DSP Project #2
Due Date: April 5, 2008

This project aims at making the student familiar with the use of Matlab to implement the basic one-dimensional wavelet analysis techniques and analyze/display the results. This project also uses the same ECG samples taken from the world-famous MIT-BIH arrhythmia database to make the tasks given more interesting through their application to real data. Details about the data set are given in DSP Project #1.

Project Tasks:

1. Familairize yourself with the GUI 1D wavelet analysis demo program "wavemenu" from the wavelet toolbox. In particular, work on the following subprograms:
   a. Wavelet 1-D: From the File menu, load 5 different signals under "Example Analysis" option and try different analysis options and report your results.
   b. SWT Denoising 1-D: From the File menu, load 6 different signals under "Example Analysis" option (divide signals between nosiy signals and noisy signals with interval dependent noise variance and try different denoising options and report your results.
   c. Wavelet Display: display 5 different wavelet functions that in your opinion look very useful for ECG signal analysis.

2. Try Wavelet analysis and SWT denoising on the different types of ECG signals and report your results. In your opinion, what are the apparent differences between different types on the resultant wavelet analysis? Also, please also write your comments about the effect of using different wavelet families on the results

Notes:
1. Please properly label all figures with correct axis scales.
2. Please submit your report in PDF electronic form on a CD.