import matplotlib.pyplot as plt

import pandas as pd

# Function to read values from file and generate time data

def read\_data(file\_name, time\_interval):

    with open(file\_name, 'r') as file:

        values = [int(line.strip()) for line in file]

        # Generate time data with a constant interval

        time = [i \* time\_interval for i in range(len(values))]

    return time, values

# Specify the time interval between data points in miliseconds

time\_interval = 2.6

# Read data and generate time axis

time, values = read\_data('received\_values.txt', time\_interval)

# Create DataFrame from the data

data = pd.DataFrame({'time': time, 'values': values})

# Store all data points

all\_data\_points = list(zip(time, values))

# Plot the data

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

plt.plot(data['time'], data['values'], marker='x')

plt.title('Time vs Values')

plt.xlabel('Time (milliseconds)')

plt.ylabel('Values')

plt.grid(True)

plt.show()

# Optionally, you can write the data points to a file

with open('data\_points.txt', 'r+') as file:

            file.truncate(0)

with open('data\_points.txt', 'w') as file:

    for x, y in all\_data\_points:

        file.write(f'{x}, {y}\n')

print("Data points saved to data\_points.txt")