TASK 3: EXPLORATORY DATA ANALYSIS

AUTHOR: VANIPENTA BALAJI GRIP JUNE 2023 THE SPARKS FOUNDATIONS

In [1]:

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

import warnings
warnings.filterwarnings('ignore')
```

Importing the Data form Samplesuperstore

In [2]:

```
df=pd.read_csv("SampleSuperstore.csv")
df.head()
```

Out[2]:

	Ship Mode	Segment	Country	City	State	Postal Code	Region	Category	Sub-Category	S
0	Second Class	Consumer	United States	Henderson	Kentucky	42420	South	Furniture	Bookcases	261.9
1	Second Class	Consumer	United States	Henderson	Kentucky	42420	South	Furniture	Chairs	731.9
2	Second Class	Corporate	United States	Los Angeles	California	90036	West	Office Supplies	Labels	14.6
3	Standard Class	Consumer	United States	Fort Lauderdale	Florida	33311	South	Furniture	Tables	957.5
4	Standard Class	Consumer	United States	Fort Lauderdale	Florida	33311	South	Office Supplies	Storage	22.3

In [3]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9994 entries, 0 to 9993
Data columns (total 13 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   Ship Mode     9994 non-null   object 
 1   Segment       9994 non-null   object 
 2   Country       9994 non-null   object 
 3   City          9994 non-null   object 
 4   State         9994 non-null   object 
 5   Postal Code   9994 non-null   int64  
 6   Region        9994 non-null   object 
 7   Category      9994 non-null   object 
 8   Sub-Category  9994 non-null   object 
 9   Sales         9994 non-null   float64
 10  Quantity      9994 non-null   int64  
 11  Discount      9994 non-null   float64
 12  Profit        9994 non-null   float64
dtypes: float64(3), int64(2), object(8)
```

```
memory usage: 1015.1+ KB
```

In [4]:

```
df.describe()
```

Out[4]:

	Postal Code	Sales	Quantity	Discount	Profit
count	9994.000000	9994.000000	9994.000000	9994.000000	9994.000000
mean	55190.379428	229.858001	3.789574	0.156203	28.656896
std	32063.693350	623.245101	2.225110	0.206452	234.260108
min	1040.000000	0.444000	1.000000	0.000000	-6599.978000
25%	23223.000000	17.280000	2.000000	0.000000	1.728750
50%	56430.500000	54.490000	3.000000	0.200000	8.666500
75%	90008.000000	209.940000	5.000000	0.200000	29.364000
max	99301.000000	22638.480000	14.000000	0.800000	8399.976000

In [5]:

```
for i in df.columns:
    print(i,len(df[i].unique()))
```

```
Ship Mode 4
Segment 3
Country 1
City 531
State 49
Postal Code 631
Region 4
Category 3
Sub-Category 17
Sales 5825
Quantity 14
Discount 12
Profit 7287
```

In [6]:

```
df.isnull().sum()
```

Out[6]:

```
Ship Mode       0
Segment         0
Country         0
City            0
State           0
Postal Code     0
Region          0
Category        0
Sub-Category    0
Sales           0
Quantity        0
Discount        0
Profit          0
dtype: int64
```

In [7]:

```
df.nunique()
```

Out[7]:

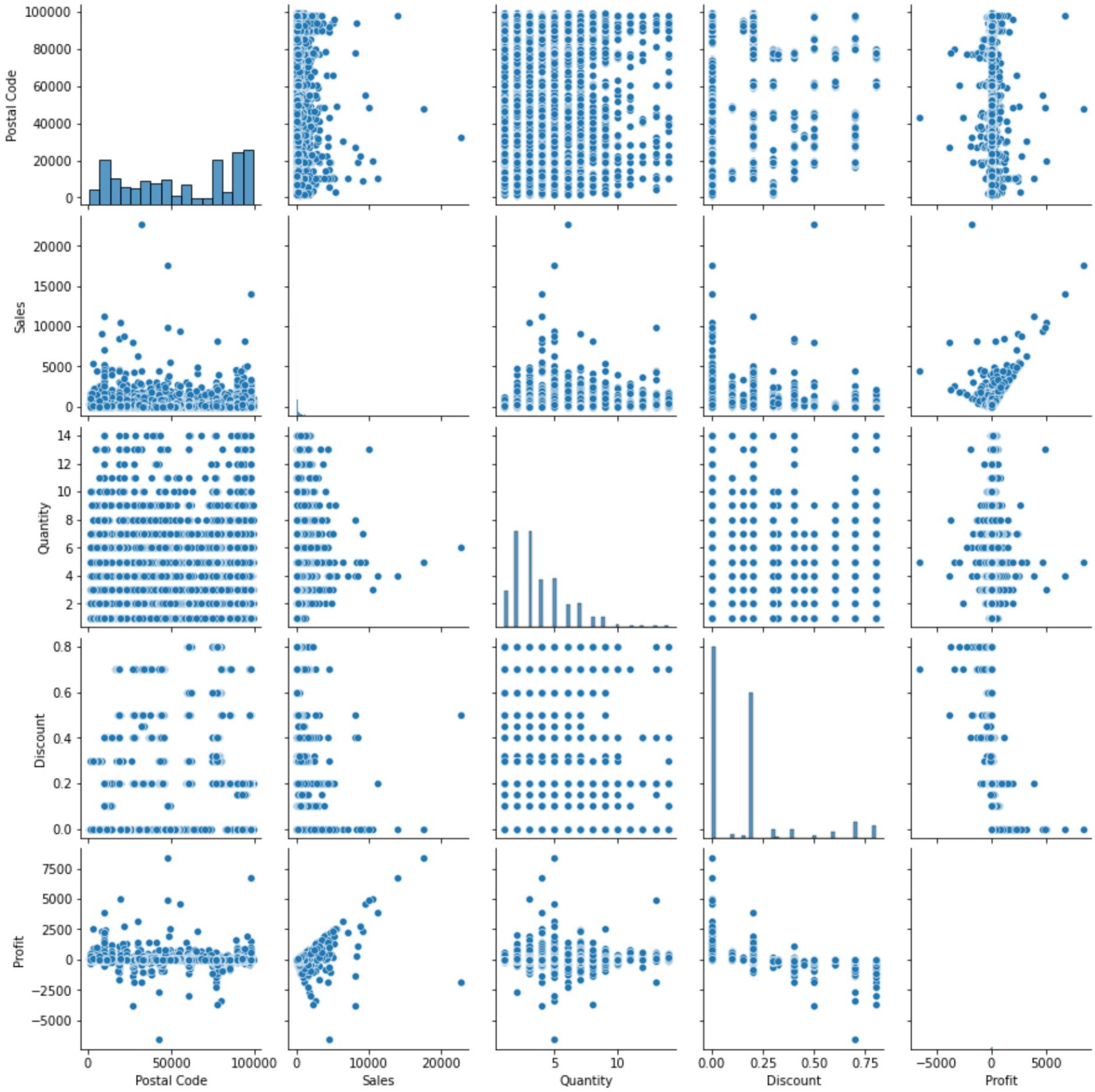
```
Ship Mode          4
Segment            3
Country            1
```

```
City             531
State             49
Postal Code      631
Region             4
Category           3
Sub-Category      17
Sales           5825
Quantity          14
Discount          12
Profit          7287
dtype: int64
```

Data Visualization

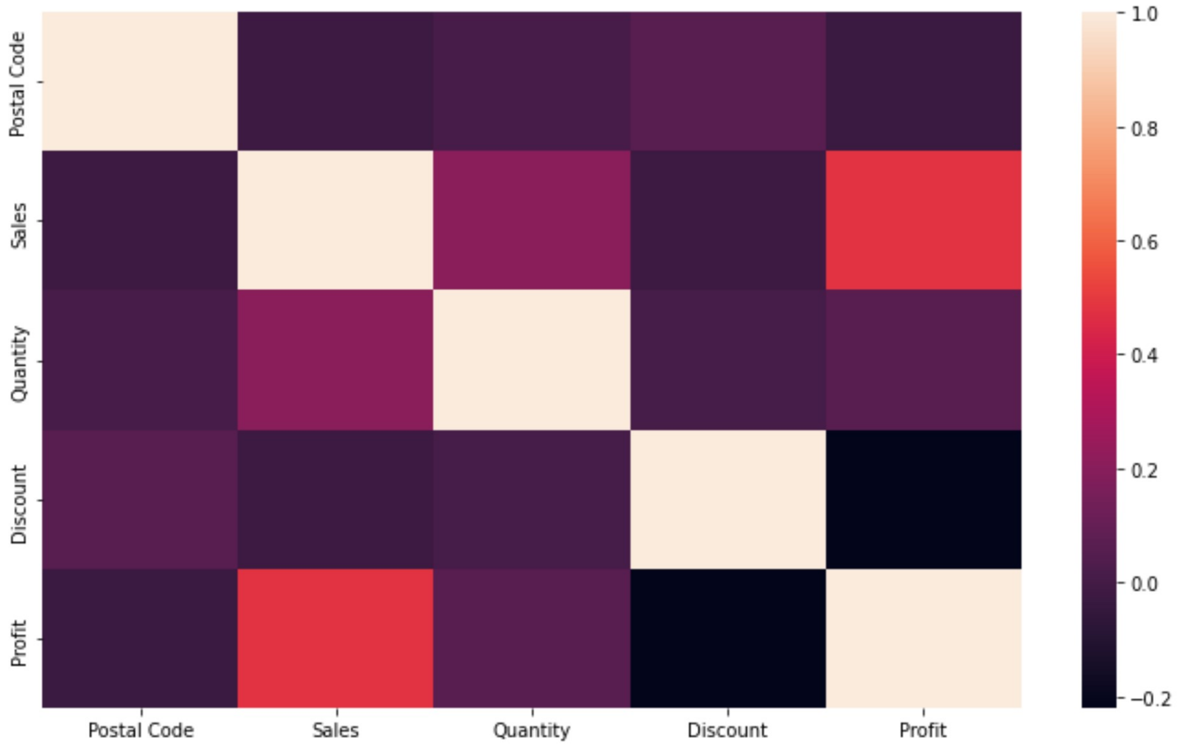
In [8]:

```
sns.pairplot(df);
```



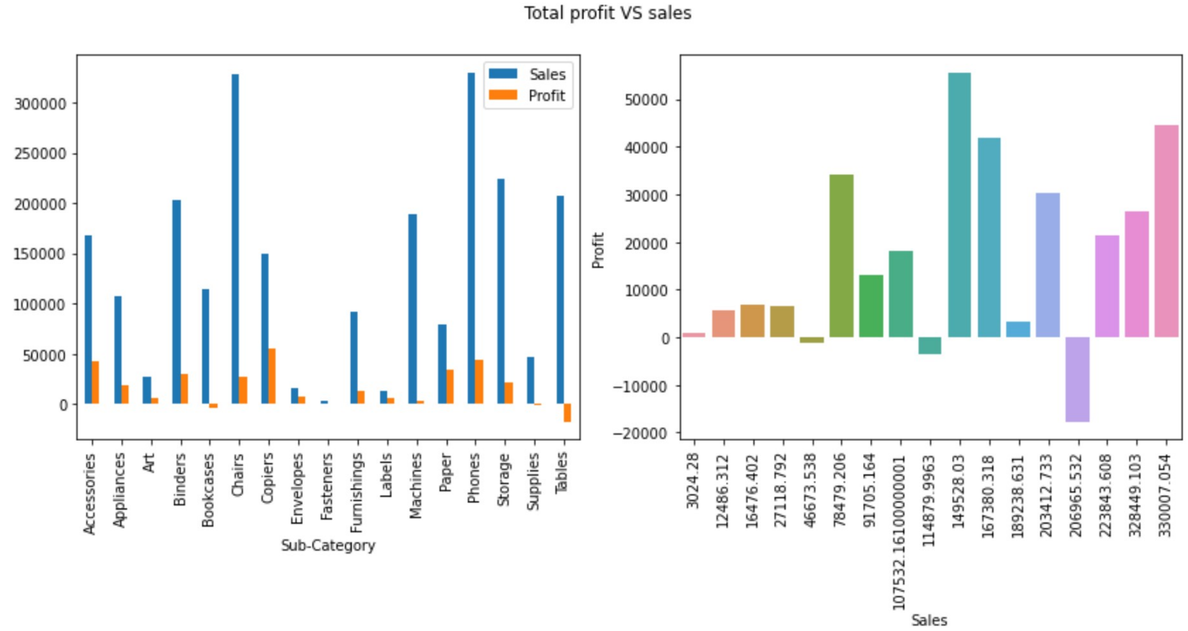
In [9]:

```
fig,axes = plt.subplots(1,1,figsize=(12,7))
sns.heatmap(df.corr())
plt.show()
```



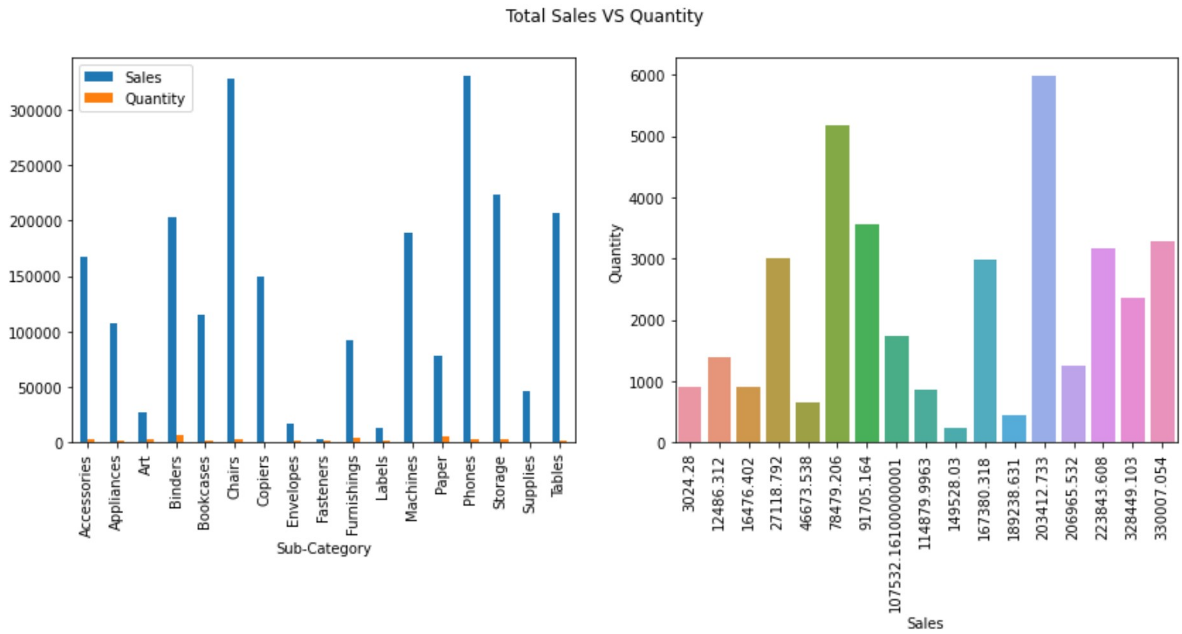
In [10]:

```
fig,axes = plt.subplots(1,2,figsize=(14,5))
fig.suptitle("Total profit VS sales ")
sns.barplot(data=df.groupby('Sub-Category')['Sales','Profit'].agg(sum),x='Sales',y
df.groupby('Sub-Category')['Sales','Profit'].agg(sum).plot(kind='bar',ax=axes[0])
plt.xticks(rotation=90)
plt.show()
```



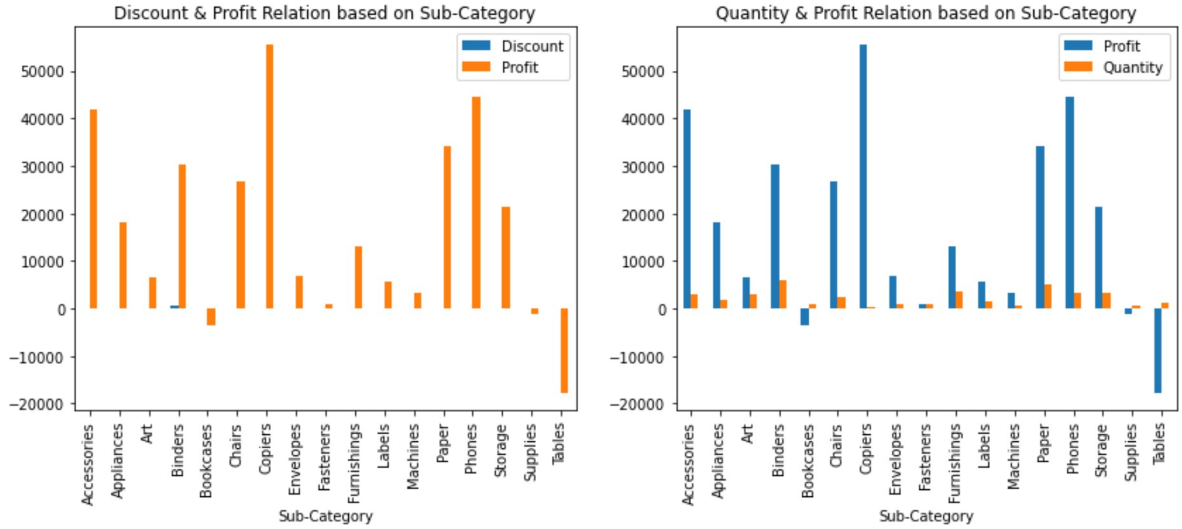
In [11]:

```
fig,axes = plt.subplots(1,2,figsize=(14,5))
fig.suptitle("Total Sales VS Quantity ")
sns.barplot(data=df.groupby('Sub-Category')['Sales','Quantity'].agg(sum),x='Sales
df.groupby('Sub-Category')['Sales','Quantity'].agg(sum).plot(kind='bar',ax=axes[0
plt.xticks(rotation=90)
plt.show()
```



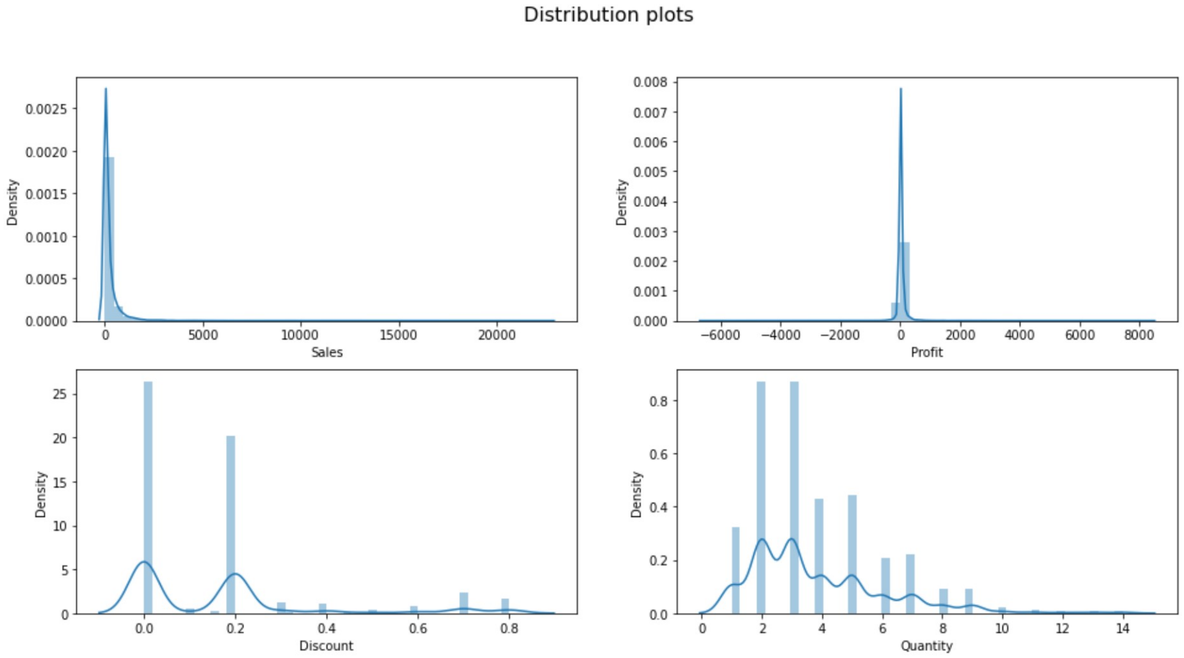
In [12]:

```
fig,axes = plt.subplots(1,2,figsize=(14,5))
df.groupby('Sub-Category')['Discount','Profit'].agg(sum).plot(kind='bar',ax=axes[0
df.groupby('Sub-Category')['Profit','Quantity'].agg(sum).plot(kind='bar',ax=axes[1
plt.xticks(rotation=90)
plt.show()
```



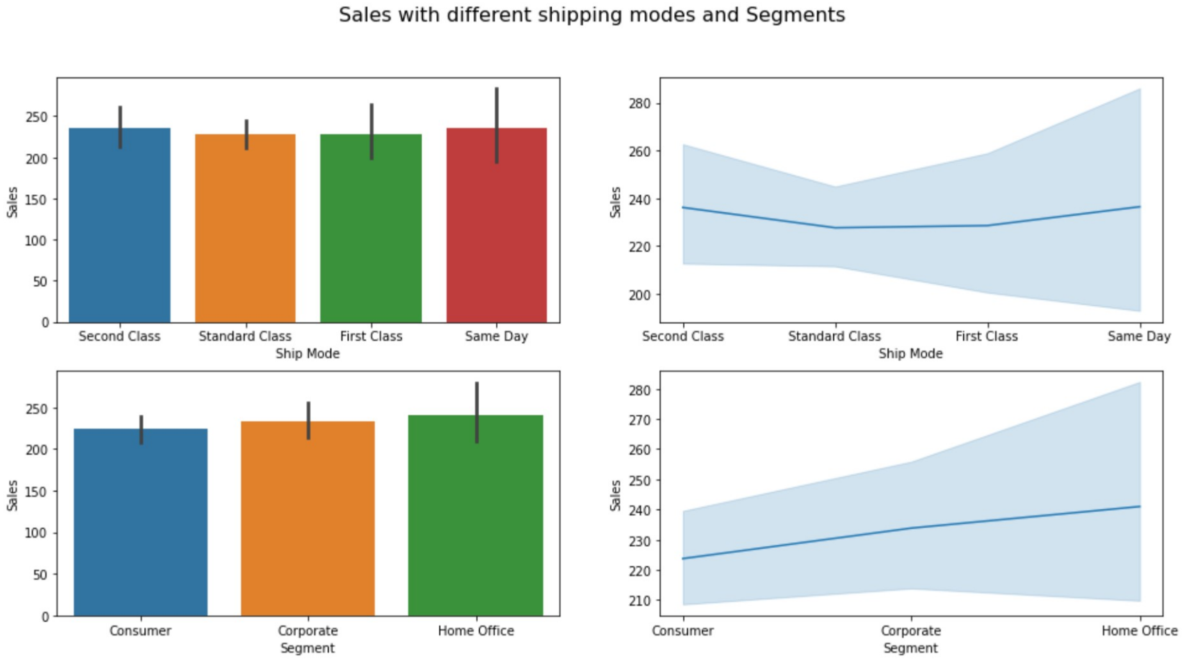
In [13]:

```
fig,axes = plt.subplots(2,2,figsize=(16,8))
fig.suptitle("Distribution plots", fontsize=16)
sns.distplot(df['Sales'],ax=axes[0,0])
sns.distplot(df['Profit'],ax=axes[0,1])
sns.distplot(df['Discount'],ax=axes[1,0])
sns.distplot(df['Quantity'],ax=axes[1,1])
plt.show()
```



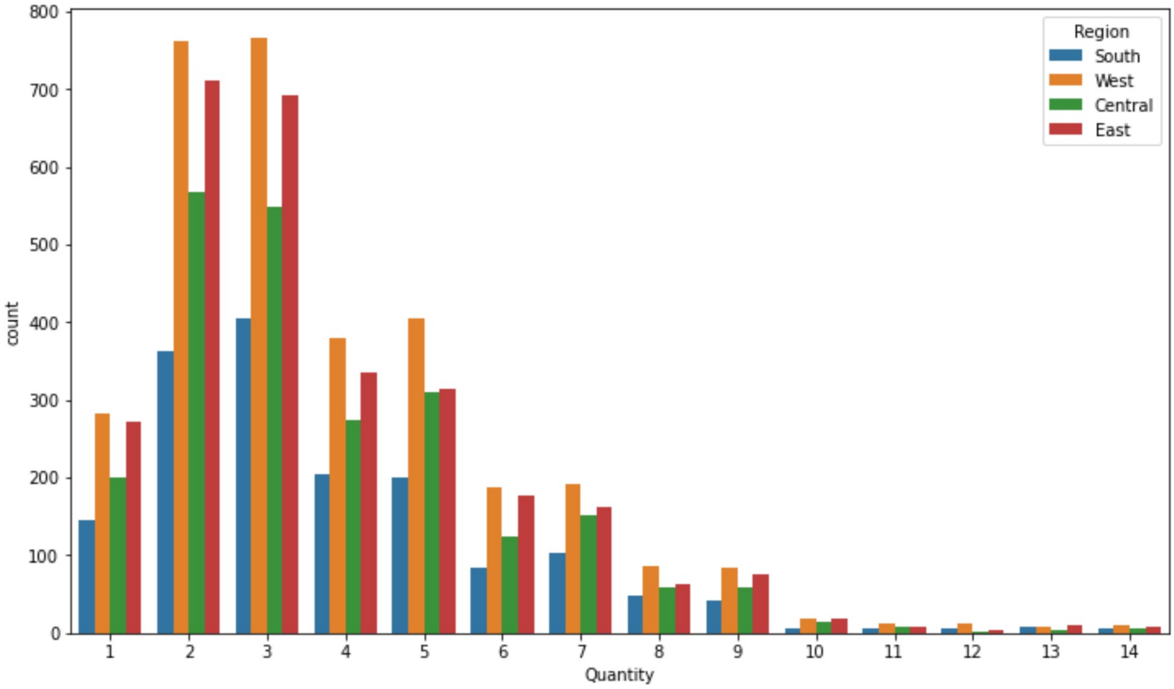
In [14]:

```
fig,axes = plt.subplots(2,2,figsize=(16,8))
fig.suptitle("Sales with different shipping modes and Segments", fontsize=16)
sns.barplot(df['Ship Mode'],df['Sales'],ax=axes[0,0])
sns.lineplot(df['Ship Mode'],df['Sales'],ax=axes[0,1])
sns.barplot(df['Segment'],df['Sales'],ax=axes[1,0])
sns.lineplot(df['Segment'],df['Sales'],ax=axes[1,1])
plt.show()
```



In [15]:

```
fig,ax= plt.subplots(1,1,figsize=(12,7))
sns.countplot(df['Quantity'],hue=df['Region'])
plt.show()
```


Region
South
West
Central
East
count
0
100
200
300
400
500
600
700
800
Quantity
1
2
3
4
5
6
7
8
9
10
11
12
13
14

```
In [ ]:
```