

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

```
# Load the Data
df = pd.read_csv('pharmacy_data_sample.csv')
```

```
# explore the data
print(df.info())
print(df.describe())
print(df["Drug_Category"].value_counts())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 8 columns):
#   Column                Non-Null Count  Dtype
---  -
0   Prescription_ID        10 non-null    int64
1   Drug_Name              10 non-null    object
2   Drug_Category          10 non-null    object
3   Quantity               10 non-null    int64
4   Price_per_Unit         10 non-null    float64
5   Patient_Age            10 non-null    int64
6   Prescription_Date      10 non-null    object
7   Total_Cost             10 non-null    float64
dtypes: float64(2), int64(3), object(3)
memory usage: 772.0+ bytes
None
```

	Prescription_ID	Quantity	Price_per_Unit	Patient_Age	Total_Cost
count	10.00000	10.000000	10.000000	10.000000	10.000000
mean	5.50000	39.900000	0.445000	48.700000	17.945000
std	3.02765	29.860602	0.235053	16.041959	18.370484
min	1.00000	6.000000	0.200000	25.000000	4.000000
25%	3.25000	22.000000	0.300000	36.250000	6.375000
50%	5.50000	30.000000	0.375000	47.500000	10.100000
75%	7.75000	52.500000	0.537500	63.250000	17.250000
max	10.00000	90.000000	1.000000	70.000000	54.000000

```
Drug_Category
Antibiotic      2
Blood Pressure  2
Cholesterol      2
Diabetes         1
Painkiller       1
Acid Reducer     1
Diuretic         1
Name: count, dtype: int64
```

```
# Total cost Insights
```

```
print(df.sort_values(by="Total_Cost", ascending=False))
```

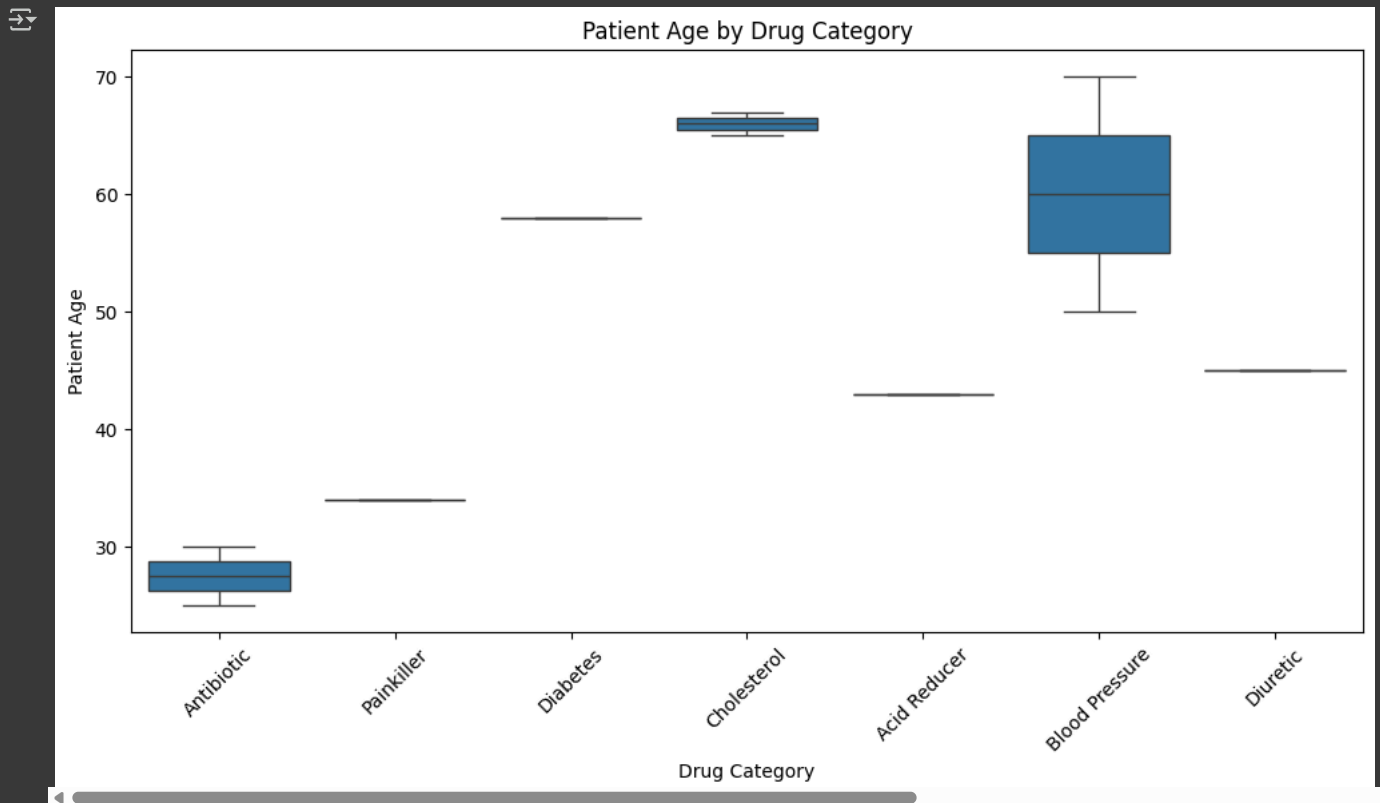
```
Prescription_ID  Drug_Name  Drug_Category  Quantity  \
3                4   Atorvastatin  Cholesterol    90
8                9   Simvastatin  Cholesterol    90
2                3     Metformin    Diabetes     60
0                1  Amoxicillin  Antibiotic     30
4                5   Omeprazole  Acid Reducer    28
6                7   Lisinopril  Blood Pressure   30
5                6  Amlodipine  Blood Pressure   30
7                8  Azithromycin  Antibiotic     6
9               10  Hydrochlorothiazide  Diuretic    15
1                2     Ibuprofen  Painkiller     20
```

	Price_per_Unit	Patient_Age	Prescription_Date	Total_Cost
3	0.60	65	2024-12-04	54.00
8	0.55	67	2024-12-09	49.50
2	0.30	58	2024-12-03	18.00
0	0.50	25	2024-12-01	15.00
4	0.40	43	2024-12-05	11.20
6	0.30	50	2024-12-07	9.00
5	0.25	70	2024-12-06	7.50
7	1.00	30	2024-12-08	6.00
9	0.35	45	2024-12-10	5.25
1	0.20	34	2024-12-02	4.00

```
# Age vs Drug Category
```

```
plt.figure(figsize=(10, 6))
sns.boxplot(data=df, x="Drug_Category", y="Patient_Age")
plt.title("Patient Age by Drug Category")
plt.xlabel("Drug Category")
```

```
plt.ylabel("Patient Age")
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```

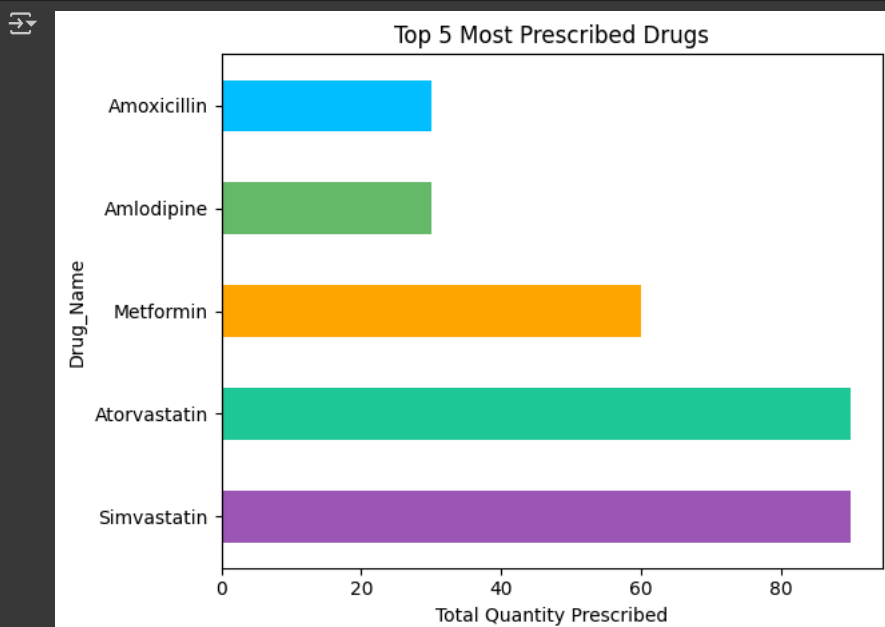


```
colors = {
    'Amoxicillin': '#00bfff',
    'Amlodipine': '#66bb6a',
    'Metformin': '#ffa500',
    'Atorvastatin': '#20c997',
    'Simvastatin': '#9b59b6'
}

# Map the colors based on drug names
drug_colors = [colors[drug] for drug in top_drugs.index]

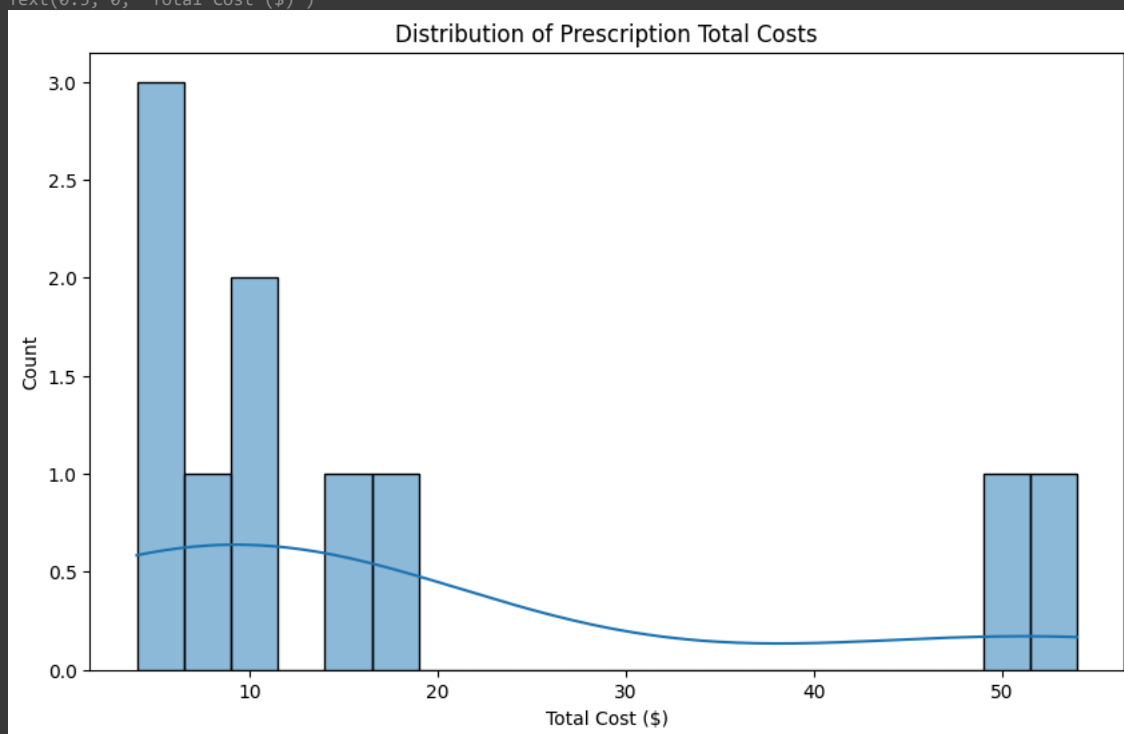
# Plot
top_drugs.plot(kind='barh',
               title="Top 5 Most Prescribed Drugs",
               color=drug_colors)

plt.xlabel("Total Quantity Prescribed")
plt.tight_layout()
plt.show()
```



```
# Plot 3: Total Cost Distribution
plt.figure(figsize=(10, 6))
sns.histplot(df["Total_Cost"], bins=20, kde=True)
plt.title("Distribution of Prescription Total Costs")
plt.xlabel("Total Cost ($)")
```

↗ Text(0.5, 0, 'Total Cost (\$)')



```
# Business Insight added at the end of the notebook
Insight = """
Pharmacies can can lower patient burden by:
- Recommending alternatives for high-cost prescriptions.
- Offering age-specific consultation for high-risk Medical drugs
- Stocking the top 5 mostly prescribed drugs to avoid the shortages
"""
print(Insight)
```

↗ Pharmacies can can lower patient burden by:

- Recommending alternatives for high-cost prescriptions.
- Offering age-specific consultation for high-risk Medical drugs
- Stocking the top 5 mostly prescribed drugs to avoid the shortages