| **EXP:2**  **30/01/2025** | **VISUALIZING TIME SERIES DATA** |
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**AIM:**

To Implement programs for visualizing time series data

**PROCEDURE:**

1. **Bar Plot**

**import pandas as pd**

**import matplotlib.pyplot as plt**

**import seaborn as sns**

**# Load the dataset**

**file\_path = "monthly-beer.csv"**

**df = pd.read\_csv(file\_path)**

**# Convert 'Month' to datetime for proper plotting**

**df["Month"] = pd.to\_datetime(df["Month"])**

**# Set plot style**

**sns.set\_theme(style="darkgrid")**

**# Create figure**

**plt.figure(figsize=(10, 6))**

**plt.title("Bar Plot: Yearly Beer Production")**

**# Bar plot**

**sns.barplot(x=df["Month"].dt.year, y=df["Monthly beer production"], ci=None)**

**plt.xlabel("Year")**

**plt.ylabel("Beer Production")**

**plt.xticks(rotation=45)**

**plt.show()**

**2)Line Plot**

**import pandas as pd**

**import matplotlib.pyplot as plt**

**import seaborn as sns**

**# Load the dataset**

**file\_path = "monthly-beer.csv"**

**df = pd.read\_csv(file\_path)**

**# Convert 'Month' to datetime for proper plotting**

**df["Month"] = pd.to\_datetime(df["Month"])**

**# Set plot style**

**sns.set\_theme(style="darkgrid")**

**# Create figure**

**plt.figure(figsize=(10, 6))**

**plt.title("Line Plot: Monthly Beer Production Over Time")**

**# Line plot**

**sns.lineplot(x=df["Month"], y=df["Monthly beer production"])**

**plt.xlabel("Month")**

**plt.ylabel("Beer Production")**

**plt.xticks(rotation=45)**

**plt.show()**

**3)Scatter Plot**

**import pandas as pd**

**import matplotlib.pyplot as plt**

**import seaborn as sns**

**# Load the dataset**

**file\_path = "monthly-beer.csv"**

**df = pd.read\_csv(file\_path)**

**# Convert 'Month' to datetime for proper plotting**

**df["Month"] = pd.to\_datetime(df["Month"])**

**# Set plot style**

**sns.set\_theme(style="darkgrid")**

**# Create figure**

**plt.figure(figsize=(10, 6))**

**plt.title("Scatter Plot: Monthly Beer Production Over Time")**

**# Scatter plot**

**sns.scatterplot(x=df["Month"], y=df["Monthly beer production"])**

**plt.xlabel("Month")**

**plt.ylabel("Beer Production")**

**plt.xticks(rotation=45)**

**plt.show()**

**4)Histogram Plot**

**import pandas as pd**

**import matplotlib.pyplot as plt**

**import seaborn as sns**

**# Load the dataset**

**file\_path = "monthly-beer.csv"**

**df = pd.read\_csv(file\_path)**

**# Convert 'Month' to datetime for proper plotting**

**df["Month"] = pd.to\_datetime(df["Month"])**

**# Set plot style**

**sns.set\_theme(style="darkgrid")**

**# Create figure**

**plt.figure(figsize=(10, 6))**

**plt.title("Histogram: Distribution of Monthly Beer Production")**

**# Histogram**

**sns.histplot(df["Monthly beer production"], bins=20, kde=True)**

**plt.xlabel("Beer Production")**

**plt.ylabel("Frequency")**

**plt.show()**

**5)Box Plot**

**import pandas as pd**

**import matplotlib.pyplot as plt**

**import seaborn as sns**

**# Load the dataset**

**file\_path = "monthly-beer.csv"**

**df = pd.read\_csv(file\_path)**

**# Convert 'Month' to datetime for proper plotting**

**df["Month"] = pd.to\_datetime(df["Month"])**

**# Set plot style**

**sns.set\_theme(style="darkgrid")**

**# Create figure**

**plt.figure(figsize=(10, 6))**

**plt.title("Box Plot: Distribution of Monthly Beer Production")**

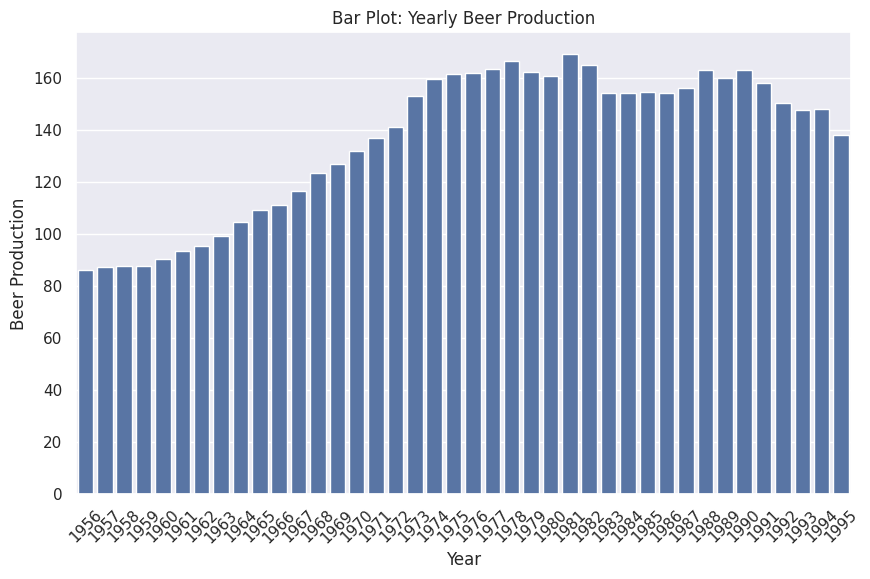
**# Box plot**

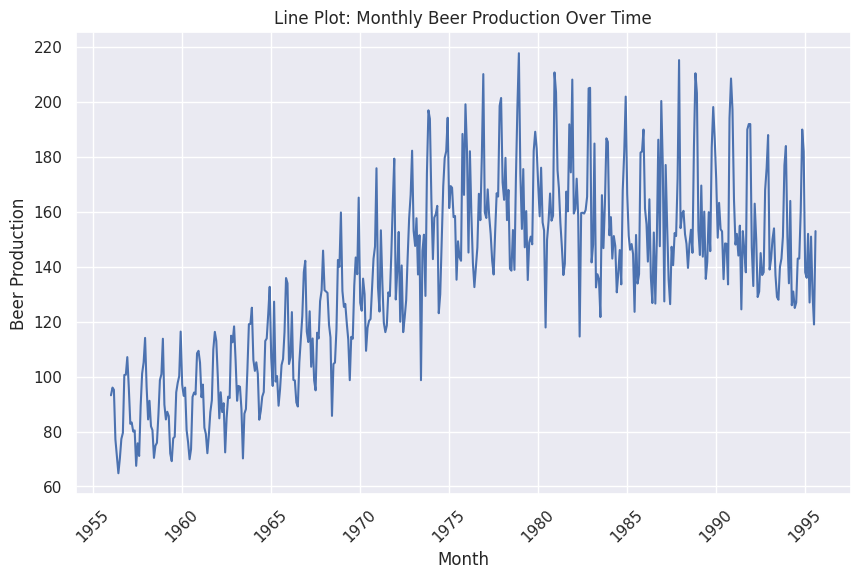
**sns.boxplot(y=df["Monthly beer production"])**

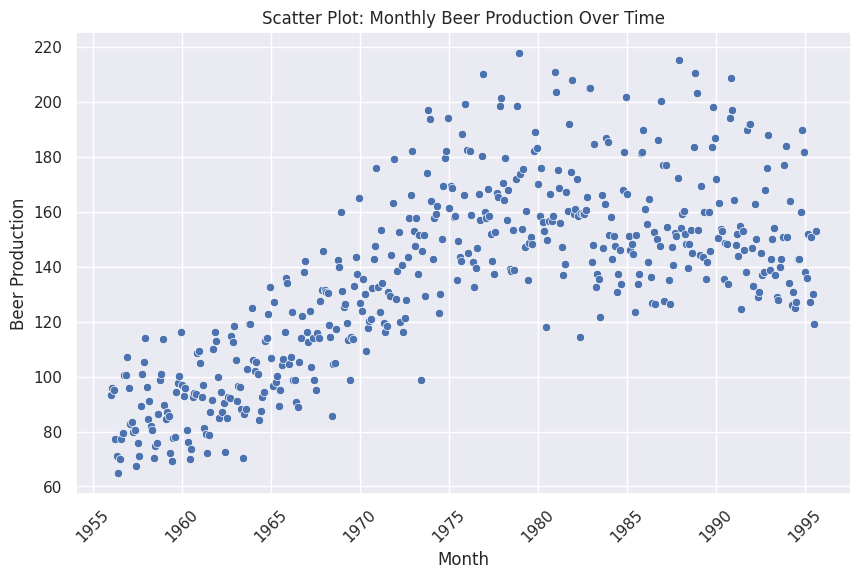
**plt.ylabel("Beer Production")**

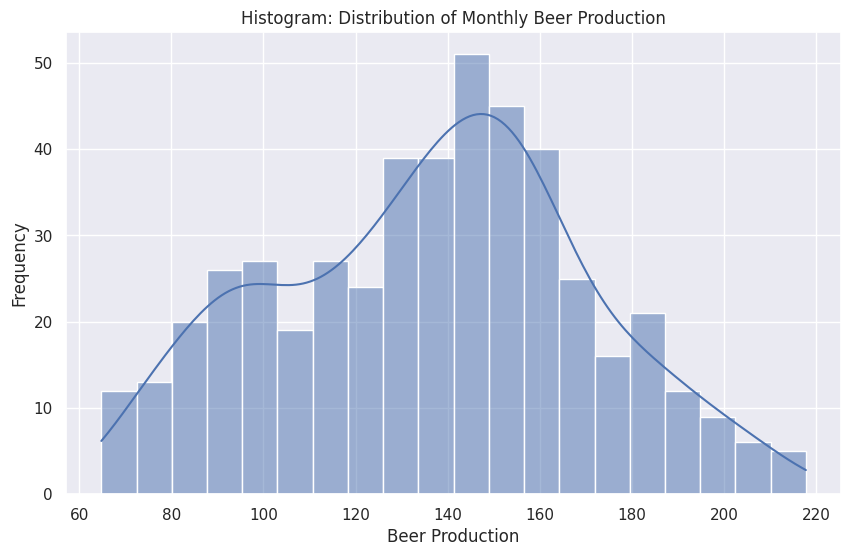
**plt.show()**

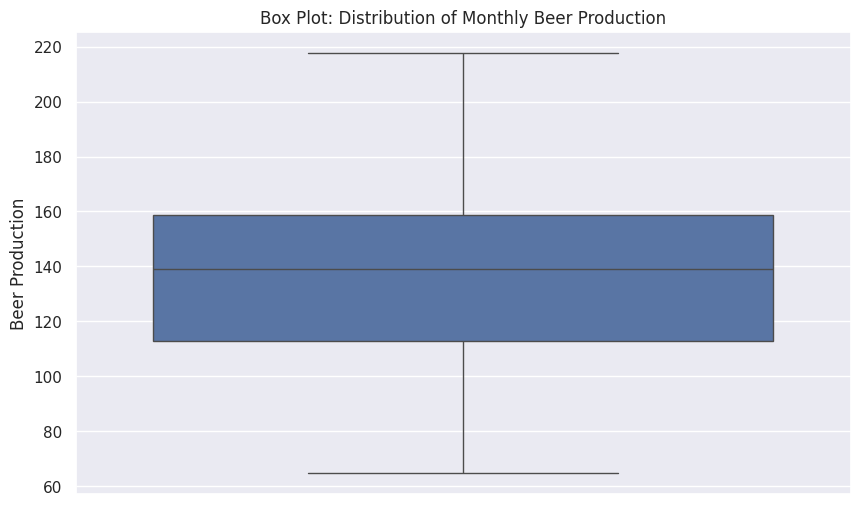
**OUTPUT:**

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**RESULT:**

Thus the program has been executed successfully.