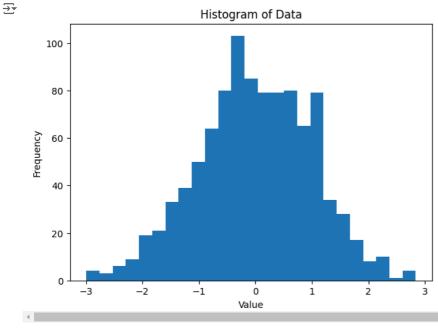
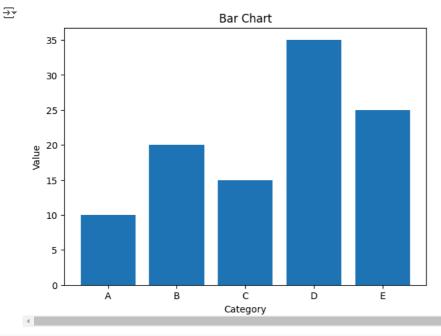
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np
df = pd.read_excel('Amazon Sales data.csv.xlsx')
df.shape
→ (100, 14)
df.head()
\rightarrow \overline{*}
                                        Sales
                                                  Order Order
                                                                                           Unit
                                                                                                   Unit
                                                                                                                          Total
                                Item
                                                                            Ship
                                                                                  Units
                                                                                                              Total
                                                                                                                                    Total
           Region
                   Country
                                                                 Order ID
                                      Channel Priority
                                                                                          Price
                                                          Date
                                                                            Date
                                                                                   Sold
                                                                                                   Cost
                                                                                                                          Cost
                                                                                                                                    Profit
                                Type
                                                                                                            Revenue
          Australia
                                Baby
                                                          2010-
                                                                            2010-
                                        Offline
                                                                669165933
                                                                                   9925
                                                                                         255.28
                                                                                                 159.42 2533654.00 1582243.50 951410.50
              and
                     Tuvalu
                                                      Н
                                Food
                                                          05-28
                                                                            06-27
           Oceania
           Central
                                                          2012-
           America
                                                                            2012
                                                      С
                                                                963881480
                                                                                         205.70
                                                                                                          576782.80
                                                                                                                      328376.44 248406.36
                   Grenada
                              Cereal
                                        Online
                                                                                   2804
                                                                                                 117.11
           and the
         Caribbean
                               Office
                                                          2014-
                                                                            2014-
      2
                                        Offline
                                                                341417157
                                                                                                         1158502.59
                                                                                                                      933903.84 224598.75
           Europe
                                                                                    1779
                                                                                         651.21 524.96
                     Russia
                             Supplies
                                                          05-02
                                                                            05-08
                       Sao
              Sub-
                      Tome
                                                          2014-
                                                                            2014-
 Next steps:
              Generate code with df
                                       View recommended plots
                                                                      New interactive sheet
df.describe()
₹
                                                                           Unit
                                                                                                     Total
                                                                                                                                 Total
                                                                                                                                          \blacksquare
                                                                                                              Total Cost
               Order Date
                               Order ID
                                             Ship Date
                                                         Units Sold
                                                                                  Unit Cost
                                                                          Price
                                                                                                   Revenue
                                                                                                                                Profit
                                                                                                                                          ılı.
      count
                       100 1.000000e+02
                                                   100
                                                          100.000000
                                                                      100.000000
                                                                                 100.000000
                                                                                              1.000000e+02 1.000000e+02 1.000000e+02
                2013-09-16
                                             2013-10-09
      mean
                           5.550204e+08
                                                        5128.710000
                                                                     276.761300 191.048000
                                                                                              1.373488e+06 9.318057e+05 4.416820e+05
                  14:09:36
                                               22:48:00
                2010-02-02
                                             2010-02-25
                            1.146066e+08
                                                          124 000000
                                                                        9 330000
                                                                                    6 920000
                                                                                              4 870260e+03 3 612240e+03 1 258020e+03
      min
                  00:00:00
                                               00:00:00
                2012-02-14
                                             2012-02-24
      25%
                            3.389225e+08
                                                        2836.250000
                                                                       81.730000
                                                                                  35.840000
                                                                                              12:00:00
                                               18:00:00
                2013-07-12
                                             2013-08-11
      50%
                            5.577086e+08
                                                        5382.500000 179.880000 107.275000
                                                                                              7.523144e+05 3.635664e+05 2.907680e+05
                  12:00:00
                                               12:00:00
    4
df.info()
<class 'pandas.core.frame.DataFrame'>
     RangeIndex: 100 entries, 0 to 99
     Data columns (total 14 columns):
      #
          Column
                          Non-Null Count Dtype
                           100 non-null
          Region
                                           object
                          100 non-null
          Country
                                           object
      1
                           100 non-null
          Item Type
                                           object
      3
          Sales Channel
                          100 non-null
                                           object
      4
          Order Priority
                          100 non-null
                                           object
          Order Date
                           100 non-null
                                           datetime64[ns]
                           100 non-null
          Order ID
                                           int64
          Ship Date
                          100 non-null
                                           datetime64[ns]
      8
          Units Sold
                           100 non-null
                                           int64
          Unit Price
                          100 non-null
                                           float64
          Unit Cost
                           100 non-null
                                            float64
          Total Revenue
                           100 non-null
                                            float64
          Total Cost
                           100 non-null
                                            float64
      13
         Total Profit
                          100 non-null
                                           float64
     dtypes: datetime64[ns](2), float64(5), int64(2), object(5)
     memory usage: 11.1+ KB
df.tail()
```

→		Region	Country	Item	Type c	Sales Channel		order ority	Order Date	Orde	er ID	Ship Date	Units Sold	Unit Price	Unit Cost		otal enue		otal Cost	To Pro
	95	Sub- Saharan Africa	Mali	Clo	othes	Online		М	2011- 07-26	51287	78119	2011- 09-03	888	109.28	35.84	9704	10.64	3182	25.92	6521
	96	Asia	Malaysia	F	-ruits	Offline		L	2011- 11-11	81071	11038	2011- 12-28	6267	9.33	6.92	5847	71.11	4336	67.64	151
	97	Sub- Saharan	Sierra Leone	Vegeta	ables	Offline		С	2016-	72881		2016- 06-29	1485	154.06	90.93	22877	79.10	13503	31.05	937
	98	Africa North	Mexico	Pers	sonal	Offline		M	2015-	55942		2015- 08-08	5767	81.73	56.67	47133	R6 Q1	32681	5 80	1445
	30	America Sub-	WEXICO		Care	Omme			07-30				3707	01.75	30.07	47 100	50.51	32001	0.00	1440
		Saharan Africa	Mozambique	House	ehold	Offline		L	2012- 02-10	66509		2012- 02-15	5367	668.27	502.54	358660	05.09	269713	32.18	8894
	←																			
.hea	ad(4)																		
3		Region	Country	Item Type	Sale Channe			Order Date		der ID	Ship Date	Units Sold				Total Revenue		Total Cost		Total rofit
	0	Australia and Oceania	Tuvalu	Baby Food	Offlir	ne	Н	2010- 05-28		165933	2010- 06-27		255.2	8 159.4	12 2533	3654.00	1582	243.50	9514	10.50
	1	Central America and the Caribbean	Grenada	Cereal	Onlir	ne	С	2012- 08-22	9638	381480	2012- 09-15		205.7	0 117.	11 576	6782.80	328	376.44	2484	06.36
	2	Europe	Russia e.	Office upplies	Offlir	ne	L	2014- 05-02		117157	2014- 05-08		651.2	1 524.9	96 1158	8502.59	933	903.84	2245	98.75
			01	upplies				03-02			03-00									
Next	dex Rang	eIndex(st	rate code with			View rec	omme	nded pl	ots	New	interac	ive snee								
.ind	dex Rang Lumn	s x(['Region'Order	art=0, stop: n', 'Country Date', 'Ord	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
.ind	dex Rang Lumn	seIndex(sta	art=0, stop= n', 'Country	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next .ind .col I	dex Rang Lumn	seIndex(sta	art=0, stop= n', 'Country Date', 'Orc Cost', 'Tota	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next .ind .col I	dex Rang Lumn	seIndex(states) x(['Region 'Order 'Unit of dtype='o	art=0, stop= n', 'Country Date', 'Orc Cost', 'Tota	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
lext .ind .col .col .isn	dex Rang Lumn Inde	seIndex(stass s xx(['Region 'Order 'Unit' dtype='d' ().sum() Region	art=0, stop: n', 'Country Date', 'Ort Cost', 'Tota object') 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
lext .ind .col .col .isn	dex Rang Lumn Inde	seIndex(states) x(['Region 'Order 'Unit' of dtype='o' ().sum()) Region Country	art=0, stop= n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
lext .ind .col	dex Rang Lumn Inde	seIndex(stass sx(['Region 'Order 'Unit of dtype='of ().sum() Region Country tem Type	art=0, stop: n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next .ind	dex Rang Lumn Inde	x(['Region'Order'O	art=0, stop= n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 10	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next .ind	dex Rang Lumn Inde null It Sale	seIndex(stass s x(['Region 'Order 'Unit'ddype='d' ().sum() Region Country tem Type tes Channel der Priority	art=0, stop: n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 1 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next .ind	dex Rang Lumn Inde Itt Salc Orc	x(['Region'Order'Unit'odtype='d'Country'Atem Type es Channel der Priority rder Date	art=0, stop= n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 0 0 0 0 0 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next .ind	dex Rang Lumn Inde Itt Sale Orc	seIndex(states) x(['Region' Order' Unit of dtype='of the country tem Type tes Channel der Priority order ID	art=0, stop: n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 0 0 0 0 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
lext .ind .col	dex Rang Lumn Inde Itt Sala Orc	x(['Region'Order'Unit'of dtype='('O'.sum(')') Region Country tem Type tes Channel der Priority rder Date Order ID Ship Date	art=0, stop= n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 0 0 0 0 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next .ind	dex Rang Lumn Inde Itt Sale Orc O (S U	seIndex(state s x(['Region 'Order 'Unit' dtype='d' ().sum() Region Country tem Type tes Channel der Priority rder Date Order ID Ship Date nits Sold	art=0, stop: n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 0 0 0 0 0 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next .ind .col	dex Rang Lumn Inde Itt Sala Orc Or (S U U	seIndex(stass sx(['Region'Order'Unit'(dtype='(art=0, stop= n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 0 0 0 0 0 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next ind	dex Rang Lumn Inde Itt Sale Orc O (S U U	seIndex(state s x(['Region 'Order 'Unit' dtype='d' ().sum() Region Country tem Type tes Channel der Priority rder Date Order ID Ship Date nits Sold	art=0, stop: n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 0 0 0 0 0 0 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next F. ind	dex Rang Lumn Inde Itt Sald Orc O U U Tota	seIndex(state) s x(['Region' 'Order' 'Unit' of the country tem Type tem Typ	art=0, stop: n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 0 0 0 0 0 0 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								
Next ind	dex Rang Lumn Inde Itt Sale Orc O U U Tota	seIndex(states) x(['Region' Order' Unit' of type='(').sum(') Region Country tem Type tes Channel der Priority rder Date Order ID Ship Date Inits Sold Unit Price Unit Cost al Revenue	art=0, stop= n', 'Country Date', 'Orc Cost', 'Tota object') 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	=100, s y', 'It der ID'	tep=1) cem Typo , 'Shi	e', 'Sa p Date'	les C	hannel its So	', 'Or ld', '	rder Pr Unit P	iority	,',								

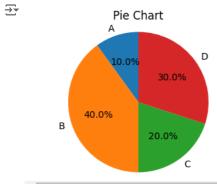
```
10/08/2024, 10:48
                                                                         Untitled0.ipynb - Colab
    df['Total Cost'].sum()
    93180569.91000001
    df['Total Revenue'].mean()
    → 1373487.6831
    df['Total Revenue'].memory_usage()
    <del>→</del> 928
    df['Total Revenue'].median()
    → 752314.36
    df['Total Revenue'].count()
    → 100
    import numpy as np
    data = np.random.randn(1000)
    plt.figure(figsize=(7,5))
    plt.hist(data,bins=25)
    plt.xlabel('Value')
    plt.ylabel('Frequency')
    plt.title('Histogram of Data')
    plt.show()
```



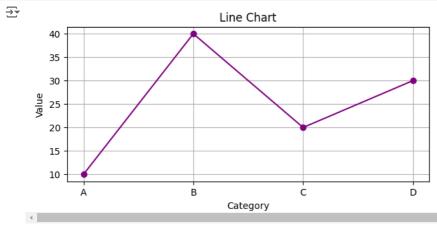
```
import matplotlib.pyplot as plt
categories = ['A', 'B', 'C', 'D', 'E']
values = [10, 20, 15, 35, 25]
plt.figure(figsize=(7,5))
plt.bar(categories, values)
plt.xlabel('Category')
plt.ylabel('Value')
plt.title('Bar Chart')
plt.show()
```



```
import matplotlib.pyplot as plt
values = [10,40,20,30]
categories =['A','B','C','D']
plt.figure(figsize=(4,3))
plt.pie(values, labels=categories, autopct='%1.1f%', startangle=90)
plt.axis('equal')
plt.title('Pie Chart')
plt.show()
```



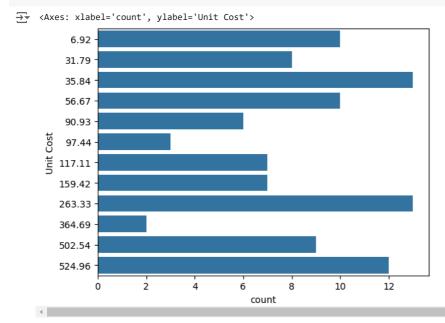
```
plt.figure(figsize=(7,3))
plt.plot(categories, values, marker='o', linestyle='-', color='purple')
plt.xlabel('Category')
plt.ylabel('Value')
plt.title('Line Chart')
plt.grid(True)
plt.show()
```



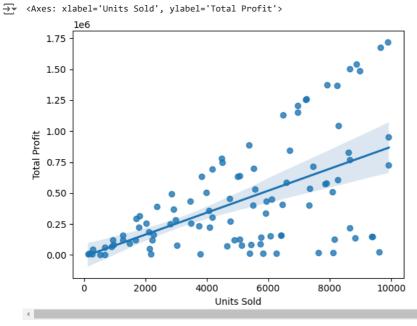
```
\verb|sns.scatterplot(x='Total Profit', y='Unit Price', data=df)|\\
```

→ <Axes: xlabel='Total Profit', ylabel='Unit Price'> 700 600 500 400 Unit Price 300 200 100 0 1.00 0.25 0.50 0.75 1.25 1.50 1.75 0.00 Total Profit 1e6

sns.countplot(y='Unit Cost', data=df)



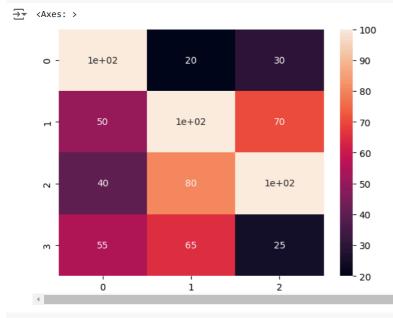
sns.regplot(x='Units Sold', y='Total Profit', data=df)
__



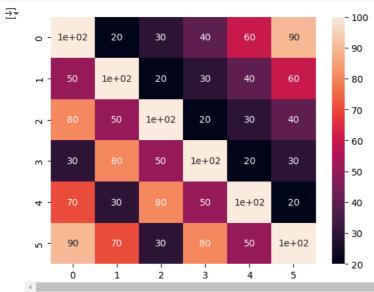
sns.boxplot(x='Total Revenue', data=df)

Total Revenue

1e6



sns.boxplot(x='Total Profit', data=df)



```
years = np.arange(1990,2061)
data = np.random.randint(0, years.size, size=(years.size, 3))
df = pd.DataFrame(data, columns=list('ABC'))
df['year'] = years
df.plot.area(x='year', y =['A','B','C'], stacked=True)
plt.show()
```

