Assignment 1 (15 Marks) :

1. Derive expressions for $\frac{\partial L}{\partial b_h}$ and $\frac{\partial L}{\partial b_y}$ for the RNN discussed in class. Include the derived bias update equations in the RNN code shared(RNN_from_Scratch.ipynb) and train the RNN for a sentence/word. Record relevant observations during training. **(7 Marks)**

2 . i) Train an RNN using *pytorch* to predict the string "Acknowledgement" giving the starting character as 'A'. **(3 Marks)**

ii) Modify the RNN so as to predict the string "edgement" giving the starting character as 'e' **. (5 Marks)**

Your upload should be a single zip with following files:

i) Modified code RNN_from_Scratch.ipynb

ii) Code for RNN training using pytorch for 2(i) and 2 (ii)

iii) A technical report detailing:

a) Derivations for Q.1 and analysis of training performance for Q.1
b) Training level performance analysis of Q.2(i)
c) Training level performance analysis of Q.2(ii) and architectural modifications done (if any)