DL/DLOps (2023)

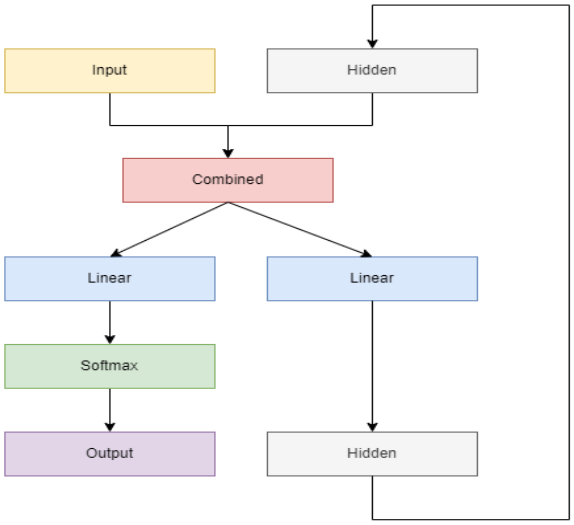
Lab Assignment 4: RNN [20 Marks]
Deadline: 05/03/2023, 23:59:59

There will be a 25% penalty for each day of late submission.

Guidelines for submission

1. Perform all tasks in a single colab file.
2. The colab file should be named appropriately with your complete roll number XYZ (ex: "XYZ_Lab_Assignment_4.ipynb").
3. Try to write the code in functions and provide comments for readability wherever possible.
4. Submit the downloaded colab file [.ipynb] in the classroom.
6. Plagiarism will not be tolerated, and strict action will be taken as per institute policies.

Build the following RNN architecture to classify names based on their language (Dataset).
(*This dataset includes the names of people in 18 different languages)*



Do the preprocessing on the dataset and perform the following experiments -

1. Split the data into train, val, and test (80:10:10). [2]
2. Plot the epoch vs. loss curve for training and validation data. Save your best model after appropriate hyperparameter tuning. [5]
3. Obtain a Confusion Matrix on validation data for your best model. [2]
4. Add three more linear layers to our current RNN architecture and perform 2 & 3 again. [4]
5. Report test accuracy for both the above architectures. [2]
6. Build a stacked RNN (2 RNN blocks) model and do appropriate hyperparameter tuning. At last, perform inference on the following words and print their language of origin. [5]

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