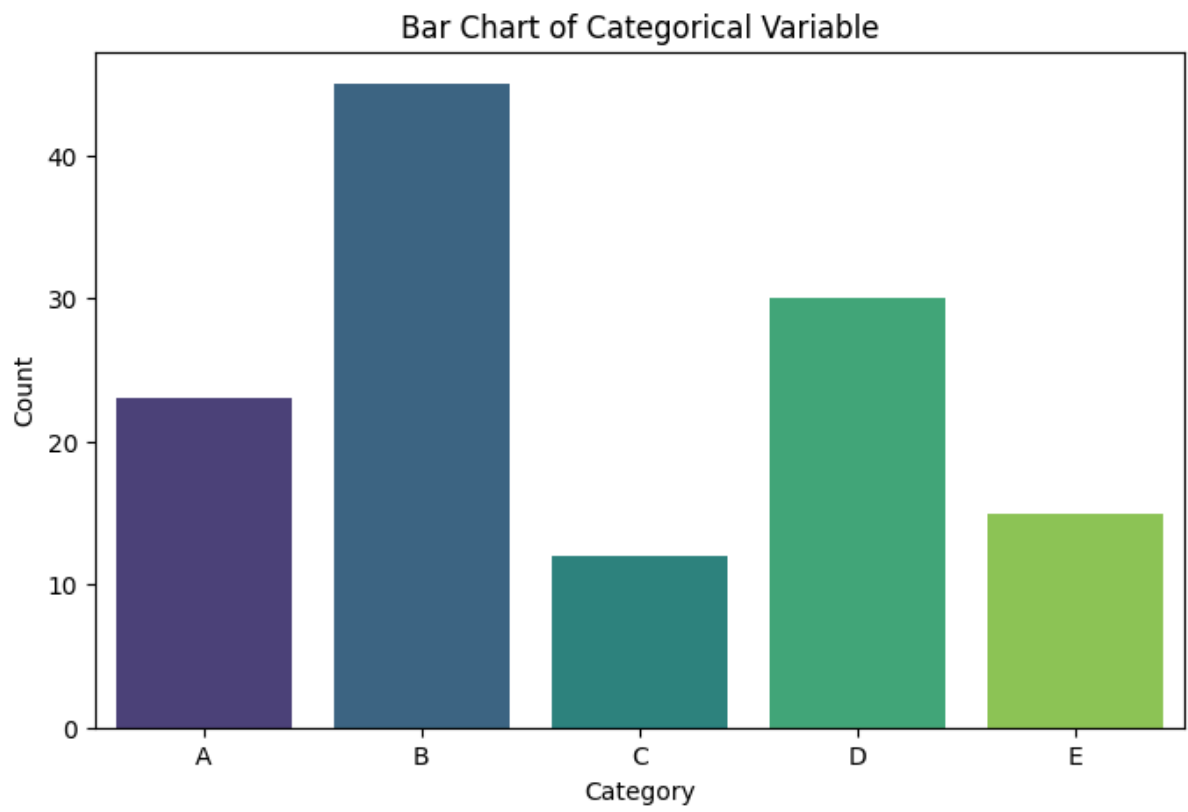# BAR CHART OF CATEGORICAL VARIABLE:

```python
import matplotlib.pyplot as plt
import seaborn as sns
import pandas as pd
# Sample categorical data
data = {
'Category': ['A', 'B', 'C', 'D', 'E'],
'Count': [23, 45, 12, 30, 15]
}
# Create a DataFrame
cat_df = pd.DataFrame(data)
# Set the figure size
plt.figure(figsize=(8, 5))
# Create the bar chart
sns.barplot(x='Category', y='Count', data=cat_df, palette='viridis')
# Add titles and labels
plt.title('Bar Chart of Categorical Variable')
plt.xlabel('Category')
plt.ylabel('Count')
# Show the plot
plt.show()
```

HISTOGRAM OF CATEGORICAL VARIABLE:

```python
import matplotlib.pyplot as plt
import pandas as pd
import numpy as np
# Sample categorical data
data = {
'Category': ['A', 'B', 'A', 'C', 'B', 'A', 'D', 'E', 'C', 'B', 'A',
'D', 'E', 'A', 'C']
}
# Create a DataFrame
cat_df = pd.DataFrame(data)
# Convert categories to numeric codes
cat_df['Category_Code'] = pd.factorize(cat_df['Category'])[0]
# Create the histogram
plt.figure(figsize=(8, 5))
plt.hist(cat_df['Category_Code'],
bins=len(cat_df['Category'].unique()), align='mid', rwidth=0.8)
# Customize the x-ticks to show category labels
plt.xticks(ticks=np.arange(len(cat_df['Category'].unique())),
labels=cat_df['Category'].unique())
# Add titles and labels
plt.title('Histogram of Categorical Variable')
plt.xlabel('Category')
plt.ylabel('Frequency')
# Show the plot
plt.show()
```
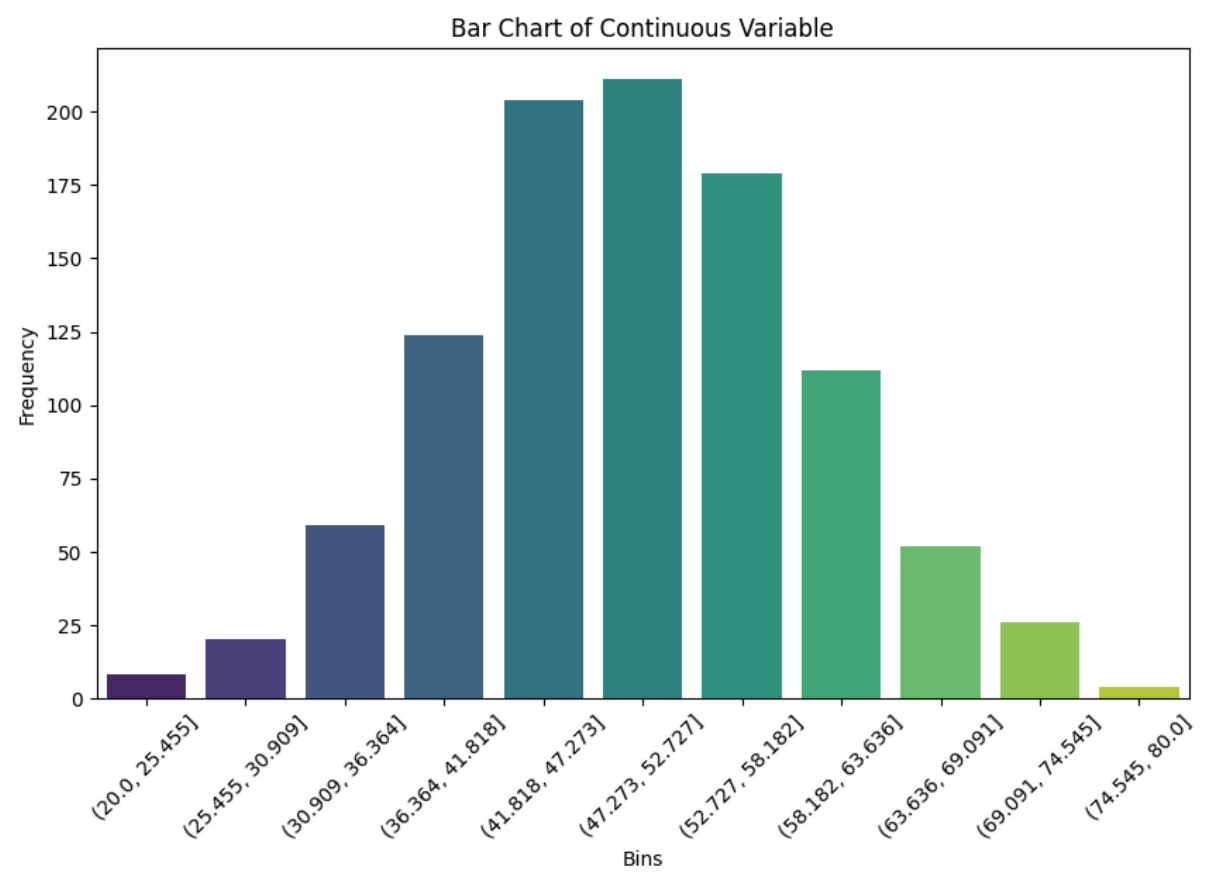
OUTPUT:
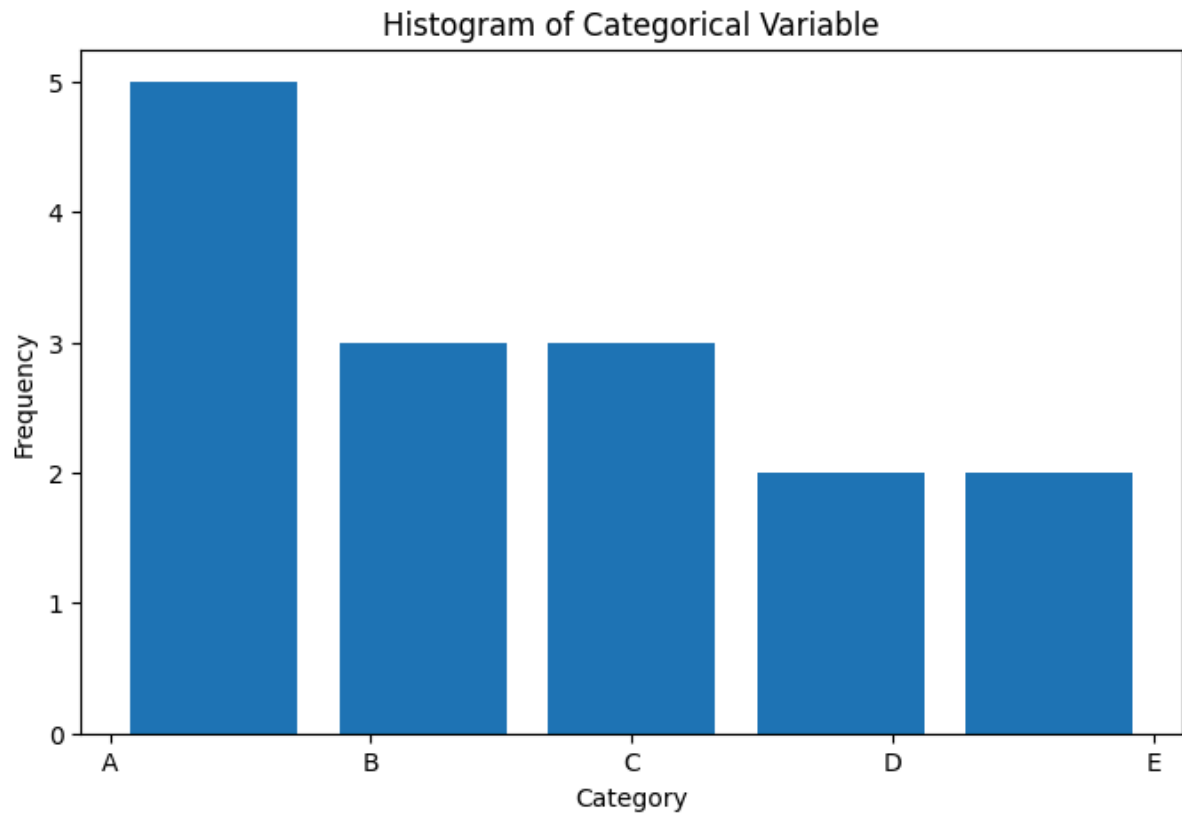
Histogram of Categorical Variable

BAR CHART OF CONTINUOUS VARIABLE:

```python
import matplotlib.pyplot as plt
import seaborn as sns
import pandas as pd
import numpy as np
# Generate random continuous data
np.random.seed(0)
data = np.random.normal(loc=50, scale=10, size=1000) # Normal
distribution
# Create a DataFrame
df = pd.DataFrame(data, columns=['Value'])
# Create bins for the data
bins = np.linspace(20, 80, num=12) # Adjust as needed
df['Binned'] = pd.cut(df['Value'], bins=bins)
# Count the number of occurrences in each bin
binned_counts = df['Binned'].value_counts().sort_index()
# Create the bar chart
plt.figure(figsize=(10, 6))
sns.barplot(x=binned_counts.index.astype(str), y=binned_counts.values,
palette='viridis')
# Add titles and labels
plt.title('Bar Chart of Continuous Variable')
plt.xlabel('Bins')
plt.ylabel('Frequency')
# Show the plot
plt.xticks(rotation=45)
plt.show()
```

HISTOGRAM OF CONTINUOUS VARIABLE:

```python
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np
# Generate random continuous data
np.random.seed(0)
data = np.random.normal(loc=50, scale=10, size=1000) # Normal
distribution

plt.figure(figsize=(10, 6))
plt.hist(data, bins=30, color='skyblue', edgecolor='black', alpha=0.7)
plt.title('Histogram of Continuous Variable')
plt.xlabel('Value')
plt.ylabel('Frequency')
plt.grid(axis='y', alpha=0.75)
plt.show()
plt.figure(figsize=(10, 6))
sns.histplot(data, bins=30, kde=True, color='skyblue', alpha=0.7)
plt.title('Histogram of Continuous Variable with KDE')
plt.xlabel('Value')
plt.ylabel('Frequency')
plt.show()
```

OUTPUT:

Histogram of Continuous Variable
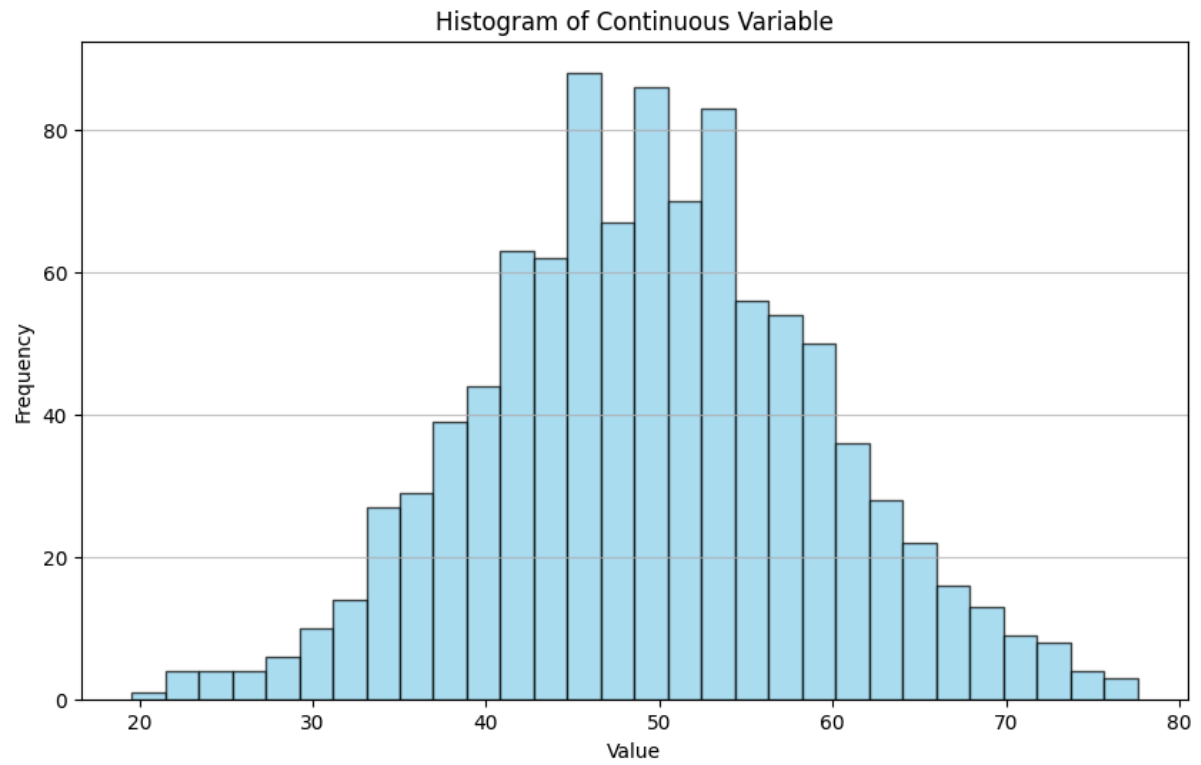
BAR CHART OF GENDER IN POPULATION:

```python
import matplotlib.pyplot as plt
# Sample data
categories = ['Male', 'Female', 'Non-Binary']
counts = [45, 55, 10]

# Create bar chart
plt.figure(figsize=(8, 6))
plt.bar(categories, counts, color=['blue', 'pink', 'green'])
plt.xlabel('Gender')
plt.ylabel('Count')
plt.title('Distribution of Gender in Population')
plt.show()
```

OUTPUT:
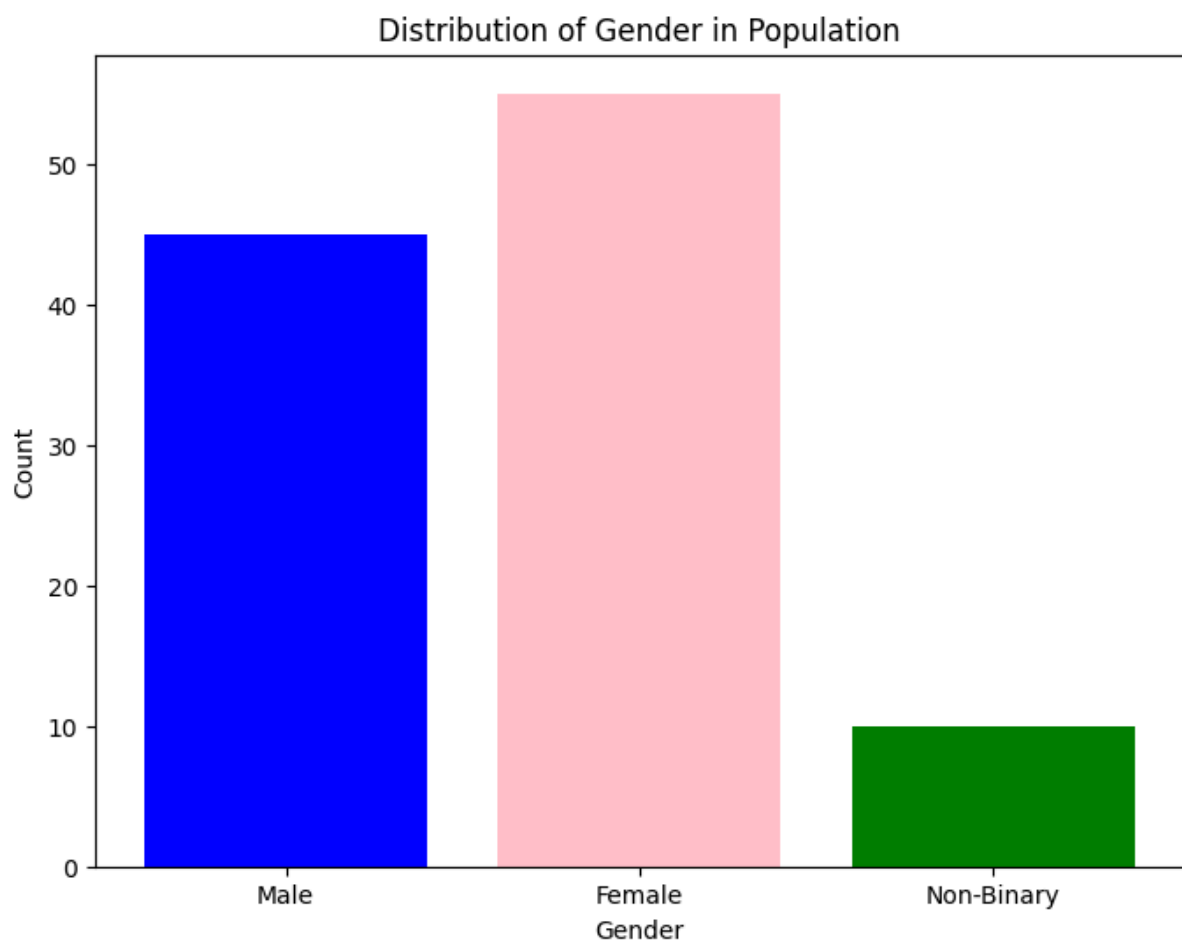
HISTOGRAM OF GENDER IN POPULATION:

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

# Sample data
data = {'Gender': ['Male', 'Female', 'Female', 'Male', 'Non-binary',
'Female', 'Male', 'Non-binary']}
df = pd.DataFrame(data)

# Count occurrences of each gender
gender_counts = df['Gender'].value_counts()

# Create histogram
gender_counts.plot(kind='bar', color='skyblue')
plt.title('Gender Distribution')
plt.xlabel('Gender')
plt.ylabel('Count')
plt.xticks(rotation=0)
plt.show()
```

OUTPUT:

Gender Distribution
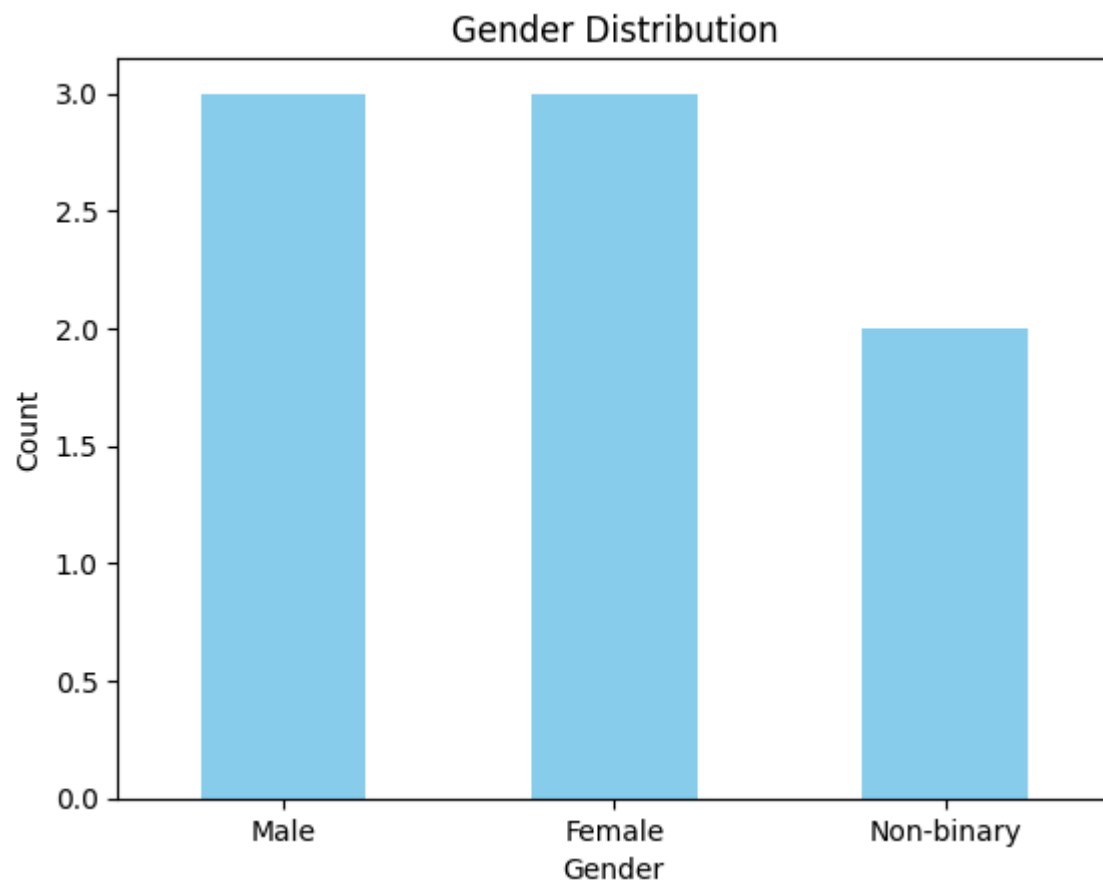
BAR CHART OF AGES IN POPULATION:

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

# Sample age data
data = {'Age': [23, 45, 23, 36, 45, 29, 36, 30, 29, 30, 23, 40, 45, 36,
25]}
df = pd.DataFrame(data)

# Count occurrences of each age
age_counts = df['Age'].value_counts().sort_index()

# Create bar chart
age_counts.plot(kind='bar', color='lightgreen')
plt.title('Age Distribution')
plt.xlabel('Age')
plt.ylabel('Count')
plt.xticks(rotation=0)
plt.grid(axis='y', linestyle='--', alpha=0.7)
plt.show()
```
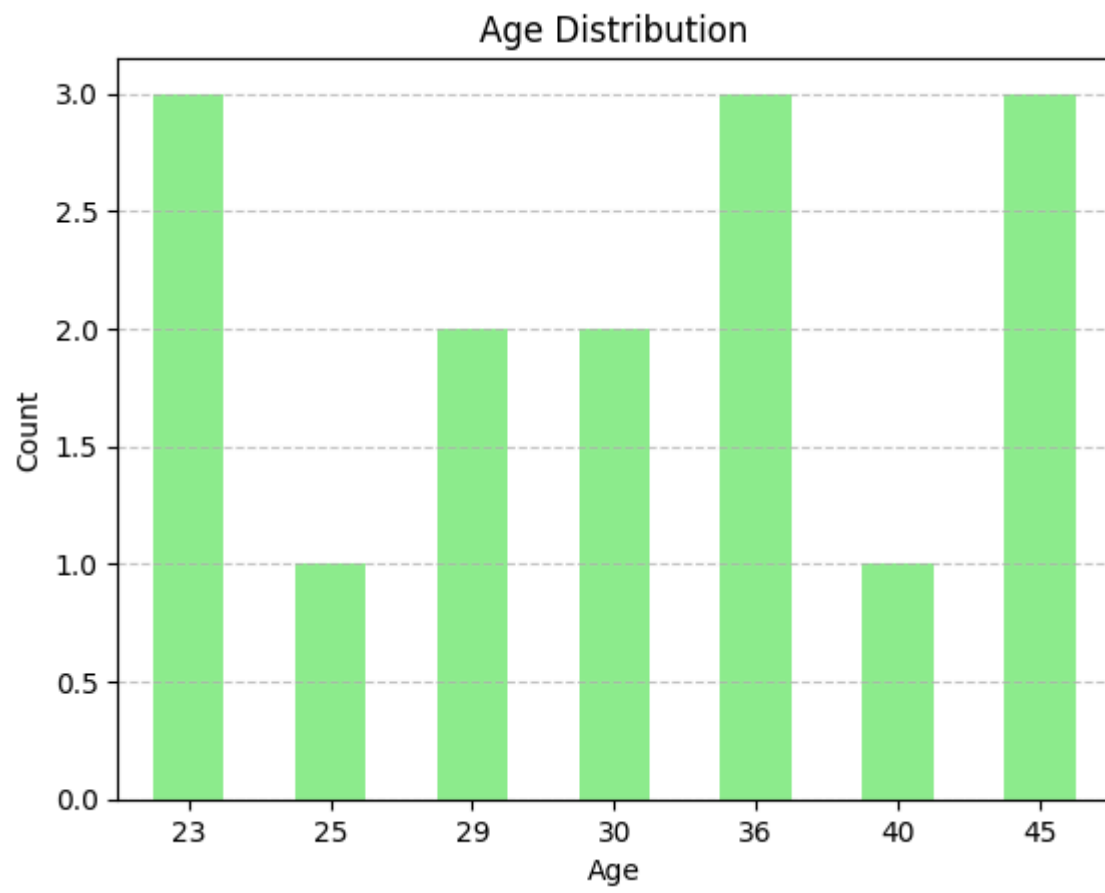
HISTOGRAM OF AGES IN POPULATION:

```python
import numpy as np
# Sample data
np.random.seed(0) # For reproducibility
ages = np.random.randint(18, 80, size=100) # Generate 100 random ages
between 18 and
80
# Create histogram
plt.figure(figsize=(10, 6))
plt.hist(ages, bins=10, color='skyblue', edgecolor='black')
plt.xlabel('Age')
plt.ylabel('Frequency')
plt.title('Distribution of Ages')
plt.grid(True)
plt.show()
```

OUTPUT: