pip install pandas matplotlib seaborn

import pandas as pd

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**# Load the dataset**

data = pd.read\_csv('heart\_disease\_data.csv')

**# Display the first few rows of the dataset**

data.head()

**Data Manipulation**

**Example: Create Age Groups**

# Define age groups

bins = [0, 30, 40, 50, 60, 70, 80]

labels = ['0-30', '31-40', '41-50', '51-60', '61-70', '71-80']

data['Age Group'] = pd.cut(data['Age'], bins=bins, labels=labels)

# Display the first few rows to check the new column

data.head()

**Data Visualization**

**Example 1: Bar Chart for Heart Disease by Age Group**

import matplotlib.pyplot as plt

import seaborn as sns

# Set the plot size

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

# Create a count plot

sns.countplot(x='Age Group', hue='Heart Disease', data=data, palette='Set2')

# Add titles and labels

plt.title('Heart Disease by Age Group')

plt.xlabel('Age Group')

plt.ylabel('Count')

plt.legend(title='Heart Disease', loc='upper right')

# Show the plot

plt.show()

**Example 2: Scatter Plot for Serum Cholesterol vs. Age**

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

# Create a scatter plot

sns.scatterplot(x='Age', y='Serum Cholesterol', hue='Heart Disease', data=data, palette='Set1', alpha=0.7)

# Add titles and labels

plt.title('Serum Cholesterol vs. Age')

plt.xlabel('Age')

plt.ylabel('Serum Cholesterol')

# Show the plot

plt.show()

**Example 3: Histogram of Age Distribution**

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

# Create a histogram

sns.histplot(data['Age'], bins=20, kde=True, color='skyblue')

# Add titles and labels

plt.title('Age Distribution')

plt.xlabel('Age')

plt.ylabel('Frequency')

# Show the plot

plt.show()

**Example 4: Box Plot for Serum Cholesterol Levels by Age Group**

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

# Create a box plot

sns.boxplot(x='Age Group', y='Serum Cholesterol', hue='Heart Disease', data=data, palette='Set3')

# Add titles and labels

plt.title('Serum Cholesterol Levels by Age Group')

plt.xlabel('Age Group')

plt.ylabel('Serum Cholesterol')

# Show the plot

plt.show()

**Example 5: Line Chart for Fasting Blood Sugar over Age**

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

# Create a line plot

sns.lineplot(x='Age', y='Fasting Blood Sugar', hue='Sex', data=data, marker='o')

# Add titles and labels

plt.title('Fasting Blood Sugar over Age')

plt.xlabel('Age')

plt.ylabel('Fasting Blood Sugar')

# Show the plot

plt.show()