Matlab Workshop:
Task 1: Blue Whale Sound Dataset Generation

Objective:

The objective of this assignment is to create a labeled dataset for the detection of blue whale sounds. You are required to collect, annotate, and organize audio data from blue whale sounds and sounds without blue whale presence. You can use Matlab to generate the labeled dataset.

Task:

1. Data Collection:
   - Collect a minimum of 10 audio signals containing blue whale sounds. These can be obtained from online databases, field recordings, or any other reliable sources.
   - Collect a minimum of 10 audio signals that do not have the presence of blue whale sounds or contain sounds from other whales.

2. Data Generation:
   - Use Signal Labeler app and label the moan and trill regions of the whale sound. In cases where the trill region is not distinctly visible, focus solely on labeling the moan regions. Indicate the lack of a trill by assigning 0 to the trill start time, end time, and duration.
   - For signals without blue whale sounds, specify the absence of moans and trills by assigning 0 to the moan/trill start time, end time, and duration.

3. Feature Extraction:
   - Extract relevant features for each signal, including moan start, moan end, moan duration, trill start, trill end, trill duration, and average spectral centroid. The Matlab spectralCentroid() command can be used where necessary.

4. Labeling:
   - Create a label column ("Label") in the dataset.
   - Assign a label of 1 if the signal contains blue whale sounds and 0 if it does not.

5. Dataset Organization:
   - Structure the dataset in a tabular format with appropriate columns.
   - Use the attached template as a guide:

6. Submission:
   - Submit a zip folder containing the following.
        - The labeled dataset in a CSV file format.
        - Folder containing the recording files used to generate this dataset.

Note:
- Please forward any inquiries to vishakab@sltc.ac.lk