21.03.2022

DSP Homework 1: Fourier Series Representation on GUI

Design a graphical user interface (GUI) that calculates the summation of given Fourier Coefficients and plots it to the complex plane. Due to complex exponential signals takes different values depending on time, you should simulate it using rotating phasors.

Hint: You can watch Lecture 2 Zoom Videos to learn how to simulate it.

GUI Inputs:

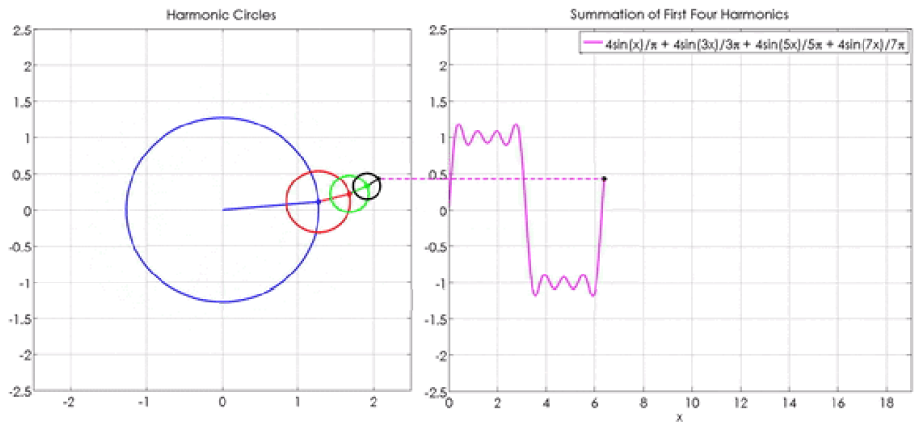
- 1 table that holds the Fourier series coefficients (a_k), *for example:*

k	0	1	2	3	4
a_k	2	3+j	2-2j	2	1

- 1 textbox to take fundamental frequency from user (f_0),
- 1 button to start simulation given the above inputs.

GUI Outputs:

- One figure for simulation of rotating complex exponentials in complex domain. The output should be similar to the shared gif file. Please see it in the left part of the attached file.
- Another figure for plotting the summation of complex exponentials in time domain (x(t)). Please see it in the right part of the attached file.



Deadline: 1 April 2022 until 00:00

Please upload the following files to Google Classroom:

Code + Report (max. 2 page) + Screen record (~5 sec.) **Dr. Ali Can KARACA**