Subject: 19CSE456

Lab Session: 05

Notes:

1. Please read the assignment notes carefully and comply to the guidelines provided.
2. A report should be prepared for questions available in "Report Section" of this assignment & submitted to TurnItIn. Only one member of the team should upload the report to TurnItIn. The submission title should start with the team name / number.
3. The report should not have any content (text, figures, photos etc.) copied from any source outside your work. Please provide results obtained from your experiment to support your statements.
4. Any content retrieved from any external source (papers, bogs, websites, chat sites etc.) should be duly acknowledged.

Please use your project data as mentioned below:

- **For images use images reshaped as a vector**
- **For videos, split the video to frames and them treat them as images; ignore the sound in video.**
- **For audio, use the audio as a single dimensional vector; for different length, you may use zero padding.**
- **For text, you may vectorize the text using Bag of words or other such techniques.**
- **Any other form of input, please discuss with your mentor / teacher.**

References:

- https://towardsdatascience.com/convolutional-neural-network-feature-map-and-filter-visualization-f75012a5a49c
- https://www.kaggle.com/code/arpitjain007/guide-to-visualize-filters-and-feature-maps-in-cnn
- https://www.kaggle.com/code/amarjeet007/visualize-cnn-with-keras

Main Section (Mandatory):

A1. Continue your exercise on inspection of filters and feature maps from last week. Refer to above provided sites to find code for feature map visualization. Feature maps are the output images from each convolution layers.

A7. Design and implement a CNN network on your project data for your project goal. Refer to the papers downloaded and pick a network to implement.

Report Assignment:

1. Update your last week's report with the study of classification using CNN. The report should contain the following details. [4]
   - Abstract, introduction and literature survey should be updated with relevant content.
   - CNN architecture as a figure
   - Plot of training and validation losses with interpretations of the plots
   - Data Description section should be updated with description of the project data
   - Results should be provided in results section of the document with through discussion of the obtained results.
   - Conclude the paper as appropriate.