Problem 1

In order to assess the performance of each structure, I test all cases with three different inputs. For story 1, when n\_input equals to 3, the test strings are “ Sarah had breakfast”, “David with Steve” and “Steve had lunch”; when n\_input equals to 4, the test strings are “David had breakfast dinner”, “Sarah with David Steve” and “Sarah Steve had lunch”

The outputs of the 36 cases are all stored in “Story1.txt”. We can see that when the training iteration equals to 2000, the outputs of the network are very bad, sometimes it is just a repetition of a single word. For example, “Sarah had breakfast with with with with with with with with”. The situation is a little bit better when the number of neurons in each hidden layer is 4 where one of the cases gives “Sarah had breakfast with Steve . had Sarah with Sarah .”. When the training iteration equals to 5000, the overall situation is slightly better but the outputs are not good enough. One of the best outputs is “Steve had lunch with Sarah . Sarah had dinner with Sarah” which at least gives a whole sentence even though it sounds weird. Things are getting slightly better when the training iteration is 10000. The chance for the output to give a whole sentence is larger but still it is not logical enough. For details please check “Story1.txt”

For story 2, when n\_input equals to 3, the test strings are “ Sarah did yoga”, “Jake had lunch” and “Frank had breakfast”; when n\_input equals to 4, the test strings are “Sarah works with Frank”, “Siyu did yoga with” and “Jake had breakfast with”

The outputs of the 36 cases are all stored in “Story2.txt” and we can see that the overall outputs are worse than story 1. In my opinion, the most important reason is that story 2 is longer and more complicated than story 1. More names, more verbs are making the original bad outputs even worse. For details, please check “Story2.txt”