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 Lectures 2-3. 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 after adding bias terms. (7 Marks)

2. Replace the basic SGD technique used in the function `update_model` with any other sophisticated gradient update technique popular in literature. Record relevant observations during training after modifying gradient update method. (5 Marks)

3. Experiment with various hidden vector sizes and record your observations . (3 Marks)

Include the modified code and a technical report in a single zip file with your Id as file name(Id.zip). Technical report should contain derivation ,implementation details of gradient update method, and various experimental analysis.

* You may use a sentence/word of your choice for training.