Lab 1 Communication systems

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Task 1.1

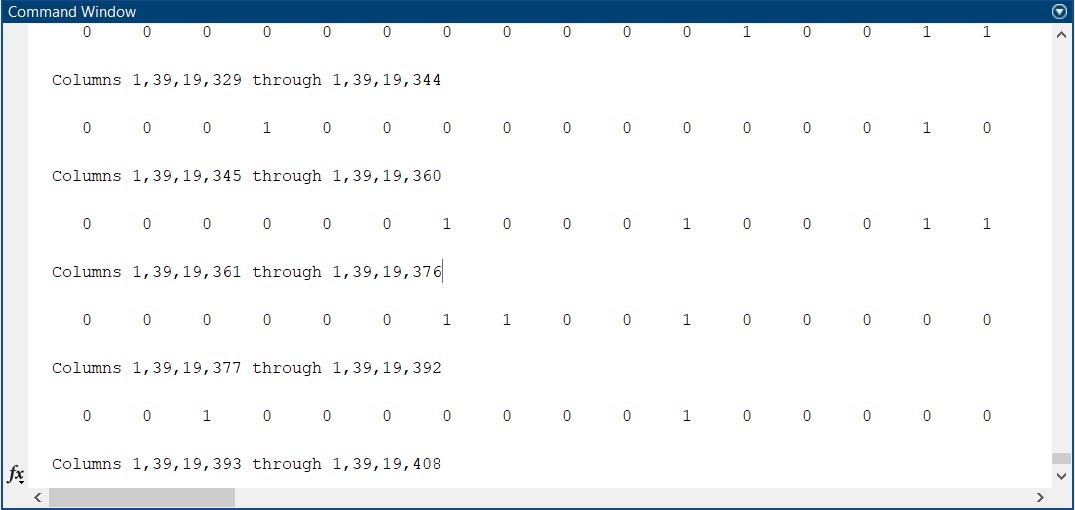
[audio,Fs]=audioread('audio\_example\_WAV.wav');

sound(audio,Fs)

wavBinary = dec2bin( typecast( single(audio(:)), 'uint8'), 8 ) - '0';

wavSerial = reshape(wavBinary,1,[]);





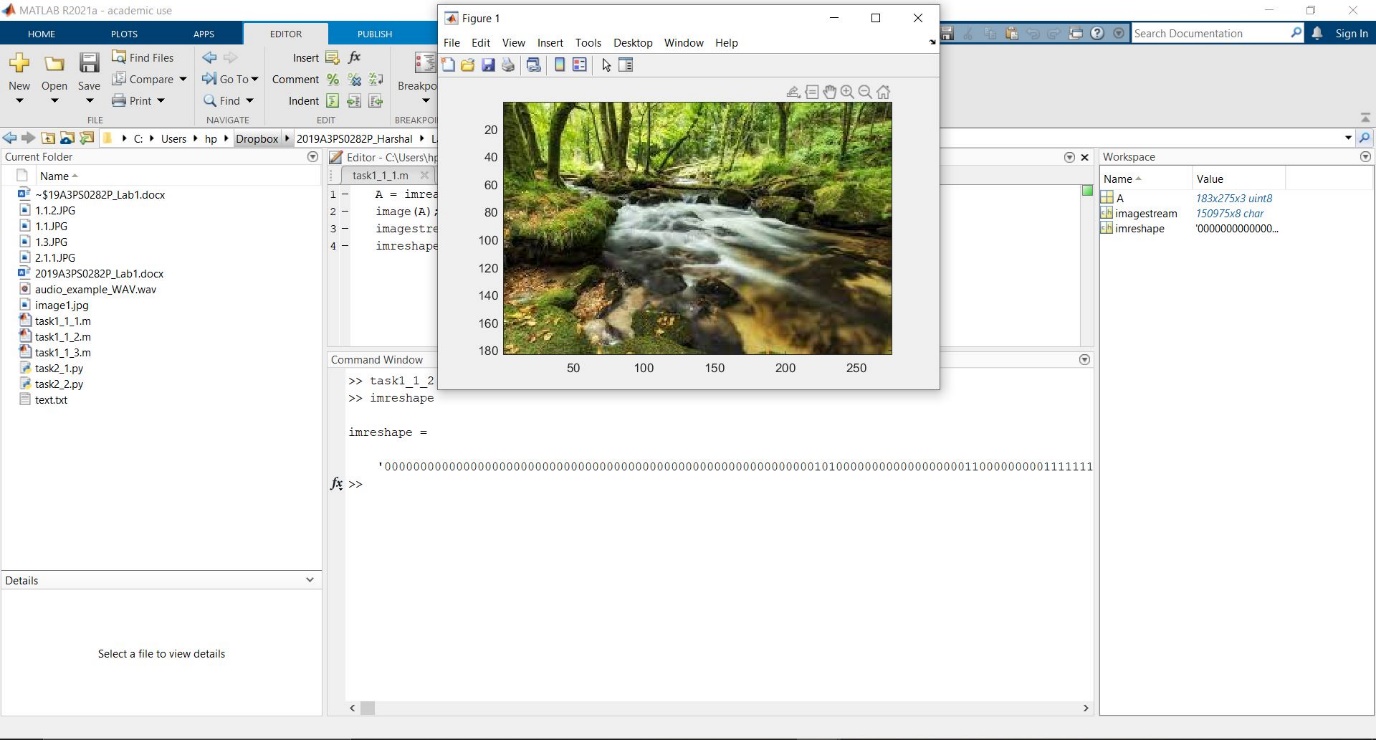
Task 1.2

A = imread('image1.jpg');

image(A);

imagestream = dec2bin(A);

imreshape = reshape(imagestream, 1 ,[]);



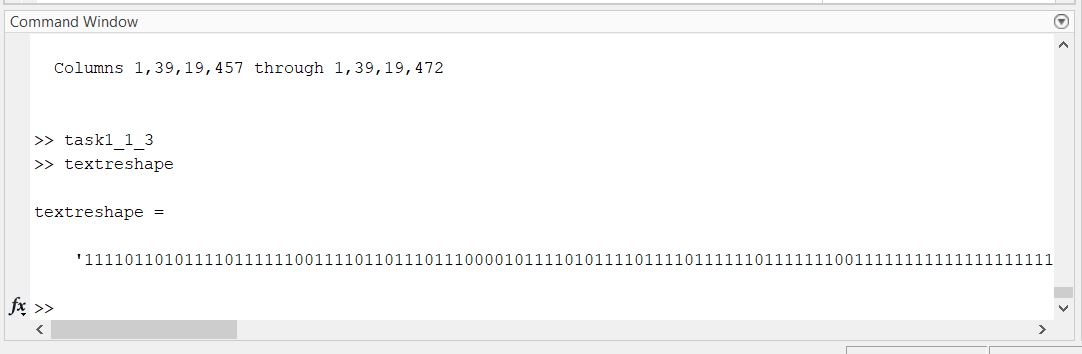
Task 1.3

fileID = fopen('text.txt');

B = fread(fileID);

textstream = dec2bin(B);

textreshape = reshape(textstream, 1 ,[]);



Task 2-1

Last digit of ID-2.

import numpy as np

import matplotlib.pyplot as plt

N = 2

fs = 1000

t = np.arange(50)

signal\_m = np.sin(2 \* np.pi \* N \* 10 \* (t/fs))

plt.title('Sinewave plot')

plt.plot(t, signal\_m)

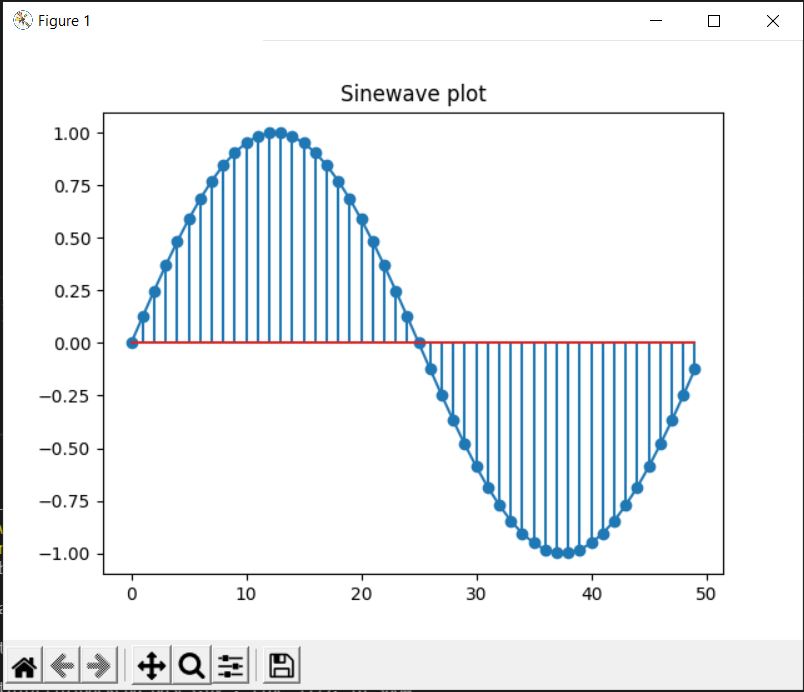
n = np.arange(50)

dt = 0.05/50

x = np.sin(2 \* np.pi \* 2 \* 10 \* n \* dt)

plt.stem(n, x)

plt.show()



Task 2-2

clc;

fs = 6000;

f1 = 450;

f2 = 550;

t = [0:1/fs:10];

wave1 = sin(2\*pi\*f1\*t);

wave2 = sin(2\*pi\*f2\*t);

output = wave1 + wave2;

plot(output)

sound(output, fs);

