README

There are 3 folders-
Formants FFT -> Calculation Formants FFT for a.wav and i.wav
Pitch Estimation -> Estimating the pitch of the signal through calculation of the maximum peak's index of the autocorrelation signal obtained from IFFT of the power spectrum of the input, which is in-turn obtained through DIF-FFT
Spectrum Windowing -> Observe the spectrum of the sine/ square wave by windowing the input signal with Rectangular, Hamming, Hanning and Kaiser Windows (Comment out the lines for each window in the code for which you want to find the spectrum off)

Procedure

Download the .zip file.
Go to **Windows 7> Code Composer Studio > Project> Open**> Go to the folder and open the respective .pjt files
Go to **Build Options> Preprocesso**r> Put in the link of the dsplib>include directory.
Go to **Build>Rebuild All**. Then go to File>Load Program. Select the .out file in the Debug Folder
Then **Run** the Program.
For the **Spectrum Windowing**, Switch on your Function Generator and your Oscilloscope. Select **Sine/ Square Wave** of **1KHz** and **1Vpp.** Push the **Switch3** of the TI board to view the spectrums
For **Formants FFT**, Go to **Graph> Select spectrum**, **32-bit floating Point** and **256** points
For **Pitch Estimation**, Put your probe point at j=0 to the input_array and select the **a.dat** file in **File I/O** at the probe-point. Put a breakpoint at RET of the asm file to view **T0** register value, which represents the pitch of the spectrum, which is in-turn the index of the maximum peak of the autocorrelation function
Go to **Graphs**> Type in **ac** as the signal to plot, and 1**6-bit intege**r point for **256** point signal