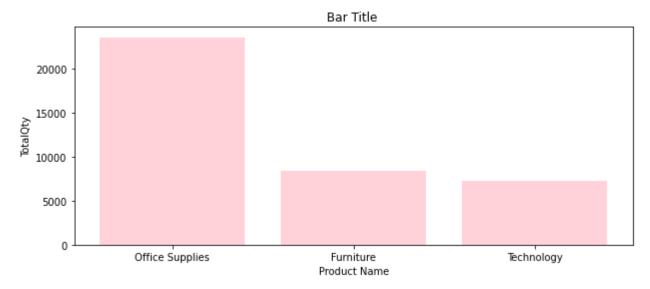


Top 3 Category

In []: ctg = pd.merge(SaleCstsFct,DimPrd,on='Product ID')
 ctg.head()

Out[]:		Order Date	Customer ID	City	Product ID	SalesQtyTotal	SalesAmtTotal	DisAmtTotal	ProfAmtTotal	
	0	2014- 01-03	DP-13000	Houston	OFF-PA- 10000174	2	16.448	0.2	5.5512	W F X
	1	2014- 02-24	JH-15430	Medford	OFF-PA- 10000174	4	32.896	0.2	11.1024	W F X
	2	2014- 09-07	LR-17035	Santa Clara	OFF-PA- 10000174	2	20.560	0.0	9.6632	W F X
	3	2014- 09-26	DA-13450	Lancaster	OFF-PA- 10000174	4	32.896	0.2	11.1024	W F X
	4	2015- 12-03	AB-10255	Philadelphia	OFF-PA- 10000174	2	16.448	0.2	5.5512	W F X
	4									•

```
In [ ]:
          ctg = ctg.groupby('Category').agg(TotalQty = ('SalesQtyTotal' , 'sum')).reset_index()
In [ ]:
          ctg
Out[]:
                Category TotalQty
         0
                             8379
                Furniture
           Office Supplies
                            23518
         1
         2
               Technology
                             7249
In [ ]:
          ctg = ctg.nlargest(3,'TotalQty')
          ctg
                Category TotalQty
Out[]:
         1 Office Supplies
                            23518
         0
                 Furniture
                             8379
         2
               Technology
                             7249
In [ ]:
          ctg.sort_values(by = 'Category' , ascending=False)
Out[]:
                Category TotalQty
         2
               Technology
                             7249
           Office Supplies
                            23518
         0
                 Furniture
                             8379
In [ ]:
          plt.figure(figsize=(10,4))
          plt.title("Bar Title ")
          plt.xlabel("Product Name")
          plt.ylabel("TotalQty")
          plt.bar(ctg.Category , ctg.TotalQty ,color='pink',alpha=0.7)
Out[]: <BarContainer object of 3 artists>
```



Find top 3 sales Products lay on quarter 3

In []:
 date_Qtr = pd.merge(SaleCstsFct,DimDt ,on='Order Date')
 date_Qtr.head()

Out[]:		Order Date	Customer ID	City	Product ID	SalesQtyTotal	SalesAmtTotal	DisAmtTotal	ProfAmtTotal	D
	0	2014- 01-03	DP-13000	Houston	OFF-PA- 10000174	2	16.448	0.2	5.5512	
	1	2014- 01-04	PO-19195	Naperville	OFF-BI- 10004094	2	3.540	0.8	-5.4870	
	2	2014- 01-04	PO-19195	Naperville	OFF-LA- 10003223	3	11.784	0.2	4.2717	
	3	2014- 01-04	PO-19195	Naperville	OFF-ST- 10002743	3	272.736	0.2	-64.7748	
	4	2014- 01-05	MB- 18085	Philadelphia	OFF-AR- 10003478	3	19.536	0.2	4.8840	

In []: date_Qtr = pd.merge(date_Qtr,DimPrd ,on='Product ID')
 date_Qtr.head()

Out[]:		Order Date	Customer ID	City	Product ID	SalesQtyTotal	SalesAmtTotal	DisAmtTotal	ProfAmtTotal	D
	0	2014- 01-03	DP-13000	Houston	OFF-PA- 10000174	2	16.448	0.2	5.5512	
	1	2014- 02-24	JH-15430	Medford	OFF-PA- 10000174	4	32.896	0.2	11.1024	

2 2014- 09-07 LR-17035 Santa Clara OFF-PA- 10000174 2 20.560 0.0 9.6632 3 2014- 09-26 DA-13450 Lancaster OFF-PA- 10000174 4 32.896 0.2 11.1024 4 2015- 12-03 AB-10255 Philadelphia OFF-PA- 10000174 2 16.448 0.2 5.5512 Adate_Qtr = date_Qtr[["Product ID" , "Product Name" ,"SalesQtyTotal" ,'Quarter']] adate_Qtr = date_Qtr[date_Qtr.Quarter == 3] adate_Qtr.head() by Product ID Product Name SalesQtyTotal Quarter 2 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 2 3 3 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 5 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 8 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 2 3 9 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 3 3 and []: date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt')) adate_Qtr = date_Qtr.nlargest(3,['TotalQty']) by Call of the complex of th		Order Date	Customer ID	City	Product ID	SalesQtyTotal	SalesAmtTotal	DisAmtTotal	ProfAmtTotal
### 10000174 ### 32.895 ### 0.2 ### 11.1024 ### 2015- ### 12-03 AB-10255 Philadelphia OFF-PA- ### 12-03 AB-10255 Philadelphia OFF-PA- ### 12-03 AB-10255 Philadelphia OFF-PA- ### 10000174 ### 2 16.448 ### 0.2 5.5512 #### 16.448 ### 0.2 5.5512 #### 16.448 ### 0.2 5.5512 #### 16.448 ### 0.2 5.5512 ##### 16.448 ### 0.2 5.5512 ##################################		2 2014-09-07	LR-17035	Santa Clara		2	20.560	0.0	9.6632
# 12-03 AB-10255 Philadelphia 10000174		3 2014-09-26	DA-13450	Lancaster		4	32.896	0.2	11.1024
date_Qtr = date_Qtr[date_Qtr.Quarter == 3] date_Qtr.head() Product ID Product Name SalesQtyTotal Quarter OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 2 3 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 2 3 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 3 3 date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt')) date_Qtr = date_Qtr.nlargest(3,['TotalQty']) date_Qtr = date_Qtr.nlargest(3,['TotalQty'])		4 2015- 12-03	AB-10255	Philadelphia		2	16.448	0.2	5.5512
date_Qtr.head() Product ID Product Name SalesQtyTotal Quarter 2 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 2 3 3 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 5 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 8 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 2 3 9 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 3 3 date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt')) date_Qtr = date_Qtr.nlargest(3,['TotalQty']) date_Qtr = date_Qtr.nlargest(3,['TotalQty'])	ı []:	date_Qt	r = date_(Qtr[["Produ	ct ID" ,	"Product Name	e" ,"SalesQty	Total" ,'Qu	arter']]
Product ID Product Name SalesQtyTotal Quarter 2 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 3 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 5 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 8 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 2 3 9 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 3 3 date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt')) date_Qtr = date_Qtr.nlargest(3,['TotalQty']) date_Qtr.head()	n []:	date_Qt	r = date_(Qtr[date_Qt	r.Quarter	== 3]			
2 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 2 3 3 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 5 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 8 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 2 3 9 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 3 3 date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt')) date_Qtr = date_Qtr.nlargest(3,['TotalQty']) date_Qtr.head()	n []:	date_Qt	r.head()						
3 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 5 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 8 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 2 3 9 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 3 3 n []: date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt')) date_Qtr = date_Qtr.nlargest(3,['TotalQty']) n []: date_Qtr.head()	ut[]:		Product ID			Produc	ct Name SalesC	ùtyTotal Qua	rter
5 OFF-PA-10000174 Message Book, Wirebound, Four 5 1/2" X 4" Form 4 3 8 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 2 3 9 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 3 3 date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt') date_Qtr = date_Qtr.nlargest(3,['TotalQty']) date_Qtr = date_Qtr.nlargest(3,['TotalQty'])		2 OFF-PA	\-10000174	Message Boo	k, Wireboun	d, Four 5 1/2" X 4	Form	2	3
8 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 2 3 9 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs 3 3 []: date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt')) []: date_Qtr = date_Qtr.nlargest(3,['TotalQty']) []: date_Qtr.head()		3 OFF-PA	A-10000174	Message Boo	k, Wireboun	d, Four 5 1/2" X 4	" Form	4	3
<pre>9 OFF-BI-10004094 GBC Standard Plastic Binding Systems Combs</pre>		5 OFF-PA	A-10000174	Message Boo	k, Wireboun	d, Four 5 1/2" X 4	F Form	4	3
<pre>date_Qtr = date_Qtr.groupby(['Product ID' , 'Product Name']).agg(TotalQty = ('SalesQt') date_Qtr = date_Qtr.nlargest(3,['TotalQty']) date_Qtr.head()</pre>		8 OFF-B	I-10004094	GBC Sta	ndard Plasti	c Binding System	s Combs	2	3
<pre>date_Qtr = date_Qtr.nlargest(3,['TotalQty']) []: date_Qtr.head()</pre>		9 OFF-B	I-10004094	GBC Sta	ndard Plasti	c Binding System	s Combs	3	3
<pre>date_Qtr = date_Qtr.HIargest(3,[TotalQty]) date_Qtr.head()</pre>	ı []:	date_Qt	r = date_(Qtr.groupby	(['Produc	t ID' , 'Prod	duct Name']).	agg(TotalQt	y = ('SalesQ
date_Qtr.nead()	ı []:	date_Qt	r = date_(Qtr.nlarges	t(3,['Tot	alQty'])			
it[]: Product ID Product Name TotalQty	ı []:	date_Qt	r.head()						
	t[]:		Product II	D	ı	Product Name	TotalQtv		

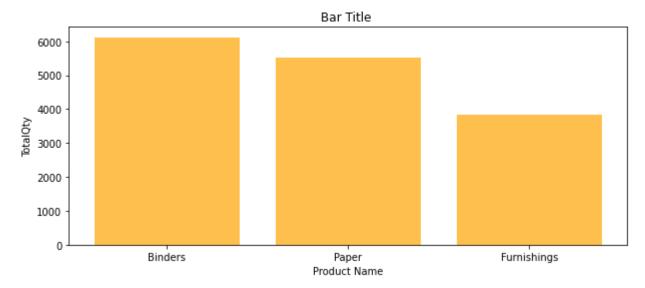
	Product ID	Product Name	TotalQty
763	OFF-LA-10002762	Avery 485	32
972	OFF-PA-10004100	Xerox 216	32

Find top 3 Sub-Category sales product

```
In [ ]:
          sub_ctg = pd.merge(SaleCstsFct,DimPrd,on='Product ID')
          sub_ctg.head()
Out[]:
             Order Customer
                                            Product
                                                     SalesQtyTotal SalesAmtTotal DisAmtTotal ProfAmtTotal
                                     City
                          ID
              Date
             2014-
                                            OFF-PA-
                                                                2
                    DP-13000
                                                                          16.448
                                                                                          0.2
                                                                                                     5.5512 W
                                 Houston
             01-03
                                           10000174
                                                                                                             F
                                                                                                             Χ
             2014-
                                            OFF-PA-
                    JH-15430
                                 Medford
                                                                4
                                                                          32.896
                                                                                          0.2
                                                                                                    11.1024
                                                                                                            W
             02-24
                                           10000174
                                                                                                             F
                                                                                                             Χ
                                            OFF-PA-
                                                                2
                    LR-17035
                               Santa Clara
                                                                          20.560
                                                                                          0.0
                                                                                                     9.6632
                                                                                                            W
                                           10000174
                                                                                                             F
                                                                                                             Χ
                                            OFF-PA-
                    DA-13450
                                                                          32.896
                                                                                          0.2
                                                                                                    11.1024 W
                                 Lancaster
                                                                4
             09-26
                                           10000174
                                                                                                             F
                                                                                                             Χ
             2015-
                                            OFF-PA-
                    AB-10255 Philadelphia
                                                                2
                                                                          16.448
                                                                                          0.2
                                                                                                     5.5512 W
                                           10000174
                                                                                                             F
                                                                                                             Χ
In [ ]:
           sub ctg = sub ctg.groupby('Sub-Category').agg(TotalQty = ('SalesQtyTotal' , 'sum')).res
In [ ]:
           sub_ctg
Out[]:
              Sub-Category TotalQty
           0
                Accessories
                               3138
           1
                 Appliances
                               1758
           2
                               3030
                       Art
```

Sub-Category TotalQty

```
3
                   Binders
                               6119
          4
                 Bookcases
                                910
          5
                    Chairs
                               2407
          6
                                234
                   Copiers
          7
                 Envelopes
                                906
          8
                  Fasteners
                                914
          9
                Furnishings
                               3821
                               1400
         10
                    Labels
         11
                  Machines
                                462
         12
                     Paper
                               5507
                   Phones
                               3415
         13
                   Storage
                               3237
         14
         15
                   Supplies
                                647
         16
                    Tables
                               1241
In [ ]:
          sub_ctg = sub_ctg.nlargest(3, 'TotalQty')
          sub ctg
Out[]:
             Sub-Category TotalQty
          3
                   Binders
                               6119
         12
                               5507
                     Paper
          9
                Furnishings
                               3821
In [ ]:
          sub_ctg.sort_values(by = "Sub-Category" , ascending=False)
Out[]:
             Sub-Category TotalQty
         12
                               5507
                     Paper
          9
                Furnishings
                               3821
          3
                   Binders
                               6119
In [ ]:
          plt.figure(figsize=(10,4))
          plt.title("Bar Title ")
          plt.xlabel("Product Name")
          plt.ylabel("TotalQty")
          plt.bar(sub_ctg['Sub-Category'] , sub_ctg.TotalQty ,color='orange',alpha=0.7)
Out[ ]: <BarContainer object of 3 artists>
```



Find top 3 product lay on quarter 2

sub_ctg_date_Qtr = pd.merge(SaleCstsFct,DimDt ,on='Order Date')
sub_ctg_date_Qtr.head()

Out[]:		Order Date	Customer ID	City	Product ID	SalesQtyTotal	SalesAmtTotal	DisAmtTotal	ProfAmtTotal	D
	0	2014- 01-03	DP-13000	Houston	OFF-PA- 10000174	2	16.448	0.2	5.5512	
	1	2014- 01-04	PO-19195	Naperville	OFF-BI- 10004094	2	3.540	0.8	-5.4870	
	2	2014- 01-04	PO-19195	Naperville	OFF-LA- 10003223	3	11.784	0.2	4.2717	
	3	2014- 01-04	PO-19195	Naperville	OFF-ST- 10002743	3	272.736	0.2	-64.7748	
	4	2014- 01-05	MB- 18085	Philadelphia	OFF-AR- 10003478	3	19.536	0.2	4.8840	

In []:
 sub_ctg_date_Qtr = pd.merge(sub_ctg_date_Qtr,DimPrd ,on='Product ID')
 sub_ctg_date_Qtr.head()

Out[]:		Order Date	Customer ID	City	Product ID	SalesQtyTotal	SalesAmtTotal	DisAmtTotal	ProfAmtTotal	D
	0	2014- 01-03	DP-13000	Houston	OFF-PA- 10000174	2	16.448	0.2	5.5512	
	1	2014- 02-24	JH-15430	Medford	OFF-PA- 10000174	4	32.896	0.2	11.1024	

	Order Date	Customer ID	City	Product ID	SalesQtyTotal	SalesAmtTotal	DisAmtTota	al ProfAmtTotal	I D
	2 2014-09-07	LR-17035	Santa Clara	OFF-PA- 10000174	2	20.560	0.	0 9.6632	2
	3 2014-09-26	DA-13450	Lancaster	OFF-PA- 10000174	4	32.896	0.	2 11.1024	1
	4 2015-12-03	AB-10255	Philadelphia	OFF-PA- 10000174	2	16.448	0.	2 5.5512	2
In []:	sub_ctg	g_date_Qtr	= sub_ctg_	date_Qtr[["Product ID'	', "Product	Name" ,"Sa	lesQtyTotal"	, 'Q
In []:	sub_ctg	g_date_Qtr	= sub_ctg_	date_Qtr[sub_ctg_date_	_Qtr.Quarter	== 2]		
In []:	sub_ctg	g_date_Qtr	head()						
Out[]:		Product ID			Produc	t Name SalesQ	tyTotal Qua	arter	
		LA-10003223		:		ery 508	2	2	
		AR-10003478 AR-10003478			I Pen Style Fluore I Pen Style Fluore		6 11	2	
		AR-10002399			Pencils, 10-Color		4	2	
		AR-10002399			Pencils, 10-Color		4	2	
In []:	sub_ctg	g_date_Qtr	= sub_ctg_	date_Qtr.	groupby([' <mark>Pro</mark>	oduct ID' , '	Product Na	me']).agg(Tot	alQ
In []:	sub_ctg	g_date_Qtr	= sub_ctg_	date_Qtr.	nlargest(3,['	TotalQty'])			
In []:	sub_ctg	g_date_Qtr	head()						
Out[]:		Product	ID		Proc	duct Name Tot	talQty		
	586 O	FF-BI-100039	82 Wilson Jo	nes Century	Plastic Molded R	ing Binders	28		

	Product ID	Product Name	TotalQty
1090	TEC-AC-10003038	Kingston Digital DataTraveler 16GB USB 2.0	28
1104	TEC-AC-10003832	Imation 16GB Mini TravelDrive USB 2.0 Flash Drive	27
sub_	ctg_date_Qtr.so	rt_values(by = 'Product ID' , ascendir	ng= False)
	Product ID	Product Name	TotalQty
1104	TEC-AC-10003832	Imation 16GB Mini TravelDrive USB 2.0 Flash Drive	27
1090	TEC-AC-10003038	Kingston Digital DataTraveler 16GB USB 2.0	28
586	OFF-BI-10003982	Wilson Jones Century Plastic Molded Ring Binders	28
	1104 sub_ 1104 1090	1090 TEC-AC-10003038 1104 TEC-AC-10003832 sub_ctg_date_Qtr.so Product ID 1104 TEC-AC-10003832 1090 TEC-AC-10003038	1090 TEC-AC-10003038 Kingston Digital DataTraveler 16GB USB 2.0 1104 TEC-AC-10003832 Imation 16GB Mini TravelDrive USB 2.0 Flash Drive sub_ctg_date_Qtr.sort_values(by = 'Product ID' , ascending Product ID Product Name 1104 TEC-AC-10003832 Imation 16GB Mini TravelDrive USB 2.0 Flash Drive 1090 TEC-AC-10003038 Kingston Digital DataTraveler 16GB USB 2.0