

## Background and Context

The dataset provided for this project contains detailed sales records of various heavy machinery items . It spans multiple regions and customer industries.

Below are a few examples of some analysis done in the project

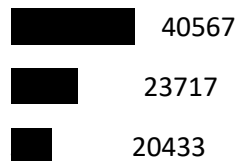
1) Identify the brands with the highest volume of products sold.

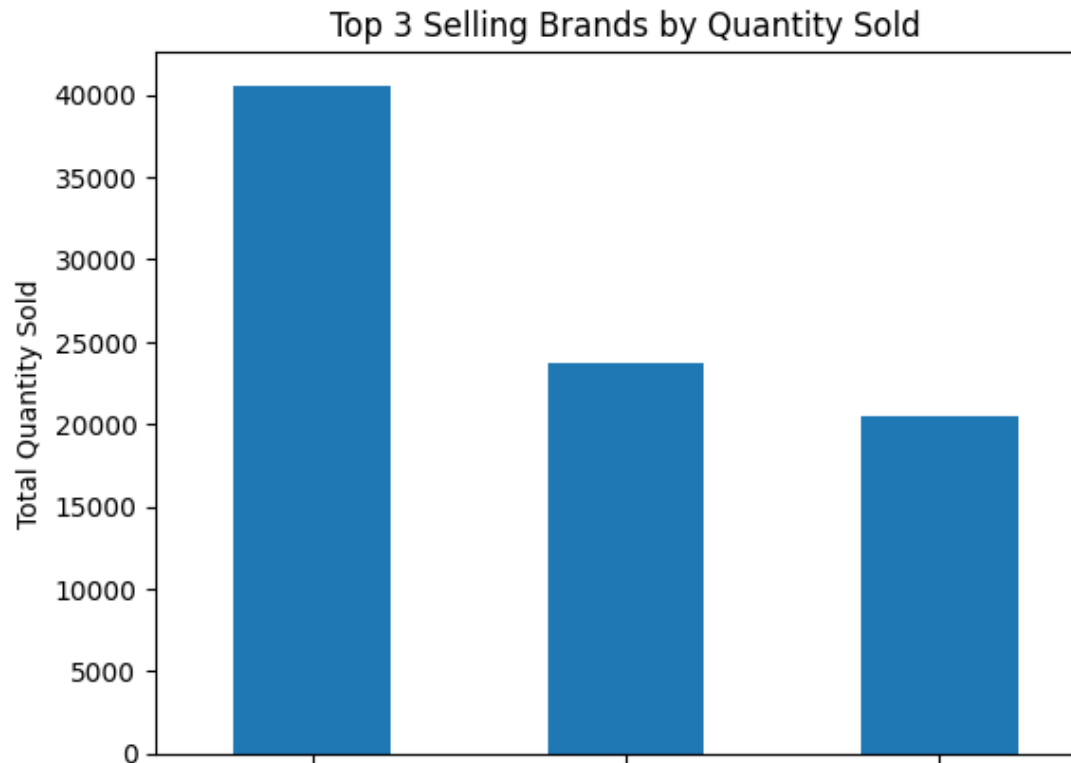
```
import pandas as pd
import matplotlib.pyplot as plt

# Load the dataset
data = pd.read_csv('path_to_file.csv')

# Convert TransactionDate to datetime format
data['TransactionDate'] = pd.to_datetime(data['TransactionDate'])
# Group by Brand, sum the Qty, and select the top 3 brands
top_brands =
data.groupby('Brand')['Qty'].sum().sort_values(ascending=False).head(3
)
top_brands.plot(kind='bar', title='Top 3 Selling Brands by Quantity
Sold', xlabel='Brand', ylabel='Total Quantity Sold')
plt.show()
```

Brand





2) Analyze monthly sales trends over time.

Monthly Sales Trends (2002-2012)

```
import matplotlib.pyplot as plt
```

```
import pandas as pd
```

```
# Create a DataFrame
```

```
df3 = pd.read_csv('path_to_file.csv')
```

```
#Calculate Total Sales
```

```
df3['TotalSales'] = df3['Qty'] * df3['Price']
```

```
# Convert TransactionDate to a datetime format
```

```
df3['TransactionDate'] = pd.to_datetime(df3['TransactionDate'], errors='coerce')
```

```
# Extract year and month from TransactionDate
```

```

df3['Year'] = df3['TransactionDate'].dt.year
df3['Month'] = df3['TransactionDate'].dt.month

# Group by Year and Month and calculate monthly total sales
monthly_sales = df3.groupby(['Year', 'Month'])['TotalSales'].sum().reset_index()

# Display the result
print("Monthly Total Sales:")
print(monthly_sales)

# Set TransactionDate as the index
df3.set_index('TransactionDate', inplace=True)

# Resample data to calculate monthly total sales
monthly_sales = df3['TotalSales'].resample('ME').sum()

# Plot the time series
plt.figure(figsize=(12, 6))
monthly_sales.plot(title="Monthly Total Sales", color='blue')
plt.xlabel("Date")
plt.ylabel("Total Sales")
plt.grid()
plt.show()

```

Monthly Total Sales:

|     | Year | Month | TotalSales |
|-----|------|-------|------------|
| 0   | 2002 | 1     | 49214300   |
| 1   | 2002 | 2     | 44871321   |
| 2   | 2002 | 3     | 48501091   |
| 3   | 2002 | 4     | 49001923   |
| 4   | 2002 | 5     | 50847984   |
| ..  | ...  | ...   | ...        |
| 128 | 2012 | 9     | 46869484   |
| 129 | 2012 | 10    | 49968797   |

130 2012 11 49018870  
131 2012 12 51819114  
132 2013 1 1189200

