

The data contains motor sales across a period of 24 months for six cities: Kansas City (KC), Chicago, LittleRock, Houston, OKCity, Omaha, and LittleRock.

Importing libraries and motorsales data preview

```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
import time
df1 = pd.read_csv('motorsales.csv')
```

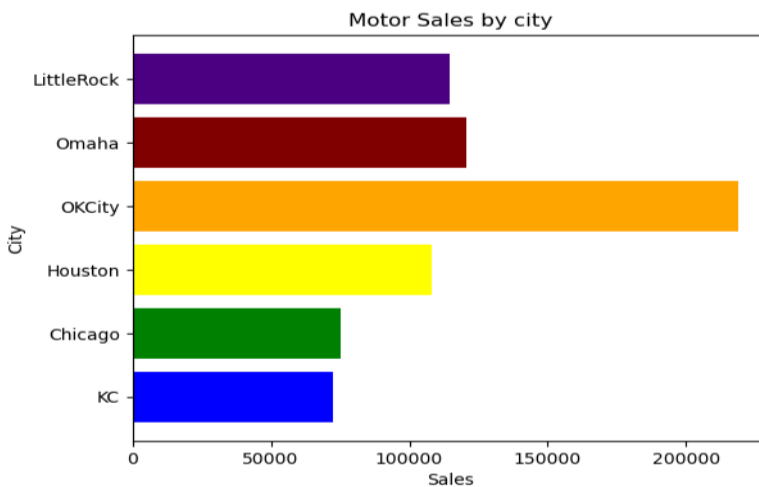
```
df1.head(3)
```

	month	KC	Chicago	Houston	OKCity	Omaha	LittleRock
0	1	3120	2130	3945	14020	5045	4610
1	2	3090	2290	4000	13890	5030	4630
2	3	3140	2405	4105	13785	5075	4650

Horizontal Bar Chart of Sales by City

```
#Horizontal Bar Chart
b = [df1["KC"].sum(), df1["Chicago"].sum(), df1["Houston"].sum(), df1["OKCity"].sum(),
     df1["Omaha"].sum(), df1["LittleRock"].sum()]
labels = ["KC", "Chicago", "Houston", "OKCity", "Omaha", "LittleRock"]
fig, ax = plt.subplots()
ax.barh(range(len(b)), b, label=labels, color= ["blue", "green", "yellow", "Orange", "maroon", "indigo"])
ax.set_xlabel('Sales')
ax.set_ylabel('City')
ax.set_title('Motor Sales by city')
plt.yticks(range(len(b)), labels)
print(time.ctime())
plt.show()
```

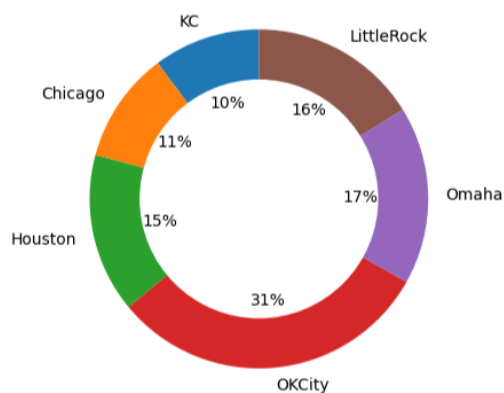
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Donut Chart of total sales by city

```
#Donut chart
e = [df1["KC"].sum(), df1["Chicago"].sum(), df1['Houston'].sum(), df1['OKCity'].sum(),
      df1['Omaha'].sum(), df1['LittleRock'].sum()]
labels = ["KC", "Chicago", "Houston", "OKCity", "Omaha", "LittleRock"]
print(e)
plt.pie(e, labels=labels, autopct='%1.0f%%', shadow=False, startangle=90)
my_circle=plt.Circle( (0,0), 0.7, color='white')
p=plt.gcf()
p.gca().add_artist(my_circle)
plt.show()
print(time.ctime())
```

[72370, 75425, 107950, 218825, 120520, 114700]

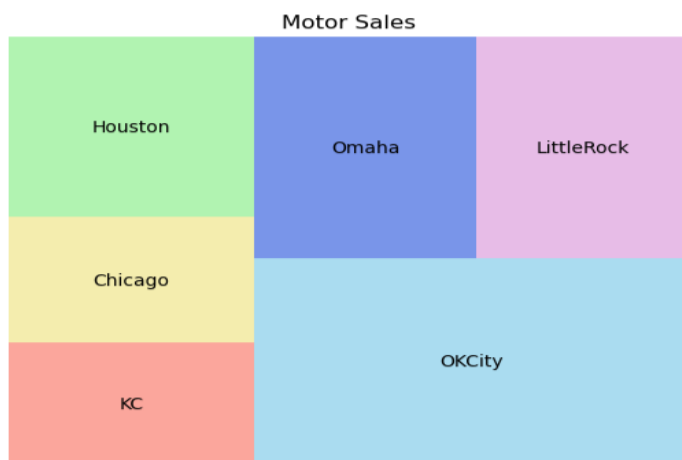


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Treemap of total sales by city

```
# Tree map
import squarify
treemap_data = [df1["KC"].sum(), df1["Chicago"].sum(), df1['Houston'].sum(),
                 df1['OKCity'].sum(), df1['Omaha'].sum(), df1['LittleRock'].sum()]
print(treemap_data)
labels = ["KC", "Chicago", "Houston", "OKCity", "Omaha", "LittleRock"]
colors = ["salmon", "khaki", "lightgreen", "skyblue", "royalblue", "plum"]
squarify.plot(sizes = treemap_data, label = labels,color = colors, alpha = 0.7)
plt.axis('off')
plt.title('Motor Sales')
plt.show()
print(time.ctime())
```

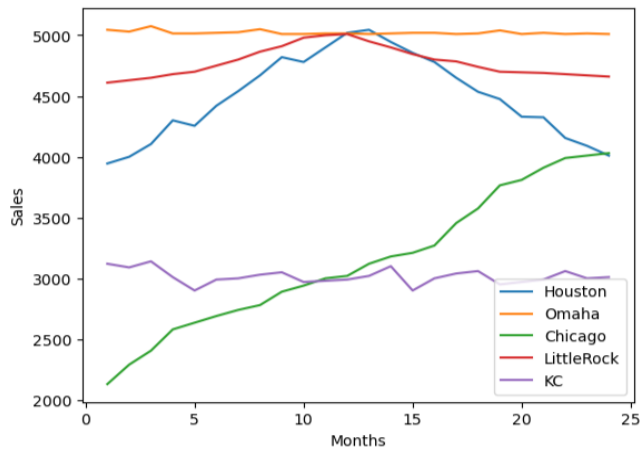
[72370, 75425, 107950, 218825, 120520, 114700]



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Line graphs of the motor sales cities across 24 months

```
# Line graph
Months = df1["month"]
plt.plot(Months, df1["Houston"], label="Houston")
plt.plot(Months, df1["Omaha"], label="Omaha")
plt.plot(Months, df1["Chicago"], label="Chicago")
plt.plot(Months, df1["LittleRock"], label="LittleRock")
plt.plot(Months, df1["KC"], label="KC")
plt.xlabel('Months')
plt.ylabel('Sales')
plt.legend(loc='lower right')
plt.show()
print(time.ctime())
```

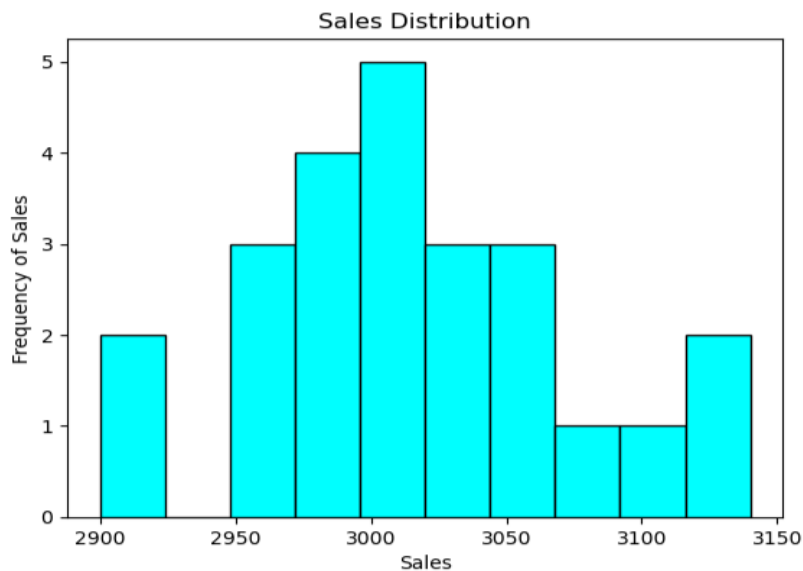


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Histogram of Sales frequency

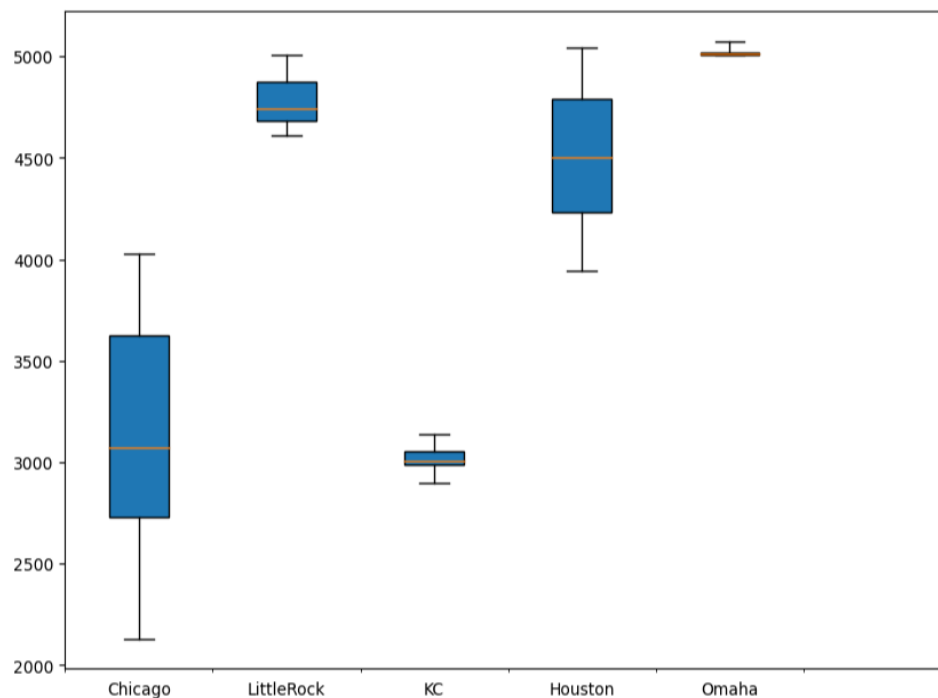
```
#Histogram
df1["KC"].hist(grid=False, edgecolor='black', color = 'cyan')
plt.xlabel('Sales')
plt.ylabel('Frequency of Sales')
plt.title('Sales Distribution')
print(time.ctime())
```

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Boxplots of sales of five cities

```
#Boxplot
box_plot_data = df1["Chicago"], df1["LittleRock"], df1["KC"], df1["Houston"], df1["Omaha"]
fig = plt.figure(figsize=(10, 7))
ax = plt.axes()
bp = ax.boxplot(box_plot_data, sym='r', whis=[0, 100], widths=0.4,
                labels=["Chicago", "LittleRock", "KC", "Houston", "Omaha"], patch_artist=True)
ax.tick_params(axis='x', bottom=False)
xticks = ax.set_xticks(np.arange(len(labels) + 1) + 0.5, minor=True)
plt.show()
print(time.ctime())
```



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Hexagon bin plot

```
#Hexagonal bin plot
df2 = pd.DataFrame(np.random.rand(10000, 2), columns=["a", "b"])
df2.plot.hexbin(x="a", y="b", gridsize=10);
print(time.ctime())
```

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