**PROGRAM:**

import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

from sklearn.datasets import load\_wine

wine\_data = load\_wine()

df = pd.DataFrame(wine\_data.data, columns=wine\_data.feature\_names)

df['target'] = wine\_data.target

print("First 5 rows:\n", df.head())

print("\nShape of dataset:", df.shape)

print("\nMissing values:\n", df.isnull().sum())

print("\nSummary statistics:\n", df.describe())

plt.figure(figsize=(6, 4))

sns.countplot(x='target', data=df, palette='Set2')

plt.title('Wine Classes Distribution')

plt.xlabel('Class Label')

plt.ylabel('Count')

plt.show()

plt.figure(figsize=(14, 10))

sns.heatmap(df.corr(), annot=False, cmap='coolwarm')

plt.title("Correlation Heatmap")

plt.show()

top\_features = ['alcohol', 'malic\_acid', 'color\_intensity']

for feature in top\_features:

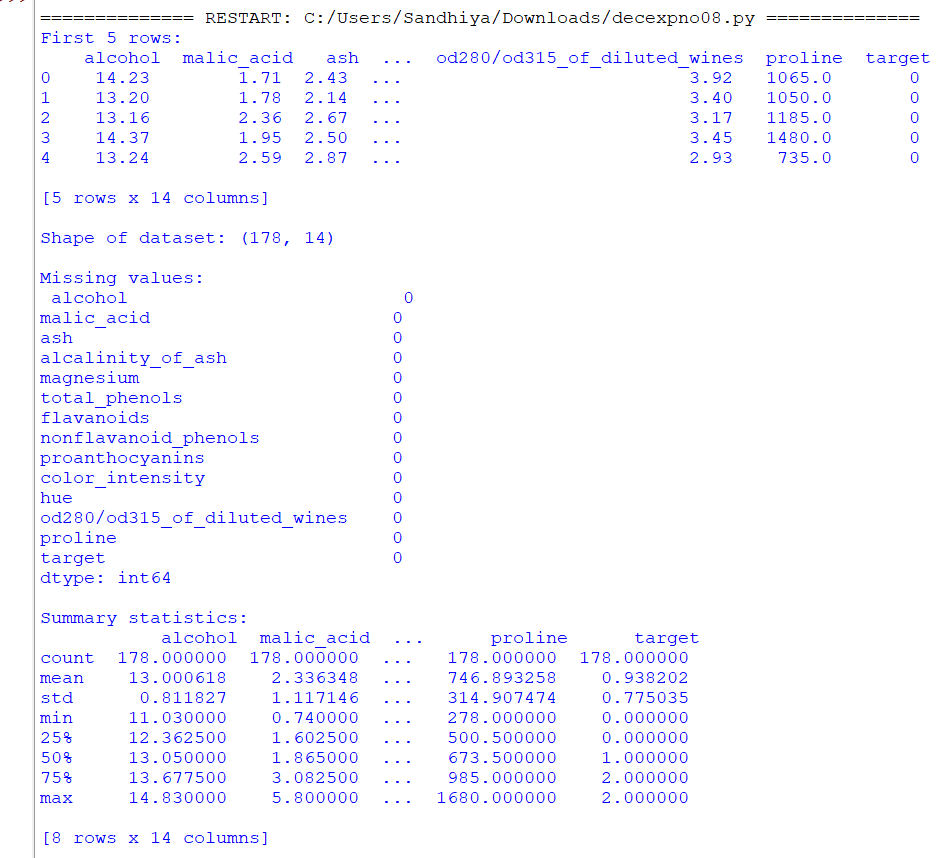
plt.figure(figsize=(6, 4))

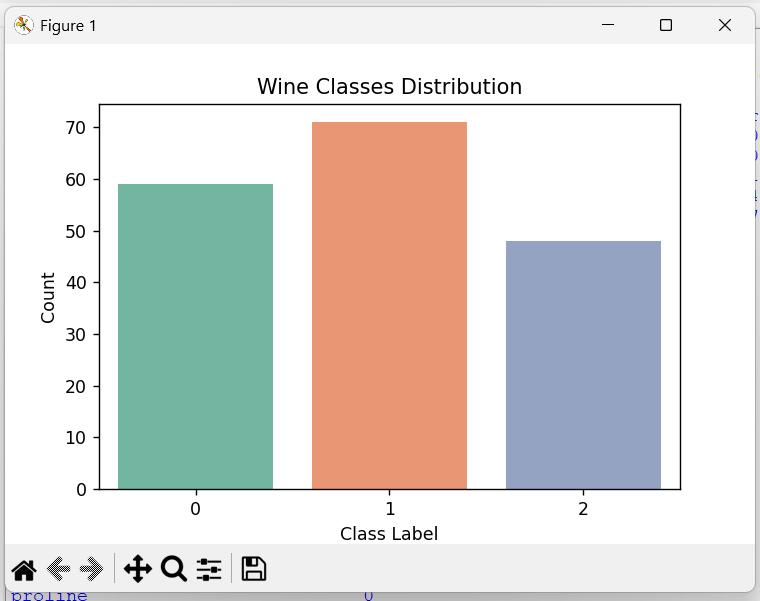
sns.boxplot(x='target', y=feature, data=df, palette='pastel')

plt.title(f"{feature.capitalize()} vs Target Class")

plt.show()

**OUTPUT:**





A screenshot of a graph

AI-generated content may be incorrect.

A screenshot of a computer screen

AI-generated content may be incorrect.A screenshot of a graph

AI-generated content may be incorrect.