Please provide complete and well-written solutions to the following exercises.

Due December 5, 4PM PST, to be uploaded as a single PDF or Jupyter Notebook document to brightspace.

# Homework 9

**Exercise 1.** The fetch 20 newsgroups dataset has many line breaks and other special characters in each data string. Both our transformer and two-layer neural network approaches seemed unable to get an error percentage below 17%. Try to clean the dataset (by removing these special characters) and thereby try to improve the performance of both the transformer and two-layer neural network approaches.