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

Load Data

```
customers = pd.read_csv('../Customers.csv')
transactions = pd.read_csv('../Transactions.csv')

print(customers.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 200 entries, 0 to 199
Data columns (total 4 columns):
 #   Column        Non-Null Count  Dtype 
---  ------        --------------  ----- 
 0   CustomerID    200 non-null    object
 1   CustomerName  200 non-null    object
 2   Region        200 non-null    object
 3   SignupDate    200 non-null    object
dtypes: object(4)
memory usage: 6.4+ KB
None
```

```
print(transactions.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1000 entries, 0 to 999
Data columns (total 7 columns):
 #   Column           Non-Null Count  Dtype  
---  ------           --------------  -----  
 0   TransactionID    1000 non-null   object 
 1   CustomerID       1000 non-null   object 
 2   ProductID        1000 non-null   object 
 3   TransactionDate  1000 non-null   object 
 4   Quantity         1000 non-null   int64  
 5   TotalValue       1000 non-null   float64
 6   Price            1000 non-null   float64
dtypes: float64(2), int64(1), object(4)
memory usage: 54.8+ KB
None
```

Checking Missing Values

```
print(customers.isnull().sum())
```

```
CustomerID      0
CustomerName    0
Region          0
```

```
SignupDate      0
dtype: int64

print(transactions.isnull().sum())

TransactionID      0
CustomerID         0
ProductID          0
TransactionDate    0
Quantity           0
TotalValue         0
Price              0
dtype: int64
```

Merge data

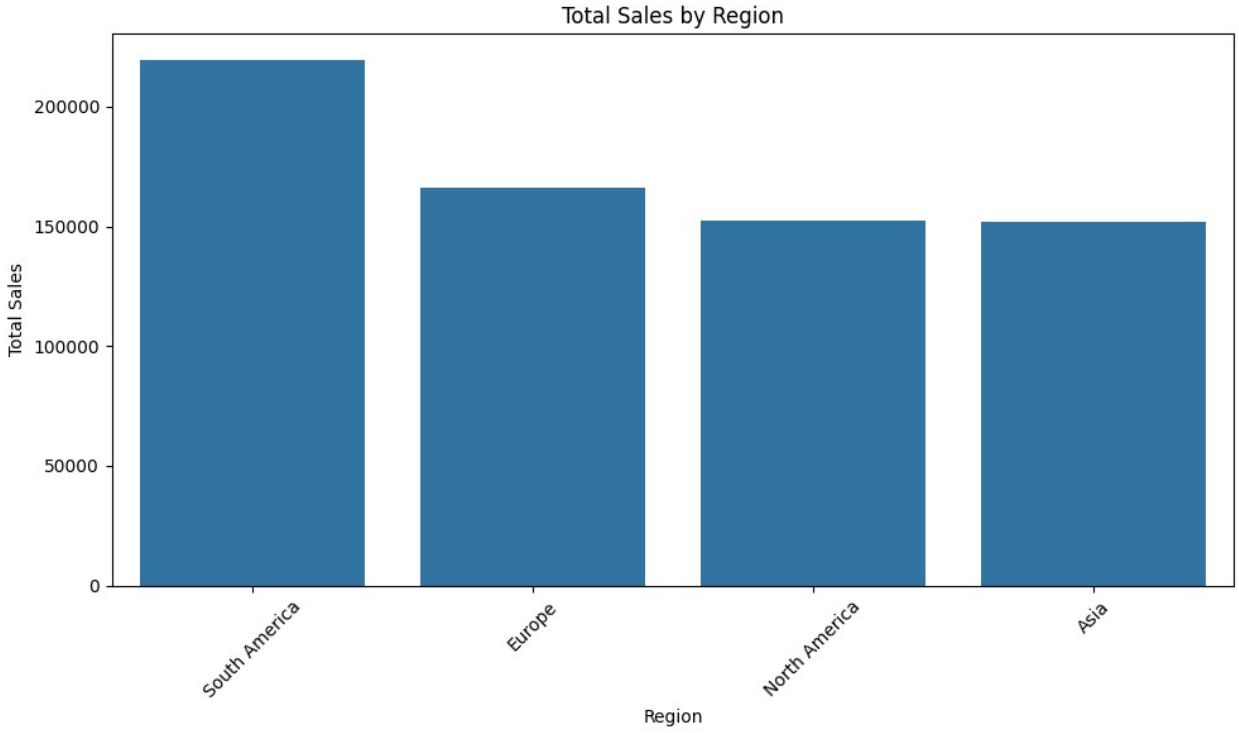
```
merged_data = pd.merge(transactions, customers, on='CustomerID',
how='inner')

region_sales = merged_data.groupby('Region')
['TotalValue'].sum().sort_values(ascending=False)
print(region_sales)

Region
South America    219352.56
Europe           166254.63
North America    152313.40
Asia             152074.97
Name: TotalValue, dtype: float64
```

Visualize Data

```
plt.figure(figsize=(10, 6))
sns.barplot(x=region_sales.index, y=region_sales.values)
plt.title('Total Sales by Region')
plt.xlabel('Region')
plt.ylabel('Total Sales')
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```


Total Sales by Region
Total Sales
200000
150000
100000
50000
0
South America
Europe
North America
Asia
Region