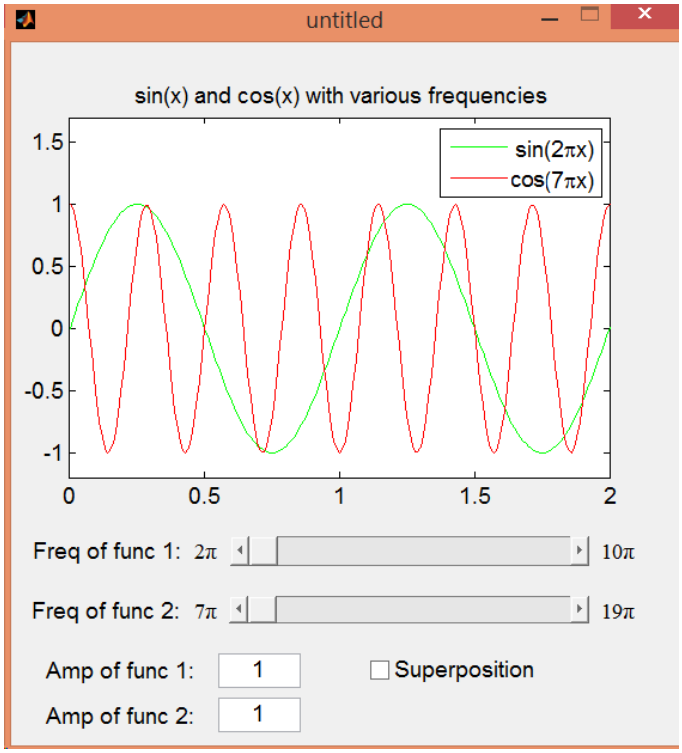
Lab 7

1. Design a GUI program to plot a sine and a cosine functions with adjustable amplitudes and frequencies.
   (1) The amplitudes are controlled by using two `Edit Text` objects
   (2) The frequencies are controlled using two `Slider` objects
   (3) The frequency of the sine function ranges from 2π to 10π, and the frequency of the cosine function ranges from 7π to 19π
   (4) The plot is updated whenever the user moves a `Slider` or enter a new amplitude in an `Edit Text`
   (5) The plot displays a legend to show the line styles of the functions
   (6) The superposition of the two functions can be display when a `Check Box` "Superposition" is checked

   Use the superposition function to display if the two functions cancel each other when their frequencies are identical. The GUI program should look like this:



2. Design a GUI program that plots the solution for a first-order ordinary differential equation:

$$\frac{dy}{dx} + my = n,$$

where m and n are constants that are adjustable by the user in the GUI. The range of x in the plot should be adjustable by the user too. You may need to ask the user to input the initial condition. You may consider to use the MATLAB function `dsolve` for solving the differential equation.