In [1]:
```
import pandas as pd
import numpy as np
import plotly.express as px
import plotly.graph_objects as go
import plotly.io as pio
import plotly.colors as colors
data = pd.read_csv("C:\\datasci\\Sample - Superstore.csv",encoding='windows-12
data
```

Out[1]:

	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	Countr
0	1	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	Unite State
1	2	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	Unite State
2	3	CA-2016-138688	6/12/2016	6/16/2016	Second Class	DV-13045	Darrin Van Huff	Corporate	Unite State
3	4	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	Unite State
4	5	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	Unite State
...	...	...	...	...	...	...	...	...	
9989	9990	CA-2014-110422	1/21/2014	1/23/2014	Second Class	TB-21400	Tom Boeckenhauer	Consumer	Unite State
9990	9991	CA-2017-121258	2/26/2017	3/3/2017	Standard Class	DB-13060	Dave Brooks	Consumer	Unite State
9991	9992	CA-2017-121258	2/26/2017	3/3/2017	Standard Class	DB-13060	Dave Brooks	Consumer	Unite State
9992	9993	CA-2017-121258	2/26/2017	3/3/2017	Standard Class	DB-13060	Dave Brooks	Consumer	Unite State
9993	9994	CA-2017-119914	5/4/2017	5/9/2017	Second Class	CC-12220	Chris Cortes	Consumer	Unite State

9994 rows × 21 columns

In [5]:
```
data['Ship Date']=pd.to_datetime(data['Ship Date'])
monthly_sales= data.groupby(data['Ship Date'].dt.to_period('M'))['Sales'].sum(
monthly_sales
```

Out[5]:
```
Ship Date
2014-01     13275.1310
2014-02      5406.5280
2014-03     50708.3490
2014-04     30388.4650
2014-05     22478.8800
2014-06     35991.6556
2014-07     32990.5940
2014-08     30245.2420
2014-09     73126.6533
2014-10     35741.4770
2014-11     80182.1947
2014-12     59848.0235
2015-01     29594.7606
2015-02     12679.0770
2015-03     39269.6620
2015-04     25515.2535
2015-05     32587.9535
2015-06     29850.8300
2015-07     30400.2270
2015-08     28116.3142
2015-09     69615.8350
2015-10     32575.7155
2015-11     70634.8500
2015-12     78602.0237
2016-01     19130.0570
2016-02     26954.0850
2016-03     48795.9100
2016-04     41028.2980
2016-05     46520.1840
2016-06     48272.7220
2016-07     37595.9470
2016-08     32031.5793
2016-09     70460.8006
2016-10     60858.1993
2016-11     74664.1848
2016-12    105013.7860
2017-01     42297.0440
2017-02     23506.7824
2017-03     52891.3850
2017-04     40021.6803
2017-05     44774.9324
2017-06     47220.4981
2017-07     47183.8730
2017-08     63760.0200
2017-09     91427.8670
2017-10     75551.6612
2017-11    105200.5130
2017-12     97053.4590
2018-01      5159.6968
Freq: M, Name: Sales, dtype: float64
```

In [6]:
```
sales_category = data.groupby('Category')['Sales'].sum()
sales_category
```

Out[6]:
```
Category
Furniture          741999.7953
Office Supplies    719047.0320
Technology         836154.0330
Name: Sales, dtype: float64
```

In [7]:

```
data['Order Date'] = pd.to_datetime(data['Order Date'])
data['Month'] = data['Order Date'].dt.to_period('M')
monthly_sales = data.groupby('Month')['Sales'].sum()
cogs_percentage = 0.7
monthly_cogs = monthly_sales * cogs_percentage
monthly_profits = monthly_sales - monthly_cogs
print(monthly_profits)
```

```
Month
2014-01     4271.06850
2014-02     1355.96760
2014-03    16707.30270
2014-04     8488.60350
2014-05     7094.48610
2014-06    10378.53828
2014-07    10183.91790
2014-08     8372.84055
2014-09    24533.20524
2014-10     9436.01790
2014-11    23588.61501
2014-12    20863.68615
2015-01     5452.22268
2015-02     3585.42330
2015-03    11617.87560
2015-04    10258.56255
2015-05     9039.50595
2015-06     7439.18760
2015-07     8629.59750
2015-08    11069.49966
2015-09    19378.77540
2015-10     9421.47705
2015-11    22791.76905
2015-12    22475.85636
2016-01     5562.74730
2016-02     6893.64450
2016-03    15514.76250
2016-04    11625.01170
2016-05    17096.31840
2016-06    12103.36020
2016-07    11778.58890
2016-08     9334.61229
2016-09    22023.00747
2016-10    17906.32350
2016-11    23823.58974
2016-12    29099.71290
2017-01    13191.41220
2017-02     6090.34002
2017-03    17661.70584
2017-04    10956.46083
2017-05    13278.33306
2017-06    15894.51771
2017-07    13579.32480
2017-08    18936.26640
2017-09    26359.99560
2017-10    23333.07696
2017-11    35534.34750
2017-12    25148.79564
Freq: M, Name: Sales, dtype: float64
```

In [9]:
```
data['Profit'] = data['Sales'] - data['Profit']
data['Profit']
```

Out[9]:
```
0        41.9136
1       219.5820
2         6.8714
3      -383.0310
4         2.5164
          ...
9989      4.1028
9990     15.6332
9991     19.3932
9992     13.3200
9993     72.9480
Name: Profit, Length: 9994, dtype: float64
```

In [10]:
```
total_profit=data['Profit'].sum()
total_profit
```

Out[10]:
```
286397.0217
```

In [11]:
```
profit_by_category=data.groupby(['Category','Sub-Category'])['Profit'].sum()
profit_by_category
```

Out[11]:
```
Category         Sub-Category
Furniture        Bookcases       -3472.5560
                 Chairs          26590.1663
                 Furnishings     13059.1436
                 Tables         -17725.4811
Office Supplies  Appliances      18138.0054
                 Art             6527.7870
                 Binders         30221.7633
                 Envelopes        6964.1767
                 Fasteners         949.5182
                 Labels           5546.2540
                 Paper           34053.5693
                 Storage         21278.8264
                 Supplies        -1189.0995
Technology       Accessories     41936.6357
                 Copiers         55617.8249
                 Machines         3384.7569
                 Phones          44515.7306
Name: Profit, dtype: float64
```

In [12]:
```
profit_by_region=data.groupby(['Region'])['Profit'].sum()
profit_by_region
```

Out[12]:
```
Region
Central     39706.3625
East        91522.7800
South       46749.4303
West       108418.4489
Name: Profit, dtype: float64
```

In [14]:
```
profit_by_product=data.groupby(['Product Name'])['Profit'].sum()
profit_by_product
```

Out[14]:
```
Product Name
"While you Were Out" Message Book, One Form per Page
10.3880
#10 Gummed Flap White Envelopes, 100/Box
16.7678
#10 Self-Seal White Envelopes
52.1230
#10 White Business Envelopes,4 1/8 x 9 1/2
223.1408
#10- 4 1/8" x 9 1/2" Recycled Envelopes
115.2806

...
iKross Bluetooth Portable Keyboard + Cell Phone Stand Holder + Brush for Appl
e iPhone 5S 5C 5, 4S 4    115.6440
iOttie HLCRIO102 Car Mount
-11.9940
iOttie XL Car Mount
-50.3748
invisibleSHIELD by ZAGG Smudge-Free Screen Protector
171.2648
netTALK DUO VoIP Telephone Service
430.4180
Name: Profit, Length: 1850, dtype: float64
```