**Open cmd**

**Type :  
python –version**

**python -m pip install matplotlib**

**TASK 10: Use Matplotlib module for plotting in python ( CO4 – K3 )**

**Problem 1:**

**Mr.Singh wants to insert a sin wave plot in his project. Help Mr.Singh to draw sine wave**

**plot using matplotlib.**

**Program:**

import matplotlib.pyplot as plt

import numpy as np

# Generate data for sine wave

x = np.linspace(0, 2 \* np.pi, 1000)

y = np.sin(x)

# Plotting the sine wave

plt.plot(x, y, label='Sine Wave')

plt.title("Sine Wave Plot")

plt.xlabel("X axis (radians)")

plt.ylabel("Y axis (sin(x))")

plt.grid(True)

plt.legend()

plt.show()

**Problem 2:**

**Mr.Hari wants to insert histogram in his project. Help Mr.Hari to draw histogram using**

**matplotlib. The values for drawing histogram are:**

**2 people from 140 to 145cm**

**5 people from 145 to 150cm**

**15 people from 151 to 156cm**

**31 people from 157 to 162cm**

**46 people from 163 to 168cm**

**53 people from 168 to 173cm**

**45 people from 173 to 178cm**

**28 people from 179 to 184cm**

**21 people from 185 to 190cm**

**4 people from 190 to 195cm**

**Program:**

import matplotlib.pyplot as plt

bins = [140, 145, 150, 156, 162, 168, 173, 178, 184, 190, 195]

people = [2, 5, 15, 31, 46, 53, 45, 28, 21, 4]

plt.hist(bins[:-1], bins=bins, weights=people)

plt.xlabel('Height (cm)')

plt.ylabel('Number of People')

plt.title('Height Histogram')

plt.show()

**Problem 3:**

**Mr. Krish wants to insert scatter graph in his project. Help Mr. Krish to draw scatter using matplotlib. The values for drawing scatter graph are:**

**X=[5,7,8,7,2,17,2,9,4,11,12,9,6]**

**y=[99,86,87,88,111,86,103,87,94,78,77,85,86]**

**Program:**

**import matplotlib.pyplot as plt**

**x = [5, 7, 8, 7, 2, 17, 2, 9, 4, 11, 12, 9, 6]**

**y = [99, 86, 87, 88, 111, 86, 103, 87, 94, 78, 77, 85, 86]**

**plt.scatter(x, y, color='blue')**

**plt.xlabel('X Values')**

**plt.ylabel('Y Values')**

**plt.title('Scatter Plot')**

**plt.show()**

**Problem 4:**

**Mr. Krishnan wants to insert pie graph in his project. Help Mr. Krishnan to draw pie chart using matplotlib. The values for drawing pie graph are:**

**W=35, x=25,y=25,Z=15**

**Program:**

import matplotlib.pyplot as plt

values = [35, 25, 25, 15]

labels = ['W', 'X', 'Y', 'Z']

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

plt.pie(values, labels=la4bels, autopct='%1.1f%%')

plt.title("Pie Chart for W, X, Y, Z")

plt.show()

TASK 11: Use Tkinter module for UI design

Problem 1:

Create a Age calculator using Tkinter module. In this age calculator app, users can type in their date of birth, and the app will calculate and display their age automatically.

Problem 2:

Your father wants you to create a digital clock and you decided to show your programming skills. You also offer your father to give specifications to design your clock. Create a Digital clock using Tkinter.

Input Format :

Style

size

Output Format :

Digital Clock

Test Case 1

Input (stdin)

calibri

40

Bold

Expected Output