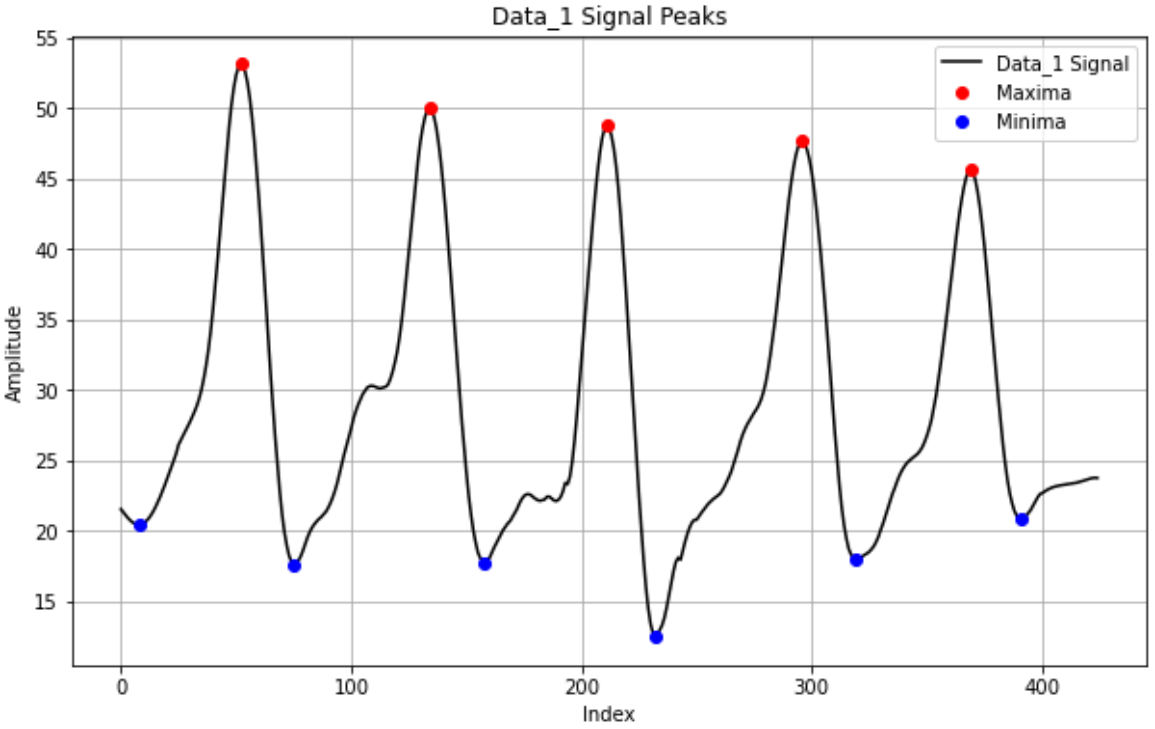
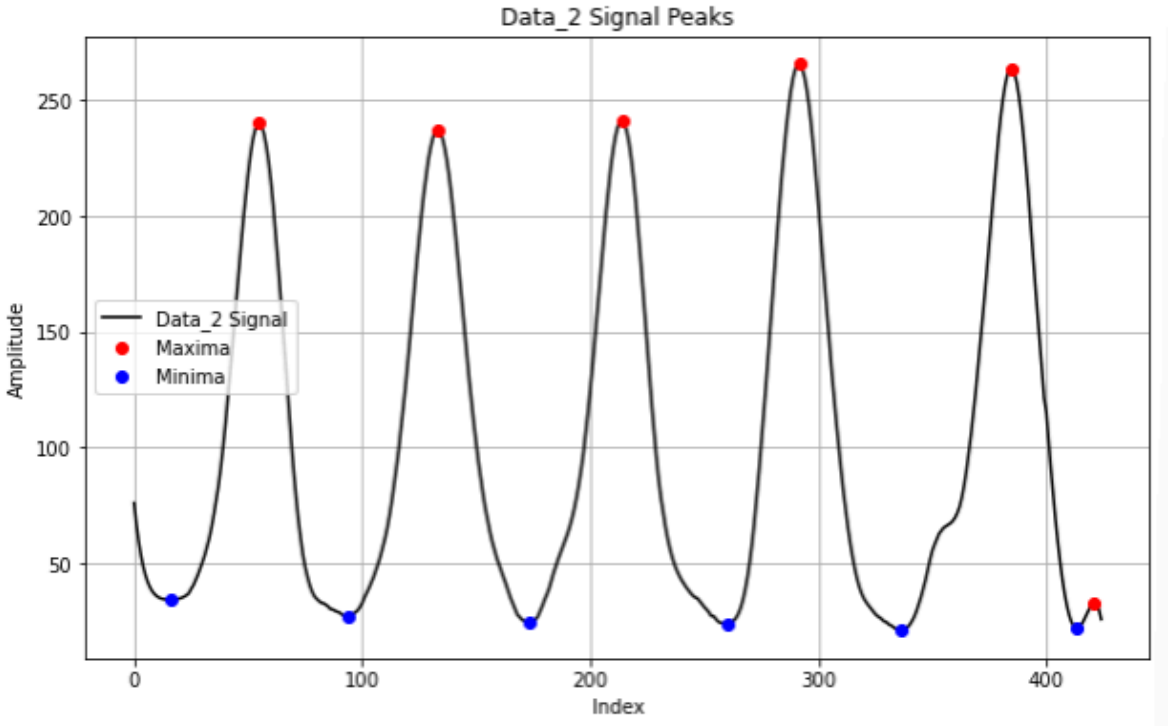
QUESTION 1
(PYTHON):

```
import numpy as np
import matplotlib.pyplot as plt
from scipy.signal import find_peaks

# Load data
data1 = np.loadtxt('Data_1.txt')
data2 = np.loadtxt('Data_2.txt')

# Define a function to find and plot peaks
def find_and_plot_peaks(data, label):
    # Find maxima (peaks)
    peaks, _ = find_peaks(data, distance=20, prominence=0.5)
    # Find minima by inverting the signal and finding peaks
    inversed_data = -data
    minima, _ = find_peaks(inversed_data, distance=20, prominence=0.5)

    plt.figure(figsize=(10, 6))
    plt.plot(data, label=f'{label} Signal', color='black')
    plt.plot(peaks, data[peaks], 'ro', label='Maxima')
    plt.plot(minima, data[minima], 'bo', label='Minima')
    plt.title(f'{label} Signal Peaks')
    plt.xlabel('Index')
    plt.ylabel('Amplitude')
    plt.legend()
    plt.grid(True)
    plt.show()

# Analyze and plot for both datasets
find_and_plot_peaks(data1, 'Data_1')
find_and_plot_peaks(data2, 'Data_2')
```


Data_1 Signal Peaks
Data_1 Signal
Maxima
Minima
Amplitude
Index
55
50
45
40
35
30
25
20
15
0
100
200
300
400


Data_2 Signal Peaks
Data_2 Signal
Maxima
Minima
Amplitude
Index
250
200
150
100
50
0
100
200
300
400