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

data=pd.read_excel("C:\\Users\\yajat_\\OneDrive\\Desktop\\Shad task\\
demo_dataset.xlsx")
data.head()
```

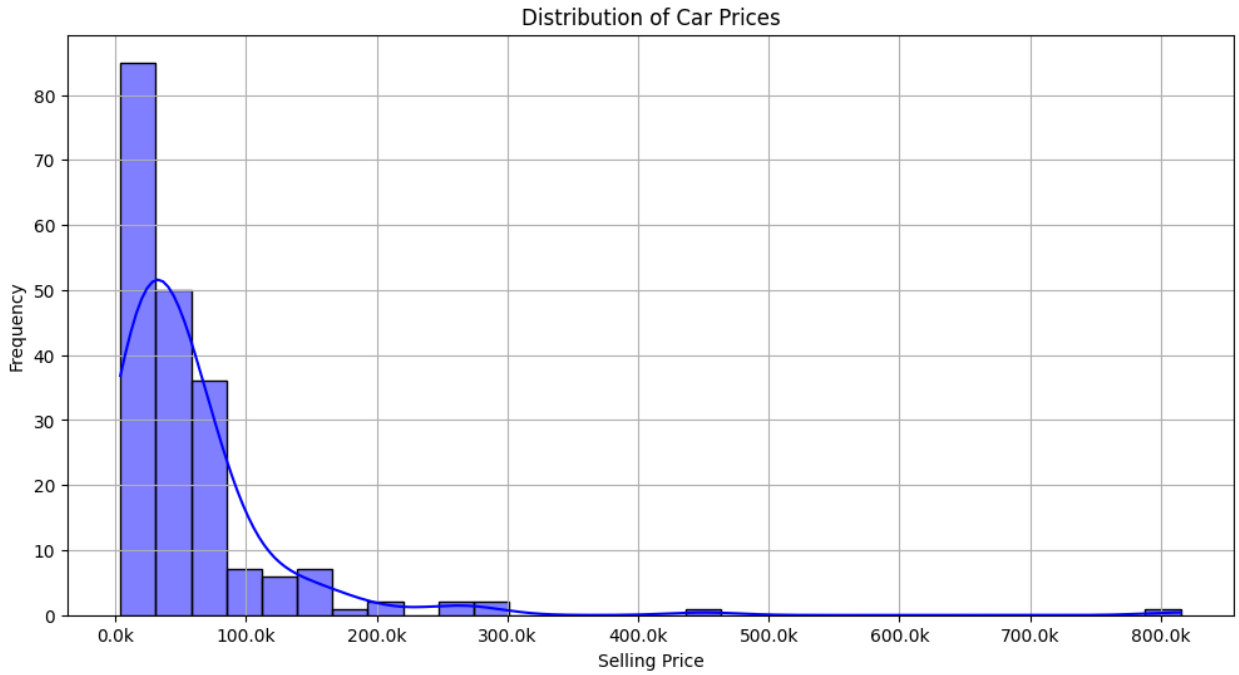
```
                        name  year  selling_price  km_driven    fuel  \
0             Maruti 800 AC  2007          60000      70000  Petrol
1  Maruti Wagon R LXI Minor  2007         135000      50000  Petrol
2      Hyundai Verna 1.6 SX  2012         600000     100000  Diesel
3    Datsun RediGO T Option  2017         250000      46000  Petrol
4     Honda Amaze VX i-DTEC  2014         450000     141000  Diesel

  seller_type transmission         owner
0  Individual       Manual   First Owner
1  Individual       Manual   First Owner
2  Individual       Manual   First Owner
3  Individual       Manual   First Owner
4  Individual       Manual  Second Owner
```

1. Distribution of Car Prices

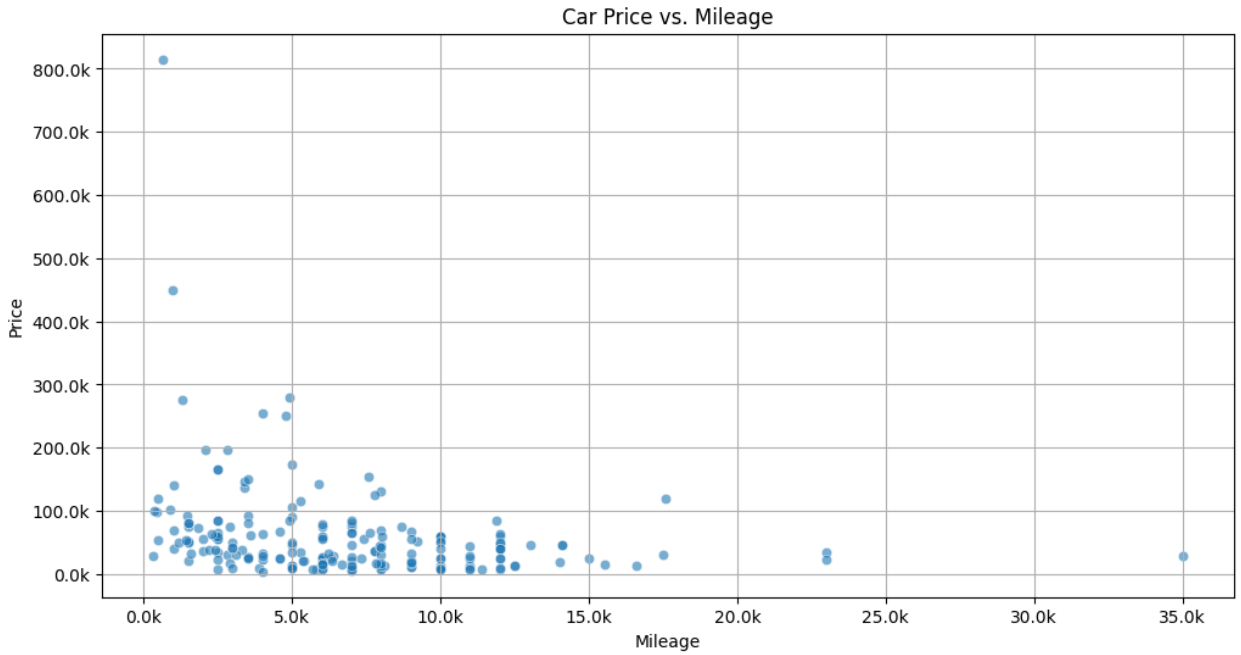
```
import matplotlib.ticker as mticker

plt.figure(figsize=(12, 6))
sns.histplot(data['selling_price'], bins=30, kde=True, color='blue')
plt.title('Distribution of Car Prices')
plt.xlabel('Selling Price')
plt.ylabel('Frequency')
plt.grid()
plt.gca().xaxis.set_major_formatter(mticker.FuncFormatter(lambda x, _:
f'{x/10000:.1f}k'))
plt.show()
```



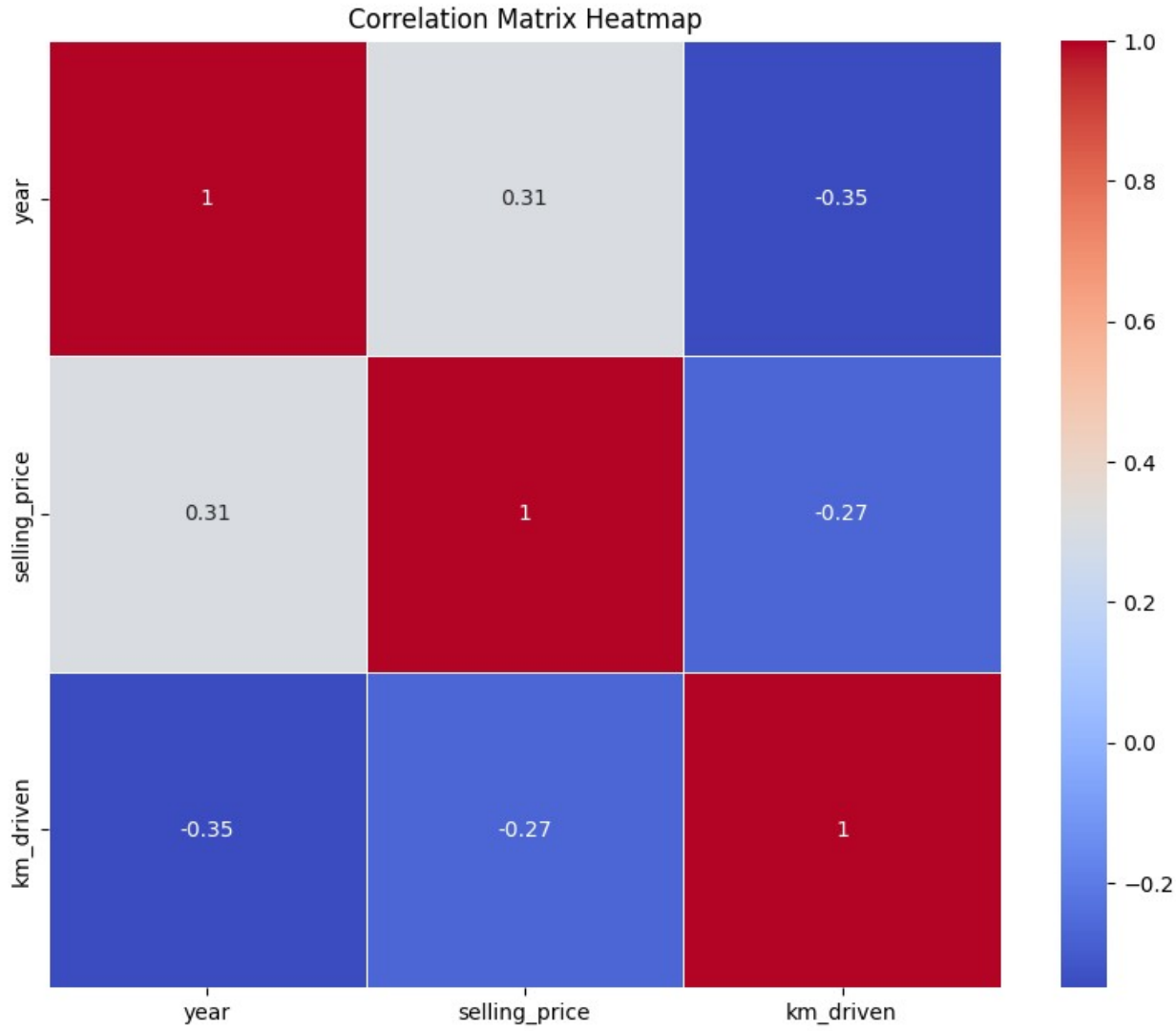
2. Scatterplot between Car Price and Mileage

```
plt.figure(figsize=(12, 6))
sns.scatterplot(x='km_driven', y='selling_price', data=data,
alpha=0.6)
plt.title('Car Price vs. Mileage')
plt.xlabel('Mileage')
plt.ylabel('Price')
plt.grid()
plt.gca().yaxis.set_major_formatter(mticker.FuncFormatter(lambda x, _:
f'{x/10000:.1f}k'))
plt.gca().xaxis.set_major_formatter(mticker.FuncFormatter(lambda x, _:
f'{x/10000:.1f}k'))
plt.show()
```



3. Correlation Between Numerical Features

```
numeric_data = data.select_dtypes(include=['float64', 'int64'])
numeric_data = numeric_data.fillna(0)
correlation_matrix = numeric_data.corr()
plt.figure(figsize=(10, 8))
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm',
linewidths=0.5)
plt.title('Correlation Matrix Heatmap')
plt.show()
```



4. Cars in each price range

```
data['selling_price'] = pd.to_numeric(data['selling_price'],
errors='coerce')

# Drop rows where 'Price' is NaN
data = data.dropna(subset=['selling_price'])

# Define bins and labels for price ranges
bins = [30000, 100000, 500000, 1000000, 1500000,2000000]
labels = ['Budget', 'Affordable', 'Mid-Range', 'High-End', 'Luxury']

# Create a new column for the price range categories
data['Price_Range'] = pd.cut(data['selling_price'], bins=bins,
labels=labels)

# Plotting the count of cars in each price range
```

```
plt.figure(figsize=(12, 6))
sns.countplot(x='Price_Range', data=data, palette='viridis')
plt.title('Number of Cars in Each Price Range')
plt.xlabel('Price Range')
plt.ylabel('Number of Cars')
plt.grid()
plt.show()
```