Zewail City of Science and Technology

CIE-442

Project Part 1 - Hints
Spectrum Analyzer

- Make sure to use correct unit transformations.
- Don't forget to choose a valid sampling frequency for the examples that will be implemented in the Convolution section and the Spectrum analyzer section.
- The report is as important as your MATLAB code, you should spend more time writing your report to reflect the effort you spent in writing the code.
- RMS averaging requirement can be done by only summing the absolute values of your signals and dividing by their number. However, it is more accurate to sum over the absolute value squared, then calculate the RMS. For the best results, you could perform RMS averaging over several records of the signal.
- Use the MATLAB capabilities in calculating your values. Don't do the calculations manually and insert them in the code.
- Don't write manual arrays to represent the outcome of what should be an outcome of a code.
- You can use audioinfo() to get the details of your audio files.
- Grading Criteria:
    - Code Functionality: (60%)
        - Discrete Convolution: (15%)
        - Spectrum Analyzer: (45%)
            - Main mode: (25%)
            - Comparison mode: (15%)
            - Calculation mode: (5%)
    - Code Readability and Comments: (10%)
    - Report: (25%)
        - Quality: (5%)
        - Organization: (5%)
        - Results and Discussion: (15%)
    - Documentation: (5%)
    - Bonus: (2% - added to your grade out of 15 with a maximum grade of 15)