1.

import pandas as pd # Used for data manipulation and analysis

import numpy as np # Used for numerical operations like mean, std, etc.

3.

df = pd.read\_csv(url) # Read the CSV file from URL

print("First 5 rows of the dataset:")

print(df.head()) # Display first 5 rows

4.

# Check for missing values

print("Missing values in each column:")

print(df.isnull().sum())

# Get basic statistics

print("\nBasic statistical description of the data:")

print(df.describe())

# Check data types

print("\nData types of each column:")

print(df.dtypes)

# Check shape (rows, columns)

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

5.

# Convert 'species' column to category type

df['species'] = df['species'].astype('category')

print("After conversion, 'species' type is:", df['species'].dtype)

# Normalize numeric columns (scale between 0 and 1)

numeric\_cols = df.select\_dtypes(include=['float64', 'int']).columns

df[numeric\_cols] = (df[numeric\_cols] - df[numeric\_cols].min()) / (df[numeric\_cols].max() - df[numeric\_cols].min())

print("\nFirst 5 rows after normalization:")

print(df.head())

6.

# Convert 'species' into numbers

df['species\_encoded'] = df['species'].cat.codes

print("\nEncoded species column:")

print(df[['species', 'species\_encoded']].head())

6.