# creating the pandas

import pandas as pand

# creating the matplotlib

import matplotlib.pyplot as mat\_plot

# importing the register\_matplotlib\_converters

from pandas.plotting import register\_matplotlib\_converters

# calling the function register\_matplotlib\_converters()

register\_matplotlib\_converters()

# Load the trees\_in\_camden.csv file

df = pand.read\_csv('Trees\_In\_Camden.csv')

# Convert 'Inspection Date' to datetime

df['Inspection Date'] = pand.to\_datetime(df['Inspection Date'])

# Function to create a line plot

def lineplotcreate(df, col\_x, col\_y, caption, lab\_x, lab\_y):

# represent the size of the figure

mat\_plot.figure(figsize=(10, 6))

# creating the groupby clause

for label, group in df.groupby('Common Name'):

mat\_plot.plot(group[col\_x], group[col\_y], label=label)

# setting the caption

mat\_plot.title(caption)

# setting the x lable

mat\_plot.xlabel(lab\_x)

# setting the y lable

mat\_plot.ylabel(lab\_y)

# setting the lengend

mat\_plot.legend()

# setting the grid

mat\_plot.grid(True)

# setting the graph

mat\_plot.show()

# Function to create a scatter plot

def scatterplotcreate(df, col\_x, col\_y, caption, lab\_x, lab\_y):

# creating the plot with figure

mat\_plot.figure(figsize=(10, 6))

# creating the scatter plot

mat\_plot.scatter(df[col\_x], df[col\_y], alpha=0.5)

# creating the plot caption

mat\_plot.title(caption)

# creating the xlabel

mat\_plot.xlabel(lab\_x)

# creating the ylabel

mat\_plot.ylabel(lab\_y)

# creating the grid

mat\_plot.grid(True)

# show the graph

mat\_plot.show()

# Function to create a histogram

def histo\_create(df, hmetres, caption, lab\_x, lab\_y):

# represening the figure size

mat\_plot.figure(figsize=(10, 6))

# representing the histogram

mat\_plot.hist(df[hmetres], bins=20, edgecolor='k')

# representing the caption

mat\_plot.title(caption)

# representing the xlabel

mat\_plot.xlabel(lab\_x)

# representing the ylabel

mat\_plot.ylabel(lab\_y)

mat\_plot.grid(True)

mat\_plot.show()

# Plot the line plot

lineplotcreate(df, 'Inspection Date', 'Height In Metres', 'Tree Height Over Time', 'Inspection Date', 'Height (meters)')

# Plot a scatter plot

scatterplotcreate(df, 'Diameter In Centimetres At Breast Height', 'Carbon Storage In Kilograms', 'Diameter vs. Carbon Storage', 'Diameter (cm)', 'Carbon Storage (kg)')

# Plot a histogram

histo\_create(df, 'Height In Metres', 'Distribution of Tree Heights', 'Height (meters)', 'Frequency')