Neural Networks (152118003)

2021 – 2022 Spring Term

Term Project Question Set #2 (Each question is equally weighted)
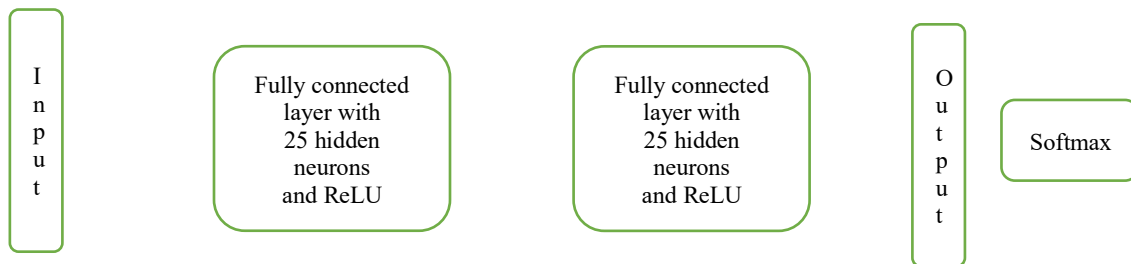
1) In Problem set #1, you had expanded a python code example to implement a simple Neural Network from scratch. This time, implement the same one utilizing Keras. You are required to
- build a simple Neural Network model in the same size
- utilize the same type of train and test data
- present training and testing error

2) In the Jupyter notebook provided to you, implement types of NNs according to the instructions given as a comment with the Jupyter notebook. In general you are required build NNs with network structures given below for each
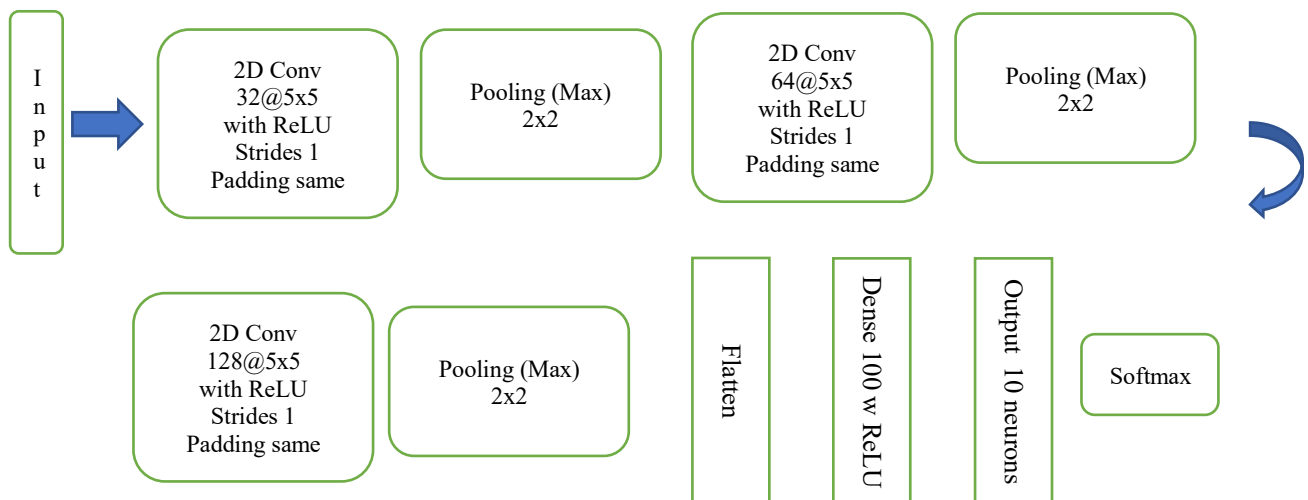
1st
A **Sequential** NN with following configs

Input	Fully connected layer with 25 hidden neurons and ReLU	Fully connected layer with 25 hidden neurons and ReLU	Output	Softmax

2nd
A CNN with a Sequential layer

Input	2D Conv 32@5x5 with ReLU Strides 1 Padding same	Pooling (Max) 2x2	2D Conv 64@5x5 with ReLU Strides 1 Padding same	Pooling (Max) 2x2

2D Conv 128@5x5 with ReLU Strides 1 Padding same	Pooling (Max) 2x2	Flatten	Dense 100 w ReLU	Output 10 neurons	Softmax

Submission of the results:

Each submission will include:
- A Google Colab's Gdrive folder. Submit separate Jupyter notebooks for Q1 and Q2. Your source code should be clearly commented (both inline comments and Jupyter cell text comments) and readable. All code can also run with a one click 'Run all' button once opened in Colab. Any code that generates run time error after "Run All" command will receive a zero grade. Any code that is also not accessible through the share URL during grading will also receive a zero grade

- a PDF report file where the link to your Google Colab folder is included and also your results and code snippets explained with clear screen captures. The PDF file will be submitted via ESUZEM.

Good luck