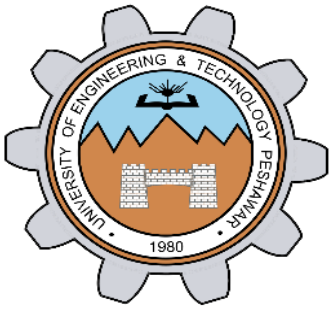
DIGITAL SIGNAL PROCESSING LAB

Fall 2024, 5th Semester

Lab Report 6



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Section: A

"On my honor, as a student at the University of Engineering and Technology Peshawar, I have neither given nor received unauthorized assistance on this academic work."

Signature: 

Submitted To: Dr. Yasir Saleem Afridi

Department of Computer Systems Engineering

University of Engineering and Technology Peshawar

Lab 6: Signal Processing Training

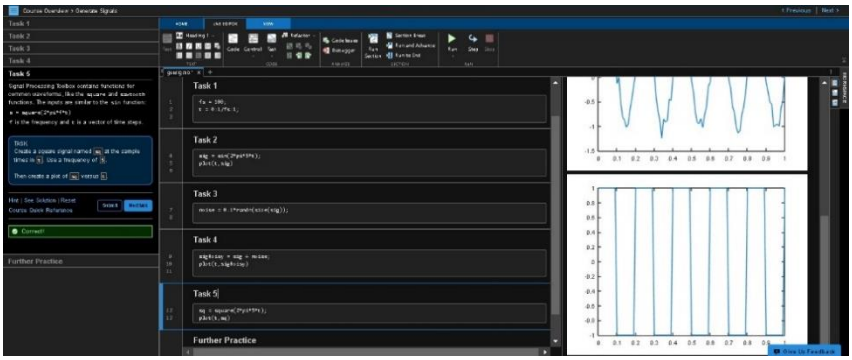
Title: Signal Processing Onramp

Learn basics of practical signal processing techniques in MATLAB. Use spectral analysis and filtering techniques to process, analyze, and extract information form signal data. Visit the following website: https://matlabacademy.mathworks.com/details/signal-processing-onramp/signalprocessing and perform the following tasks and attach the Certificate/ Progress Report acquired from MathWorks as part of the lab Report

Objectives

1. Course Overview

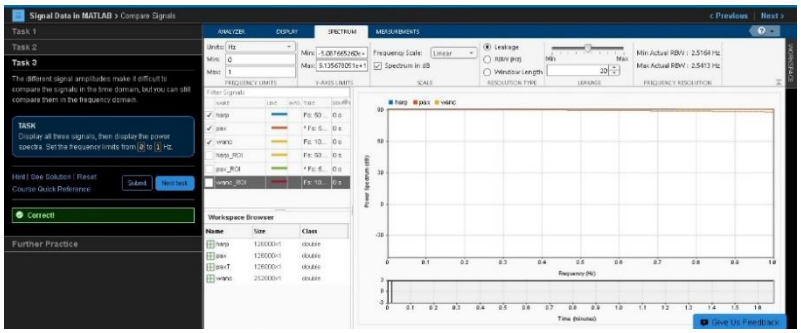
- Familiarize yourself with course.



Remarks along with final snapshot: We find step-by-step lessons, practical examples, and helpful tools that make learning easy.

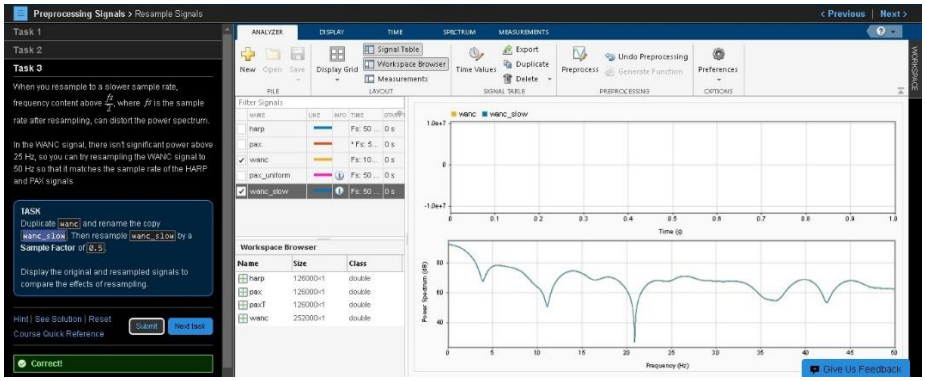
2. Spectral Analysis Workflow

a. Import Signals into MATLAB and view power spectra.



Remarks along with final snapshot: In this step, we learned how to bring in different types of signals into MATLAB.

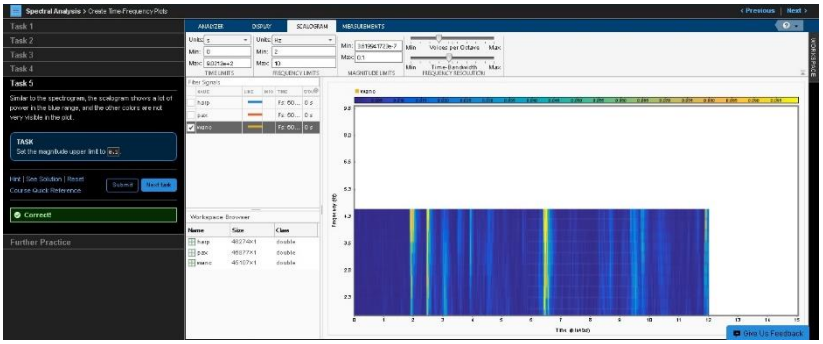
3. Preprocessing Signals (Clean up time base and align signals)

4. 

Remarks along with final snapshot: Learned to adjust the signals to match the same timeline and remove irregularities.

5. Spectral Analysis

a. Perform spectral analysis to view signals in the frequency domain.

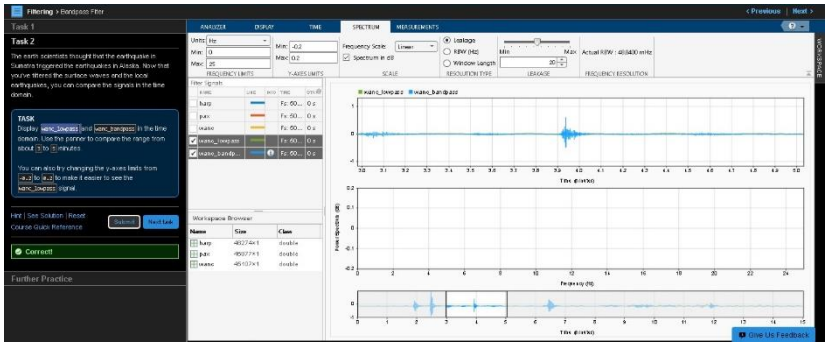


Remarks along with final snapshot: Gain Knowledge about signals in the frequency domain with spectral analysis. This shows how signals are made up of different frequencies.

6. Filtering

a. Filter signals using basic techniques.

b.

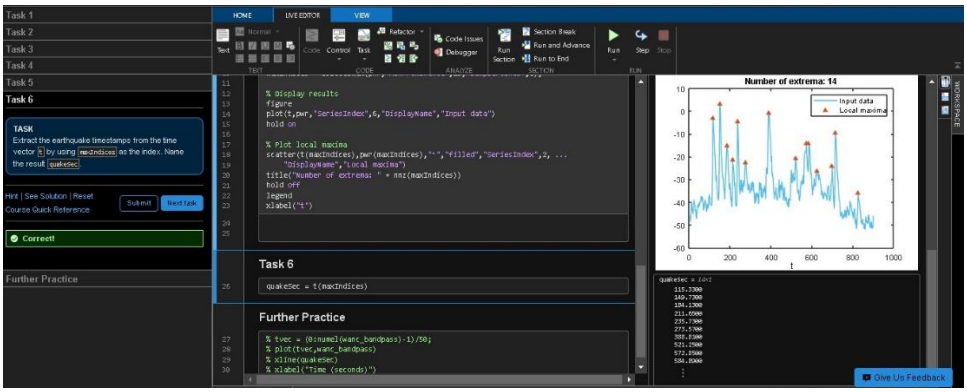


Remarks along with final snapshot: Learned about simple filters, such as low-pass and high-pass filters, in this step to get rid of signal noise that is not needed.

7. Signal Measurements

a. Extract information from signals.

Remarks along with final snapshot: We got to know about important features of signals like Frequencies and peaks.



8. **Conclusion**
    a. Learn next steps and give feedback on the course.

Remarks along with final snapshot: Overall the course was too difficult but have good practical knowledge.

Certificate: