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

pd.read_csv(filepath_or_buffer="data_analytics_practice_dataset-
1.csv")
```

```
     Order_ID  Customer_Age  Gender       City Product_Category
Quantity  \
0        1001            56  Female    Chennai         Clothing
7
1        1002            46   Other      Delhi             Food
5
2        1003            32  Female     Mumbai         Clothing
5
3        1004            60   Other  Hyderabad      Electronics
5
4        1005            25    Male     Mumbai        Furniture
3
..        ...           ...     ...        ...              ...
...
195      1196            49   Other     Mumbai             Food
8
196      1197            49  Female     Mumbai      Electronics
5
197      1198            41  Female  Bangalore         Clothing
7
198      1199            58   Other      Delhi             Food
2
199      1200            29   Other  Hyderabad      Electronics
8

    Unit_Price  Discount Payment_Mode  Order_Date
0      4058.88      15.0         Cash  2024-01-01
1      1310.47      10.0          UPI  2024-01-02
2      3423.44       5.0         Cash  2024-01-03
3      3813.13       5.0         Card  2024-01-04
4      2998.41      10.0         Card  2024-01-05
..         ...       ...          ...         ...
195     948.11       NaN          UPI  2024-07-14
196    2936.06       0.0         Cash  2024-07-15
197    2136.05       NaN         Card  2024-07-16
198    4468.72       NaN         Cash  2024-07-17
199    4096.35      15.0         Card  2024-07-18

[200 rows x 10 columns]
```

```
df=pd.read_csv(filepath_or_buffer="data_analytics_practice_dataset-
1.csv")
```

```
df.head()
```

```
   Order_ID  Customer_Age  Gender       City Product_Category
Quantity  \
0      1001            56  Female    Chennai         Clothing
7
1      1002            46   Other      Delhi             Food
5
2      1003            32  Female     Mumbai         Clothing
5
3      1004            60   Other  Hyderabad      Electronics
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3    3813.13       5.0         Card  2024-01-04
4    2998.41      10.0         Card  2024-01-05
```

```
df.tail()
```

```
     Order_ID  Customer_Age  Gender       City Product_Category
Quantity  \
195      1196            49   Other     Mumbai             Food
8
196      1197            49  Female     Mumbai      Electronics
5
197      1198            41  Female  Bangalore         Clothing
7
198      1199            58   Other      Delhi             Food
2
199      1200            29   Other  Hyderabad      Electronics
8

    Unit_Price  Discount Payment_Mode  Order_Date
195     948.11       NaN          UPI  2024-07-14
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197    2136.05       NaN         Card  2024-07-16
198    4468.72       NaN         Cash  2024-07-17
199    4096.35      15.0         Card  2024-07-18
```

```
df.describe
```

```
<bound method NDFrame.describe of      Order_ID  Customer_Age  Gender
City Product_Category  Quantity  \
0        1001            56  Female    Chennai         Clothing
7
1        1002            46   Other      Delhi             Food
```

```
5
2        1003             32  Female     Mumbai          Clothing
5
3        1004             60   Other  Hyderabad       Electronics
5
4        1005             25    Male     Mumbai         Furniture
3
..        ...            ...     ...        ...               ...
...
195      1196             49   Other     Mumbai              Food
8
196      1197             49  Female     Mumbai       Electronics
5
197      1198             41  Female  Bangalore          Clothing
7
198      1199             58   Other      Delhi              Food
2
199      1200             29   Other  Hyderabad       Electronics
8

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1      1310.47      10.0          UPI  2024-01-02
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3      3813.13       5.0         Card  2024-01-04
4      2998.41      10.0         Card  2024-01-05
..         ...       ...          ...         ...
195     948.11       NaN          UPI  2024-07-14
196    2936.06       0.0         Cash  2024-07-15
197    2136.05       NaN         Card  2024-07-16
198    4468.72       NaN         Cash  2024-07-17
199    4096.35      15.0         Card  2024-07-18

[200 rows x 10 columns]>

df.info

<bound method DataFrame.info of      Order_ID  Customer_Age  Gender
City Product_Category  Quantity  \
0        1001             56  Female    Chennai          Clothing
7
1        1002             46   Other      Delhi              Food
5
2        1003             32  Female     Mumbai          Clothing
5
3        1004             60   Other  Hyderabad       Electronics
5
4        1005             25    Male     Mumbai         Furniture
3
..        ...            ...     ...        ...               ...
```

```
...
195      1196            49   Other     Mumbai             Food
8
196      1197            49  Female     Mumbai      Electronics
5
197      1198            41  Female  Bangalore         Clothing
7
198      1199            58   Other      Delhi             Food
2
199      1200            29   Other  Hyderabad      Electronics
8

    Unit_Price  Discount Payment_Mode  Order_Date
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195     948.11       NaN          UPI  2024-07-14
196    2936.06       0.0         Cash  2024-07-15
197    2136.05       NaN         Card  2024-07-16
198    4468.72       NaN         Cash  2024-07-17
199    4096.35      15.0         Card  2024-07-18

[200 rows x 10 columns]>
```

```
df.shape
```

```
(200, 10)
```

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

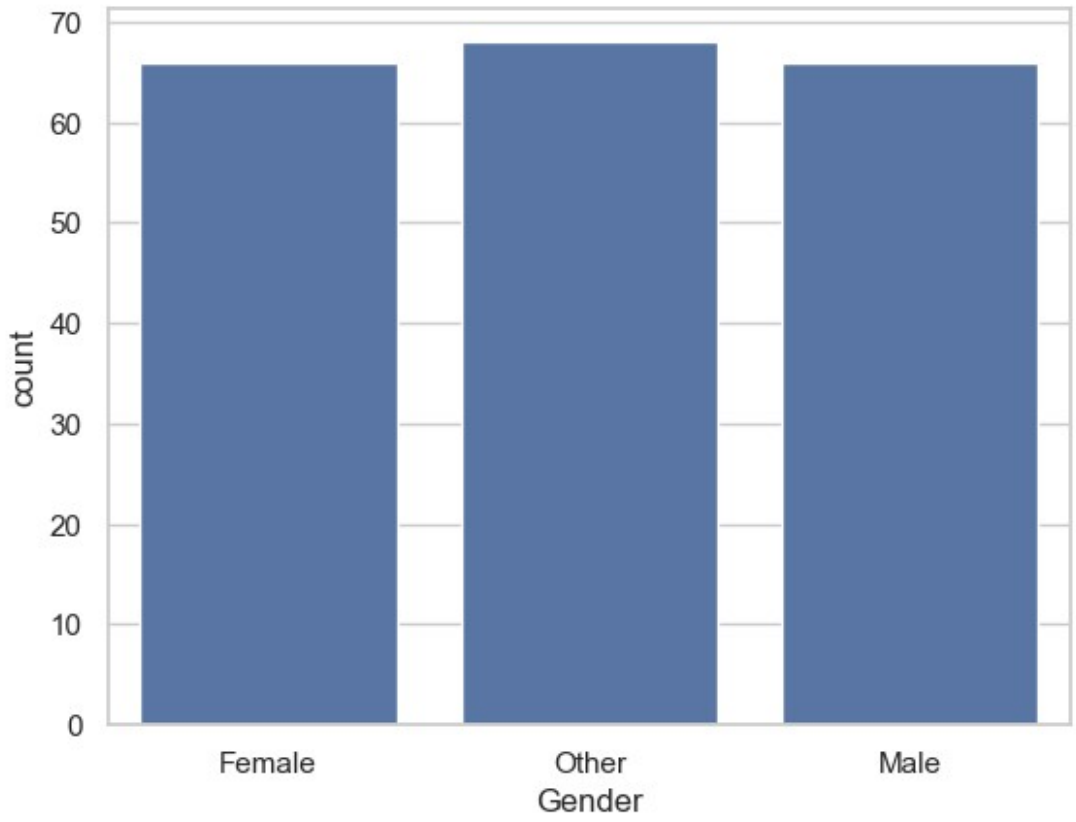
```
Order_ID             0
Customer_Age         0
Gender               0
City                 1
Product_Category     0
Quantity             0
Unit_Price           0
Discount            41
Payment_Mode         0
Order_Date           0
dtype: int64
```

```
df.nunique()
```

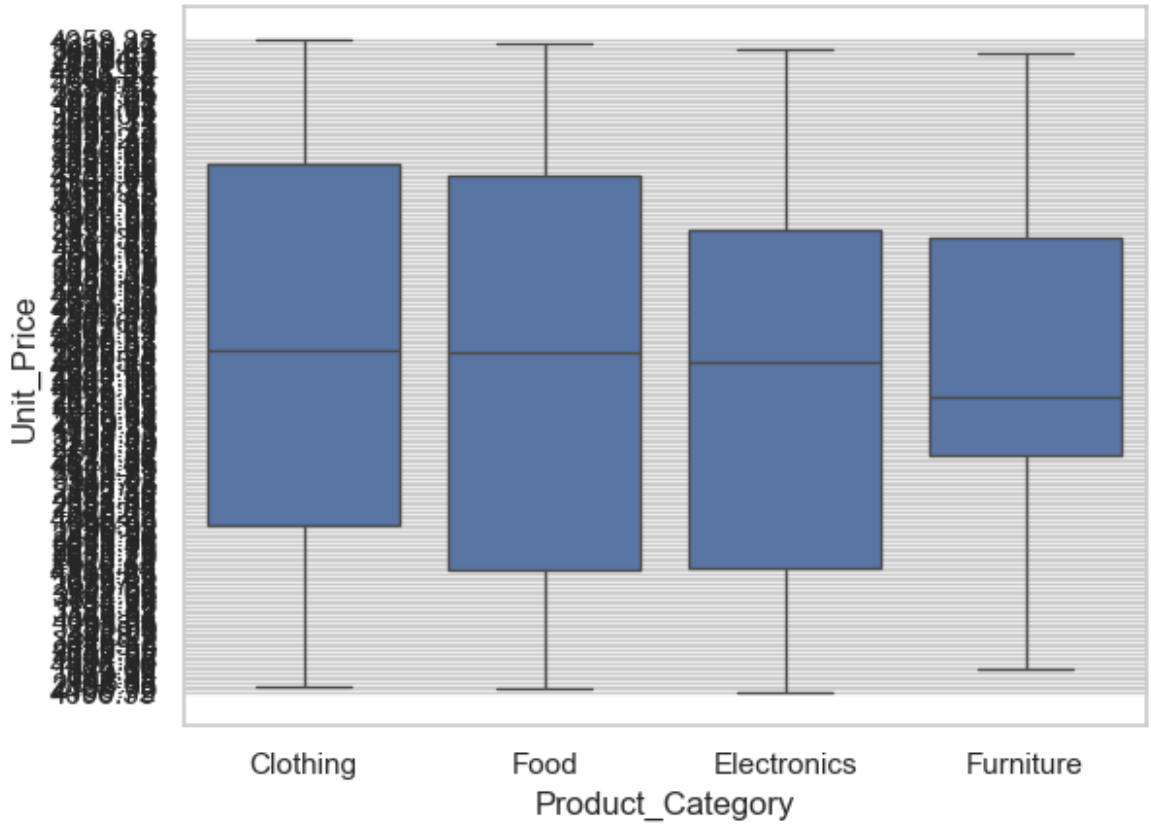
```
Order_ID            199
Customer_Age         46
Gender                3
City                  5
```

```
Product_Category      4
Quantity             10
Unit_Price          199
Discount              4
Payment_Mode          3
Order_Date          199
dtype: int64
```

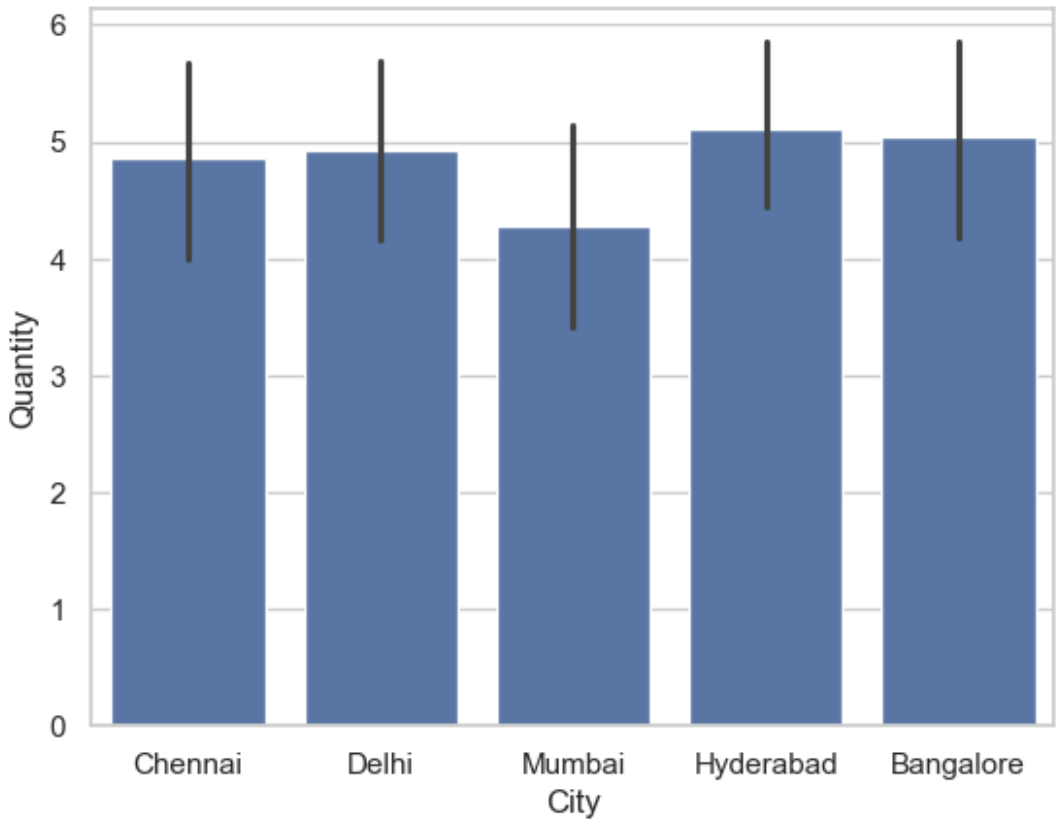
```
sns.set_theme(style="whitegrid")

sns.countplot(x="Gender",data=df)
plt.show()
```



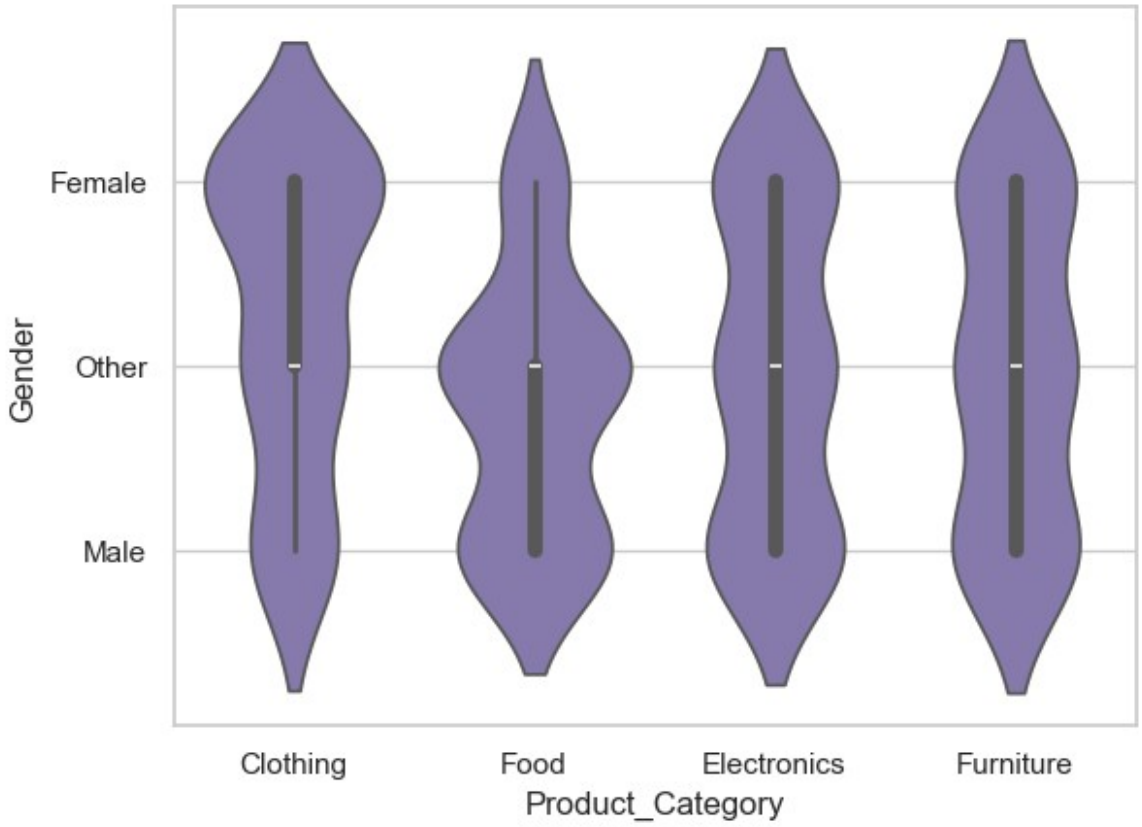

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

sns.boxplot(x="Product_Category" , y="Unit_Price", data=df)
plt.show()
```



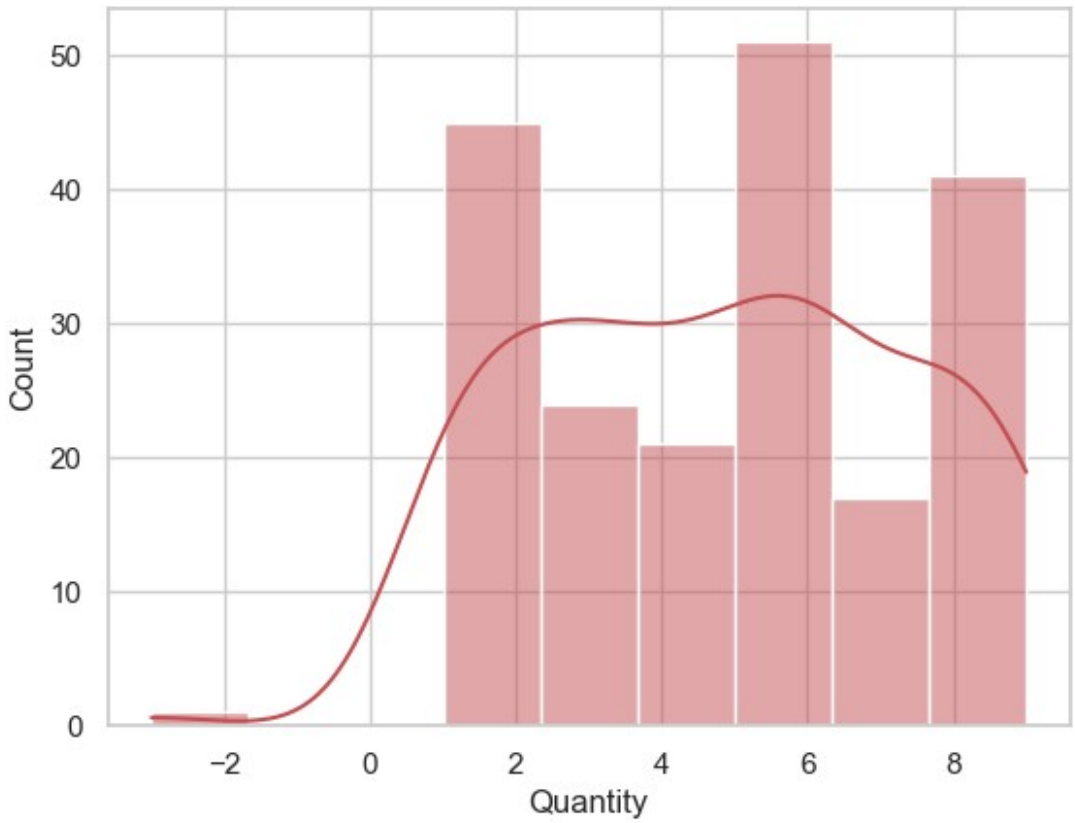

```
sns.barplot(x="City", y ="Quantity", data=df)
plt.show()
```



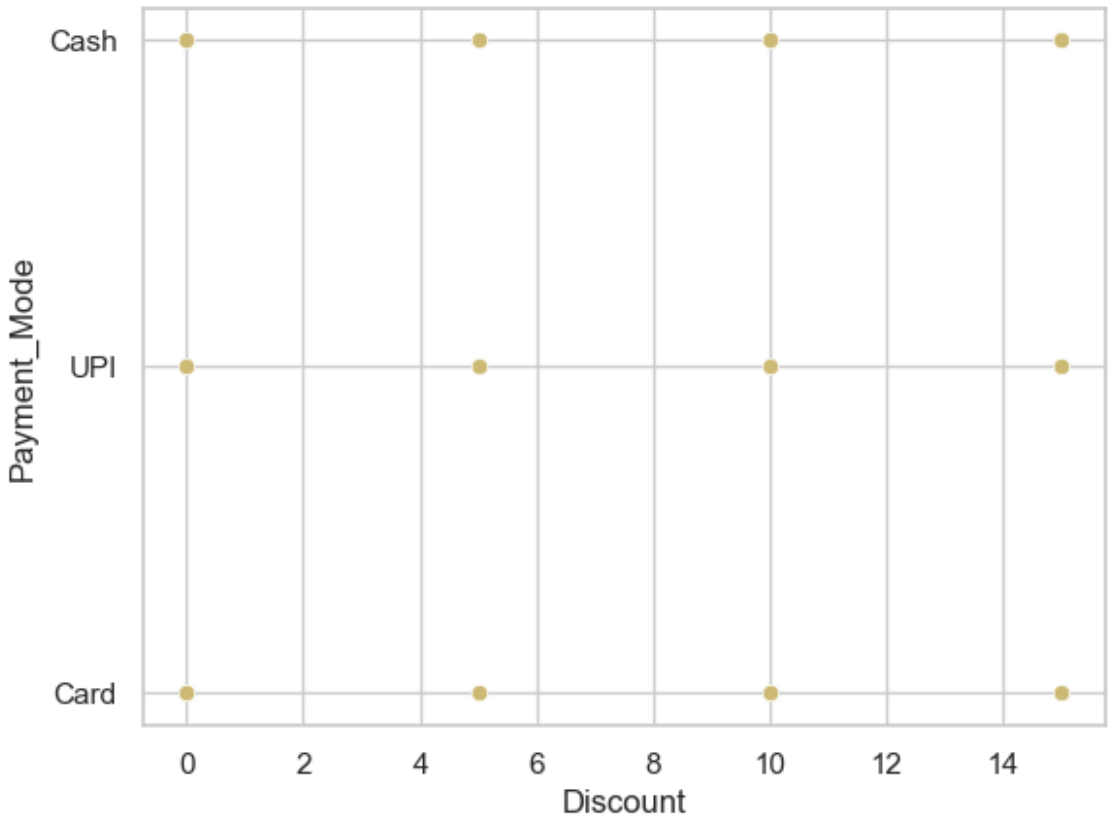

```
sns.violinplot( x="Product_Category", y="Gender", data=df,color='m')
plt.show()
```



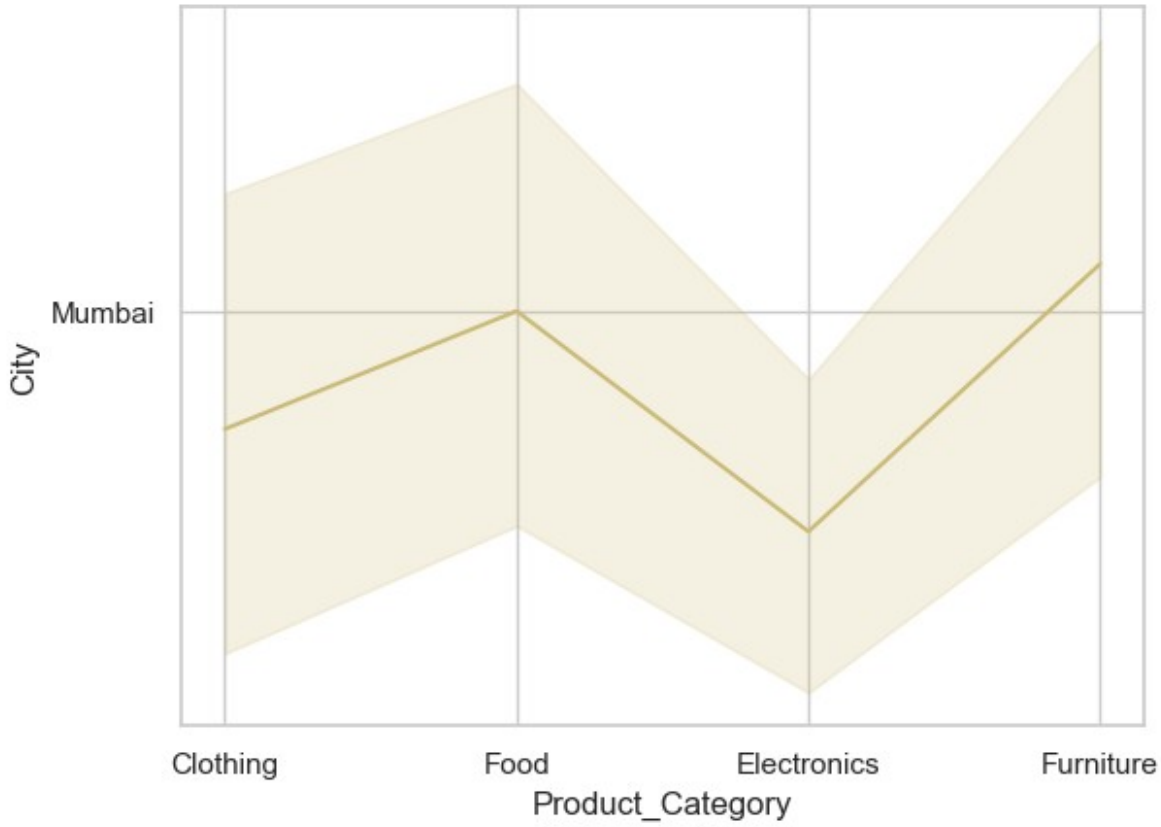

```
sns.histplot(x="Quantity", data=df, kde=True,color='r')

plt.show()
```



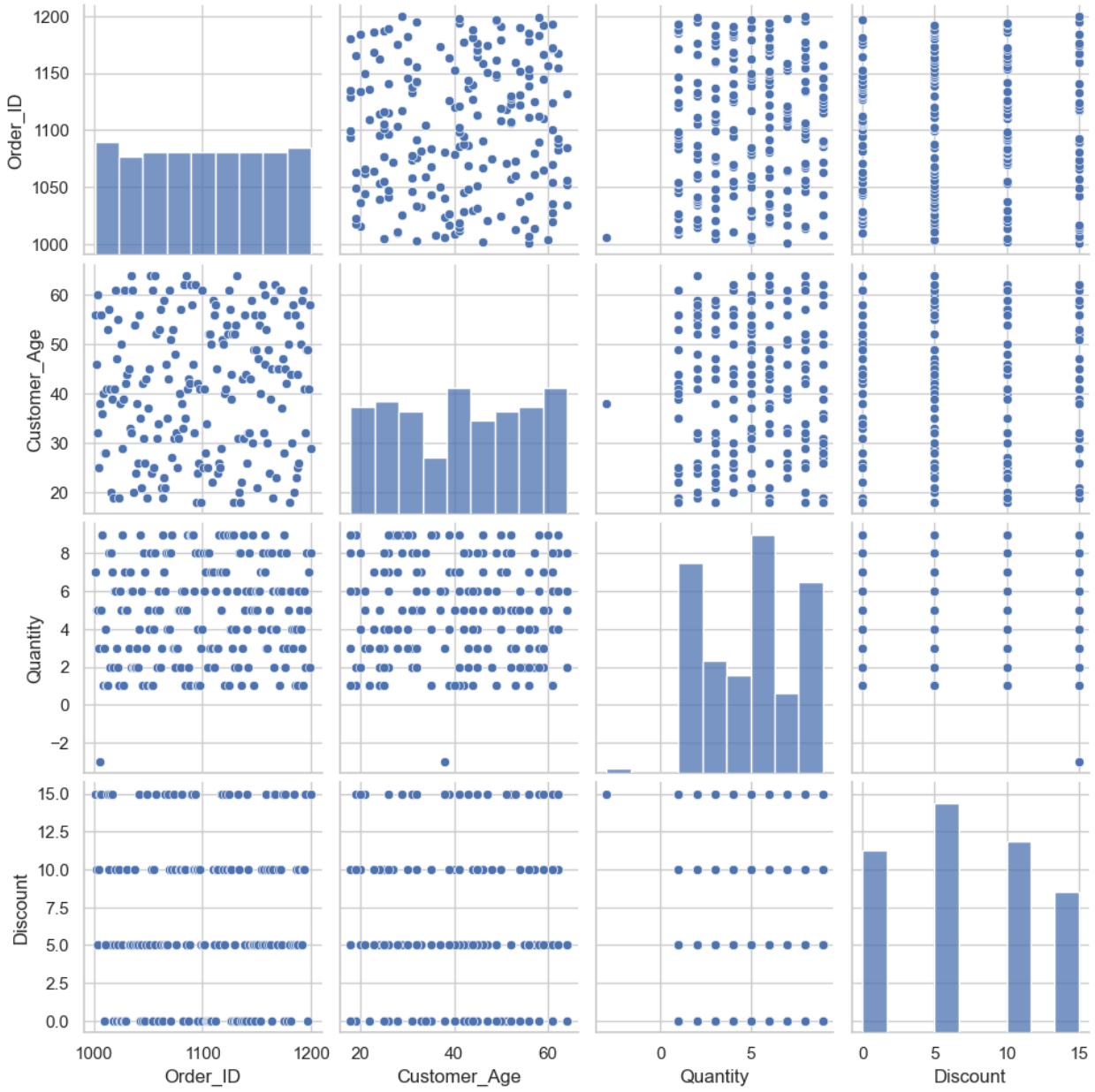

```
sns.scatterplot(x="Discount",y="Payment_Mode", data=df,color="y")
plt.show()
```



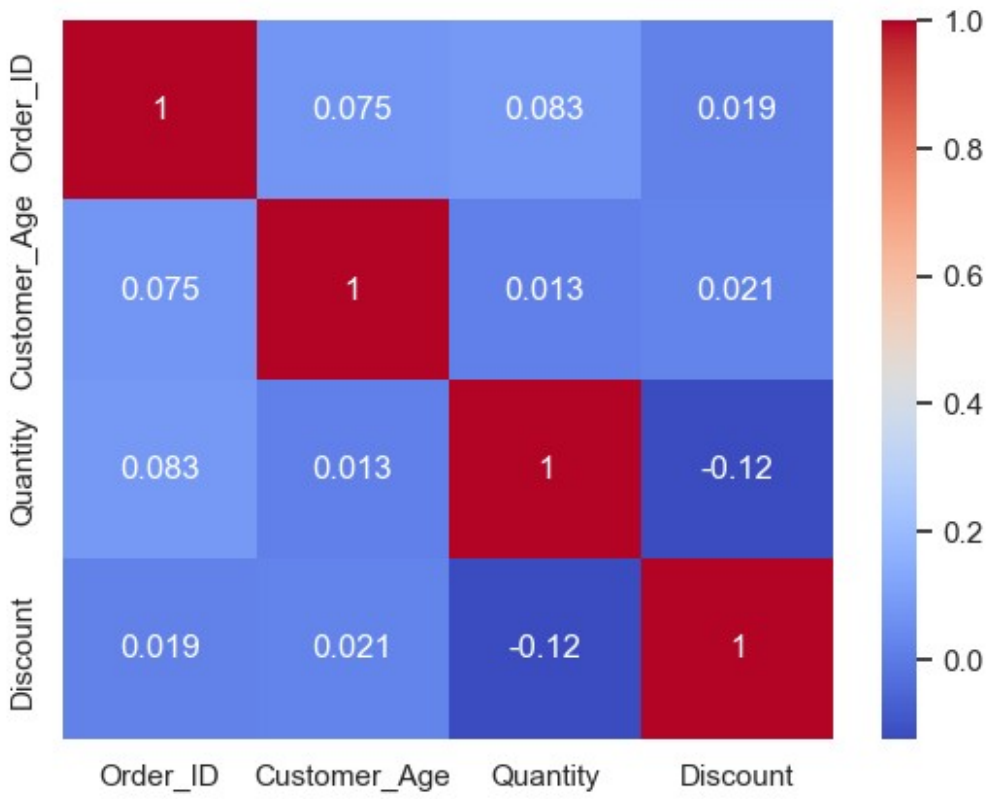

```
sns.lineplot(x="Product_Category", y="City", data=df,color= "y")
plt.show()
```



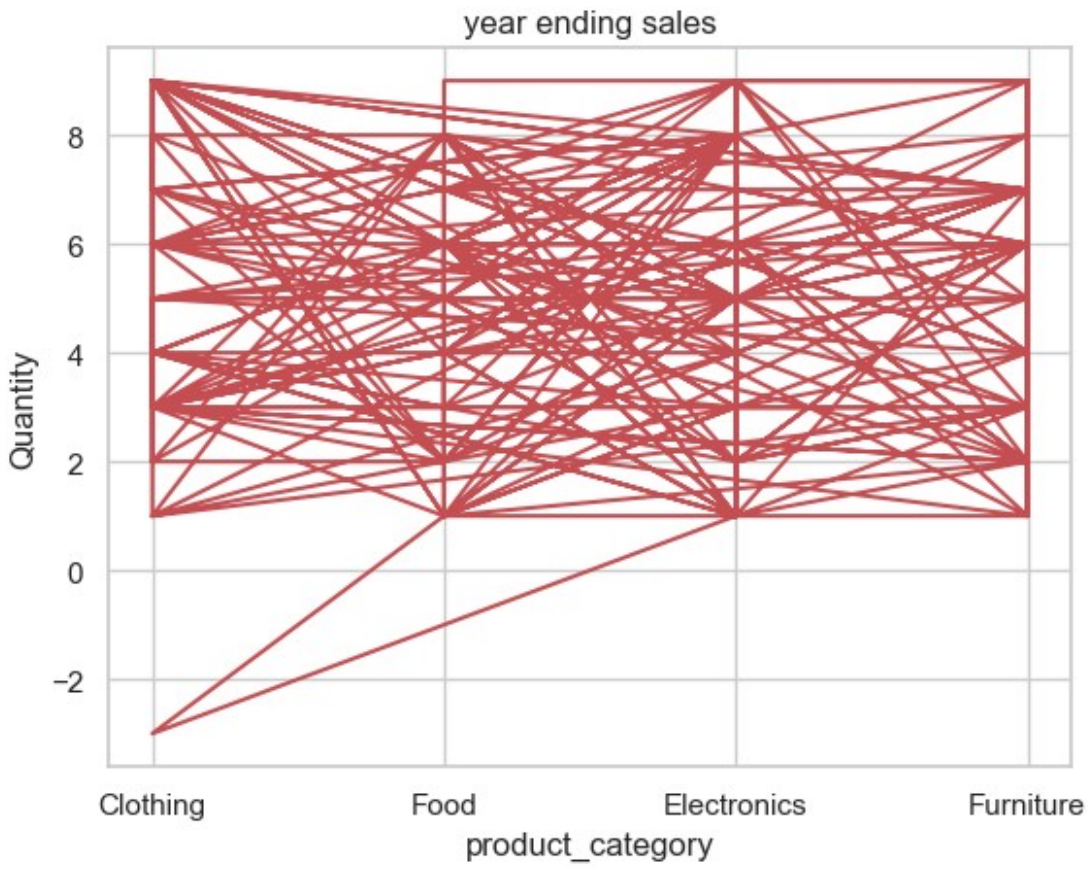

```
sns.pairplot(df.select_dtypes(include="number"))
plt.show()
```




```
corr= df.select_dtypes(include="number").corr()
sns.heatmap(corr, annot =True, cmap="coolwarm")
plt.show()
```

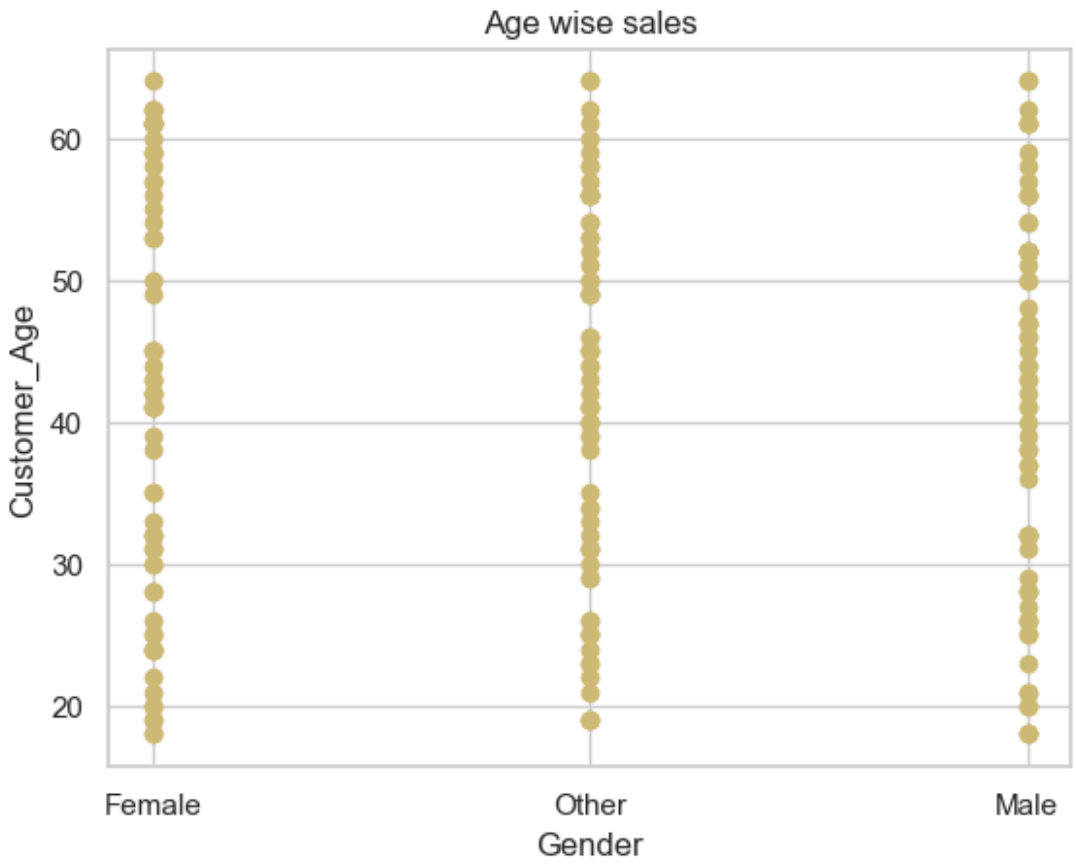



```
#---------------------------Matplotlib-----------------------------#

import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

plt.plot(df["Product_Category"] , df["Quantity"],color="r")
plt.xlabel("product_category")
plt.ylabel("Quantity")
plt.title("year ending sales")
plt.show()
```

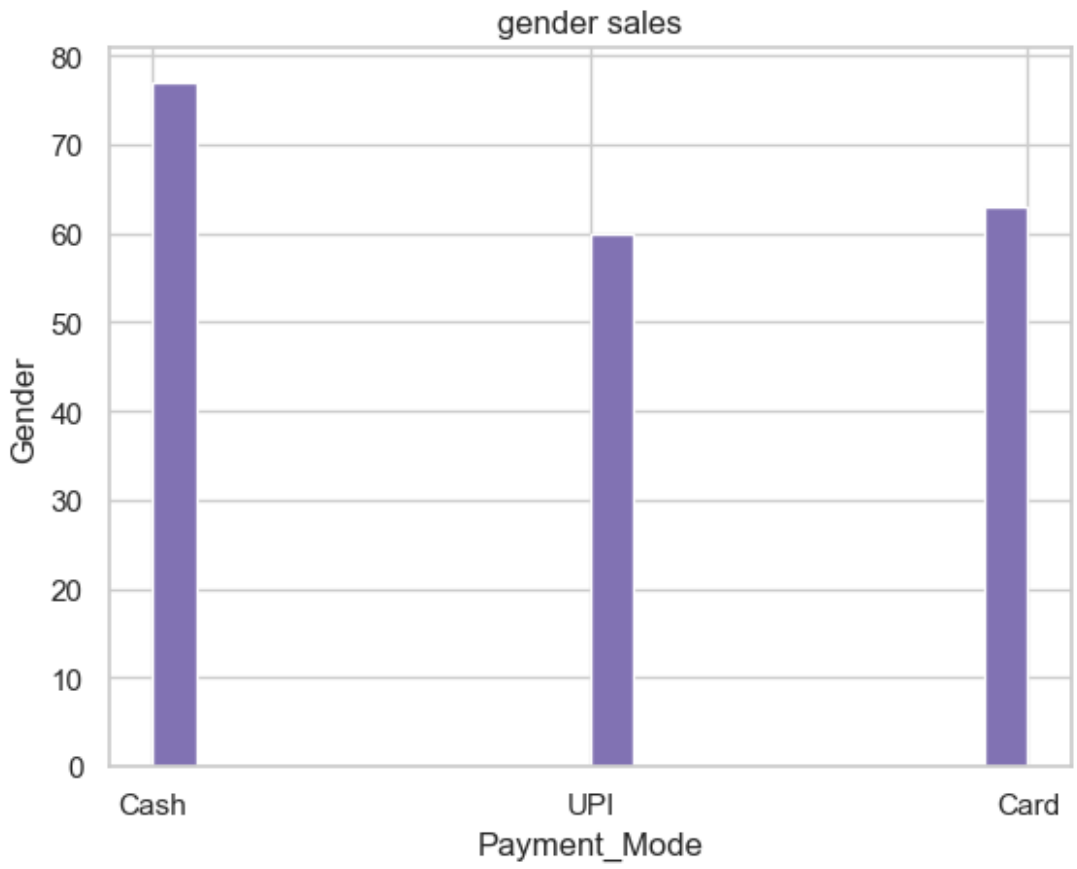



```
plt.bar(df["Unit_Price"] , df["Discount"],color="r")
plt.xlabel("Unit_Price")
plt.ylabel("Discount")
plt.title("year ending discount sales")
plt.show()
```

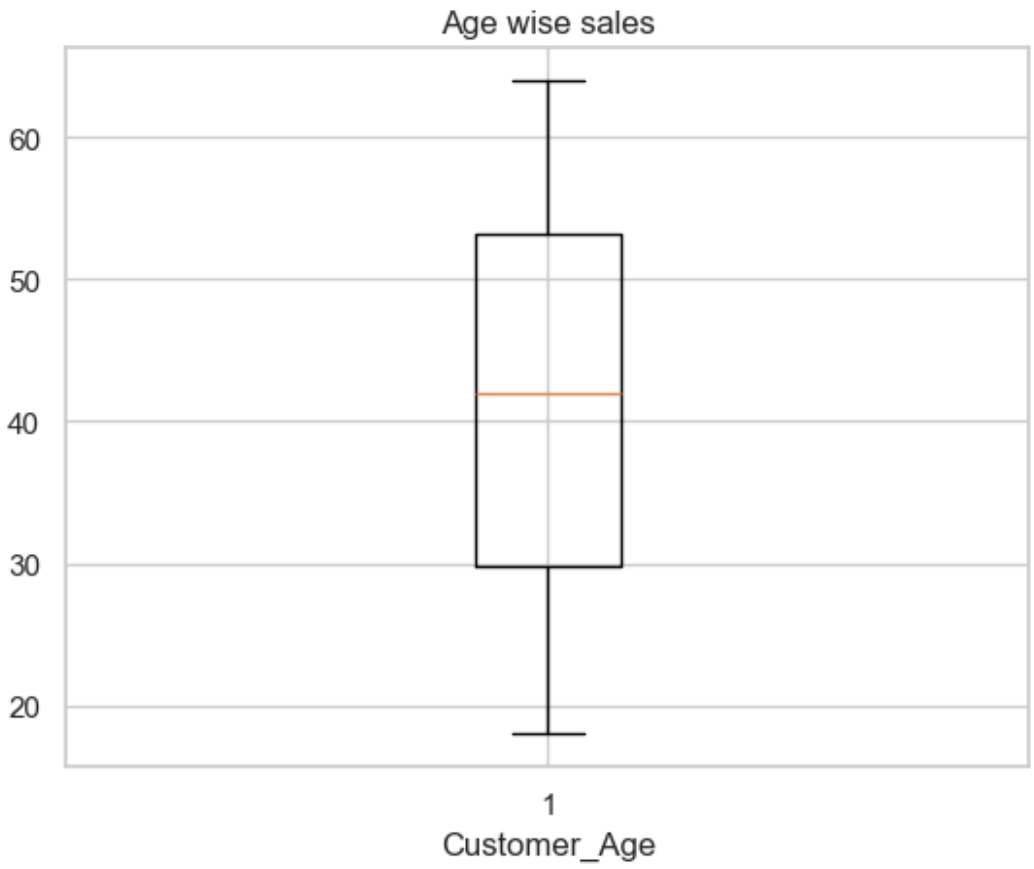

```
plt.scatter(df["Gender"] , df["Customer_Age"],color="y")
plt.xlabel("Gender")
plt.ylabel("Customer_Age")
plt.title("Age wise sales")
plt.show()
```



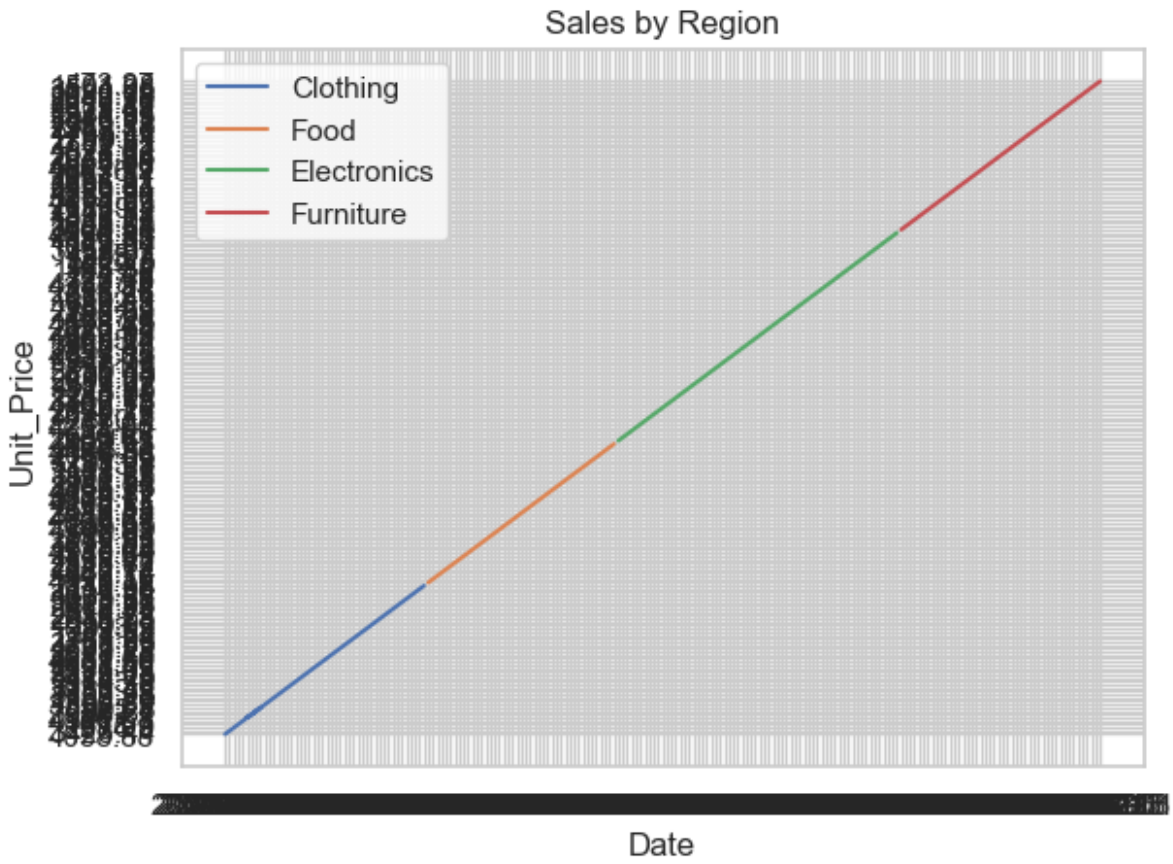

```
plt.hist(df["Payment_Mode"] ,color="m",bins=20)
plt.xlabel("Payment_Mode")
plt.ylabel("Gender")
plt.title("gender sales")
plt.show()
```



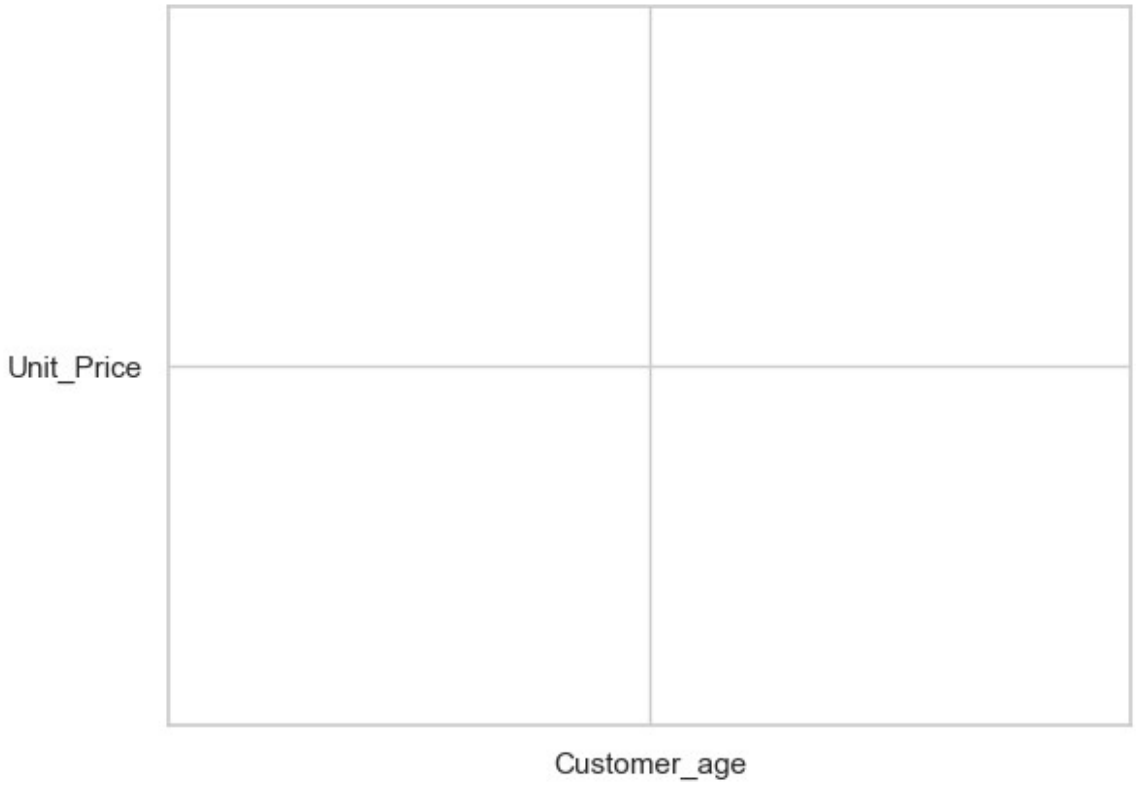

```
plt.boxplot(df["Customer_Age"] )
plt.xlabel("Customer_Age")
plt.title("Age wise sales")
plt.show()
```




```
for region in df["Product_Category"].unique():
    subset = df[df["Product_Category"] == region]
    plt.plot(subset["Order_Date"], subset["Unit_Price"], label=region)

plt.legend()
plt.xlabel("Date")
plt.ylabel("Unit_Price")
plt.title("Sales by Region")
plt.show()
```




```
x=["Customer_age"]
y=["Unit_Price"]

plt.plot(x,y)
plt.show()
plt.fill_between(x,y)
```




```
<matplotlib.collections.FillBetweenPolyCollection at 0x18e3ccddd10>
```

```
plt.savefig("line",dpi=2000,facecolor="g")
```

```
<Figure size 640x480 with 0 Axes>
```

```
plt.hist(df["Payment_Mode"] ,color="m",bins=20)
plt.xlabel("Payment_Mode")
plt.ylabel("Gender")
plt.title("gender sales")
plt.savefig("line",dpi=2000)
plt.show()
```