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Assignment 4
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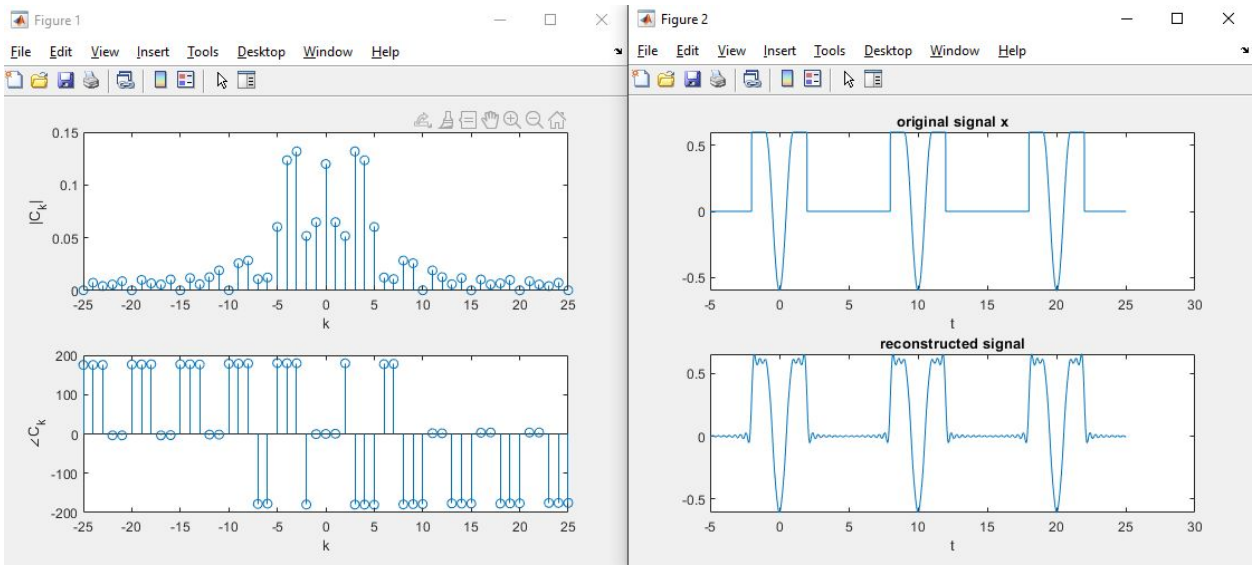
1. For this function, I just followed the example code given, and added the parts that were required. Most of the code was in the guide, such as the part for ck, which made it pretty easy to implement. For the plots, I used the function stem to plot the stemplot of k vs abs(Ck) and k vs angle(Ck). For the signal and reconstruction plots, I again followed the guide and used the examples given in the guide to construct the arrays for the signal x and its reconstructed signal.

Output:
There is no output for this question.

2. For this problem, I first used what I learned in Assignment 3 to construct the step function x. I then defined the single period to be the given interval. Afterwards, I used the function I made in number 1 to define Ck, and plotted the reconstructed signal.

Output:



3. For this question, I followed the fourier series example code titled fs_numerical.m. I first defined the single period, which was the function z and interval given in the problem. I

then defined the period to be 5, because that's how large the interval is. Afterwards, I extended the period since the problem asks for the real and imaginary parts of z to be calculated for the interval 0 <= t <= 10. I then plotted the real and imaginary parts of z. For the 51 coefficients, I used the equation given in the guide to calculate all of them. Then I made a stem plot of the spectrum. For the reconstruction of the time domain signal, I again followed the guide and used the implementation of the x_reconstructued for loop to find the reconstructed signal, and then plotted both the imaginary and real parts of this signal.

Output: