

10.0 Epoch 12.5

7.5

17.5

15.0

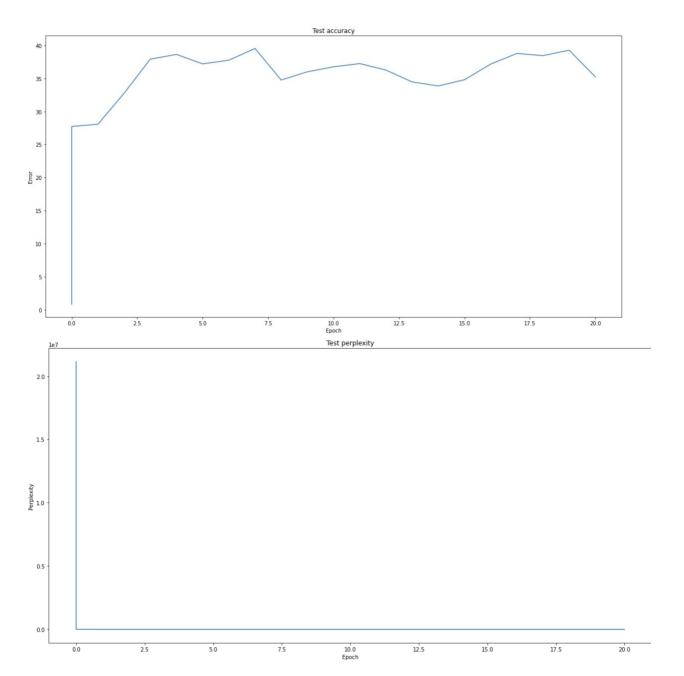
20.0

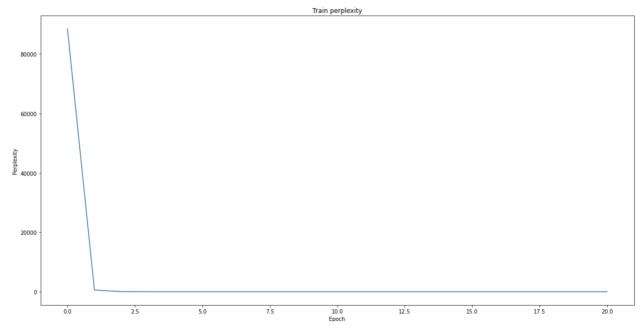
F 10

0.0

2.5

5.0





- 2. Test acc: 35%; Perplexity: 12.5954
- 3. Given: "Harry Potter, Voldemort, and Dumbledore walk into a bar."

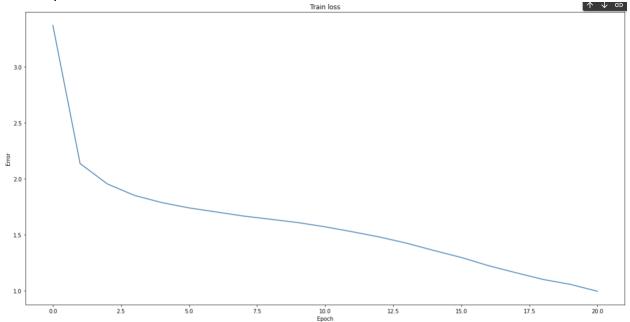
  - b. Sample: Harry Potter and the fearm, whad, warrrim, Harrrrims. Harrrry, andwre. Bech!" Harrry, chad, whad, daddaddam, had had hadwrestanded conchand, beted werelders. Durdeched, and whadded and had don'ts. news, conchardsndorew w
  - c. Beam: Harry Potter and the froned nots, and had hadwrewnce andwrew were andwrew meantalldrwnow, wand wandow......w. meadandsed nots. don, nownessad, anw......w. meants. mon, now.....w, talledwsnw..... wew, whend...wrrts tha
- 4. Beam performed the best because it can process multiple sentences at once.
- 5. Temperature changes:
  - a. 1
  - b. Temperature 0 makes the best sentence, then 0.5, then 1, and so forth. Negative temperatures will output with the least probable characters in each sentence since it flips the softmax value.

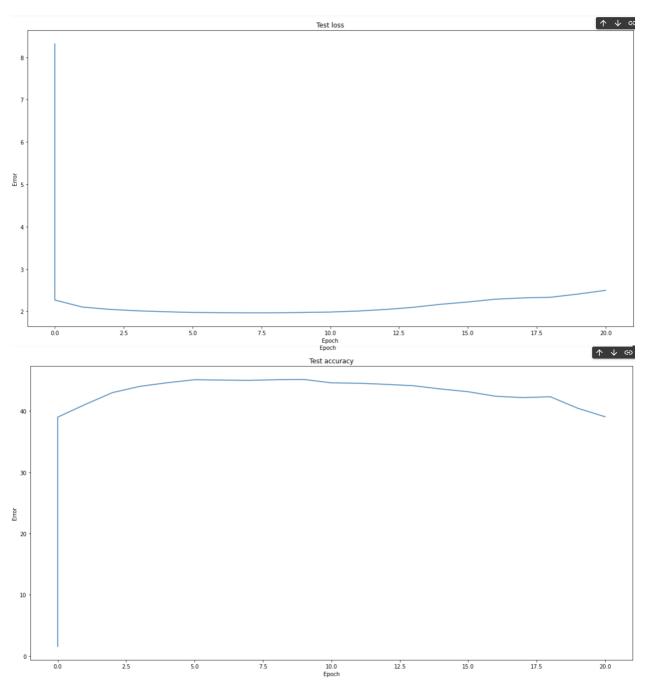
## **New Corpus**

- 1. Lord of the Ring; 1021830 chars
- 2. The new corpus did not return a single sentence that would make sense as comparison to the old corpus. It also did score a lower test accuracy.
- 3. Given: "Frodo Baggins, Saruman, and Gandalf walk into a pub."

## LSTM

- 1. Dealing with hyperparameters were the trickest part. Changing from GRU to LSTM itself was not that hard in terms of modifying codes.
- 2. It was not a big of difference but it did slightly perform better. The GRU model had 38% accuracy while the LSTM model had 39%.





- 3. Given: "Harry Potter, Voldemort, and Dumbledore walk into a bar."
  - a. Max: Harry Potter and them, will have to students in the one a blong of the stone and bearing on all his mand held wo betidg on his marks in all him. "You come of the stone and don's long to and going to snak he right and goo
  - b. Sample: Harry Potter and they and her with a roomsting the marking at the armis of his many of them. "You said though it morking. "You siden of hes thround him. "Ambling dog carle in all don and going Ploking close to staring in

c. Beam: Harry Potter and them, will have to studn'ts seent fornin ate ot or than with it ared of ter and to a liktor fir morminaly for a rid not at tiry to a fir yor to a rittinn morn you nor you know tryint to a till room on he

## Words

- 1. Modifying the dataset for considering words instead of characters was pretty time consuming, and also decline in the # of data, but surprisingly the accuracy did not drop as much as I thought.
- 2. 14403 words that are commonly used
- 3. Not necessarily. The same hyperparameters performed the best for me.