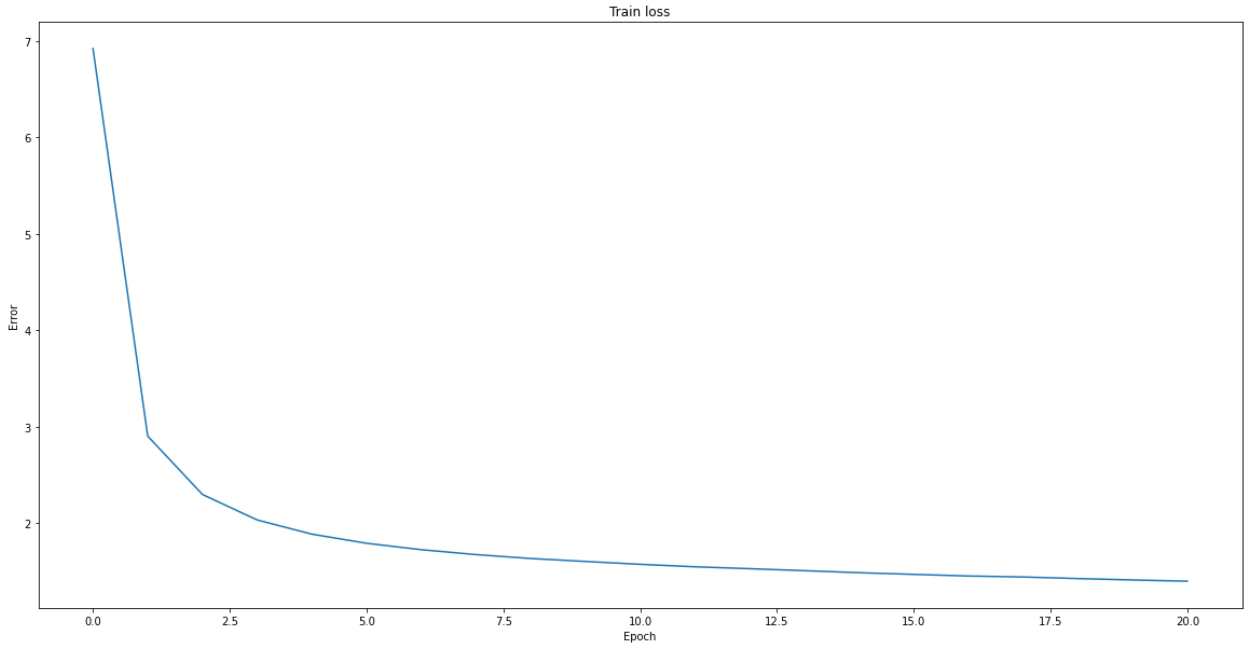
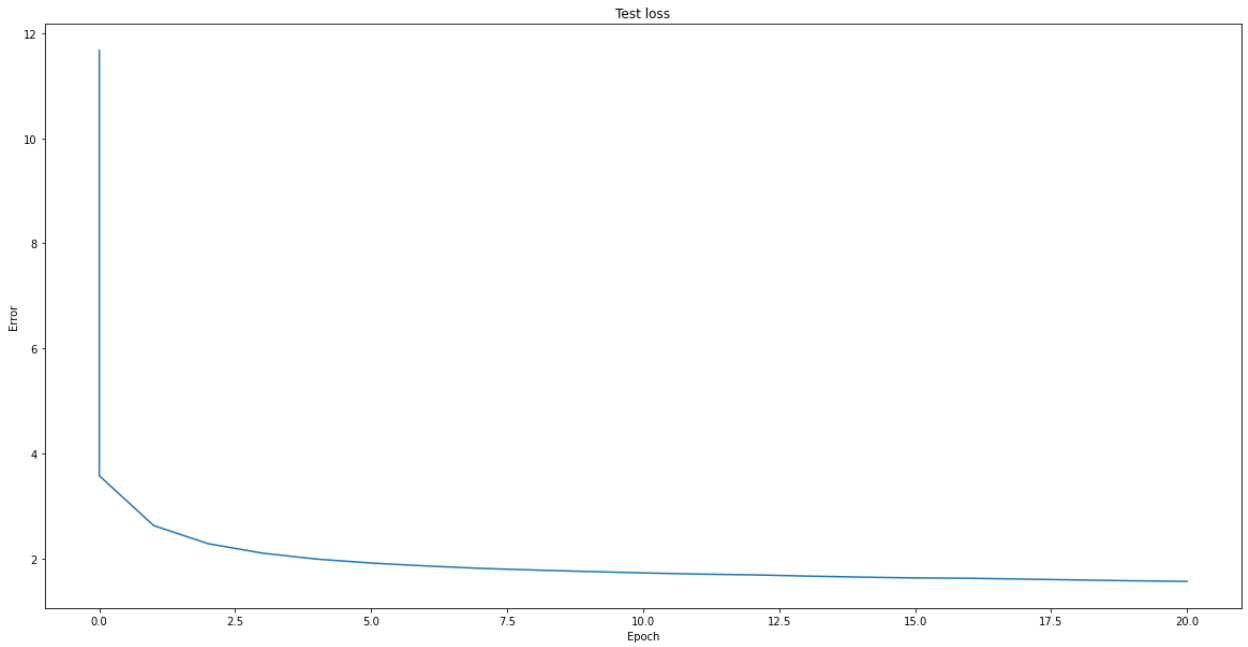
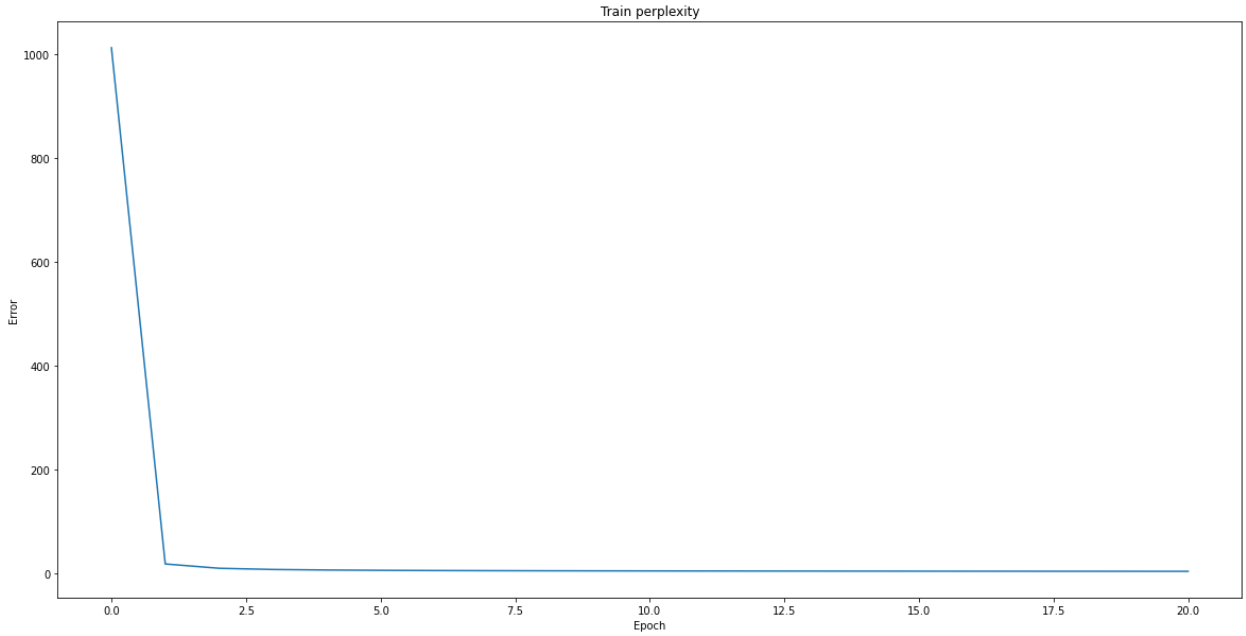
1. Train on a different text corpus.

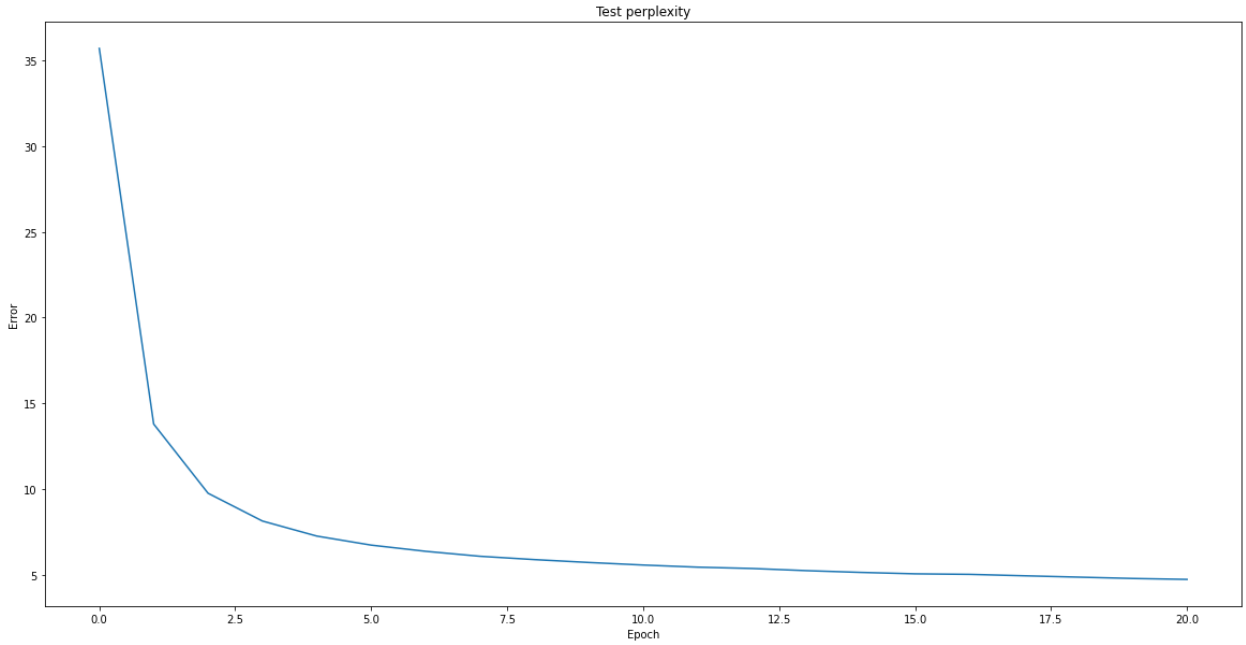
We trained on *Pride and Prejudice* using the same network architecture as we did for *Harry Potter*. For the hyperparameters, we increased the batch size to 512 for a better accuracy and lower loss.

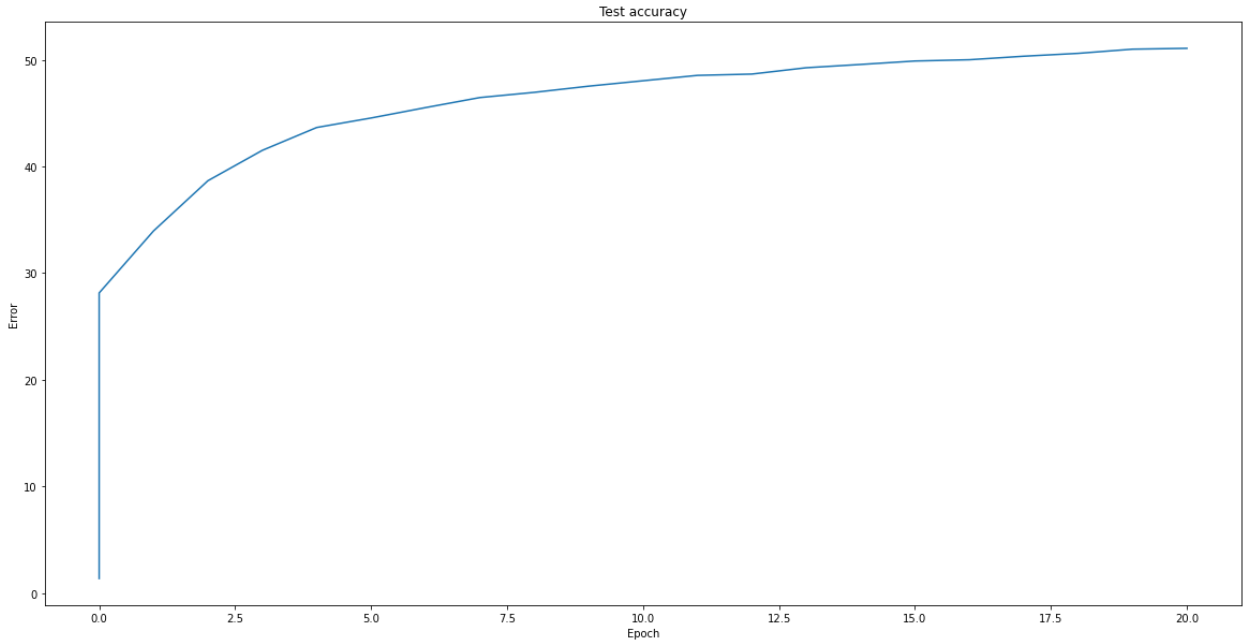
Test set: Average loss: 1.5624, Accuracy: 78437/153600 (51%)





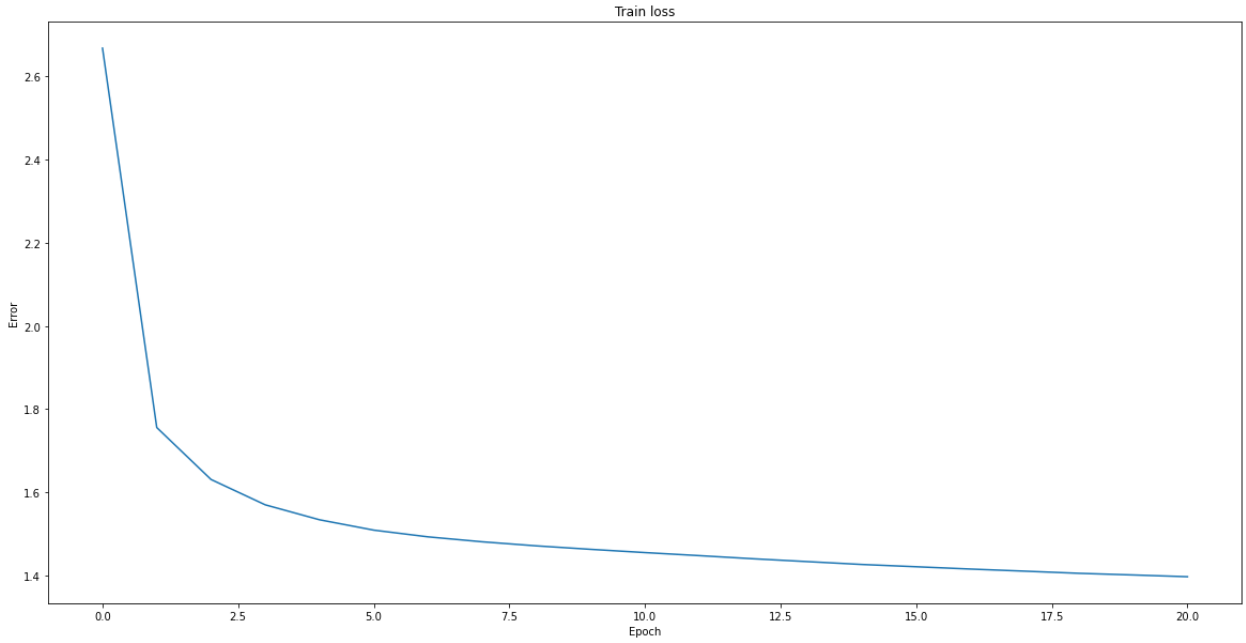

Train perplexity
1000
800
600
400
200
0
Error
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
Epoch

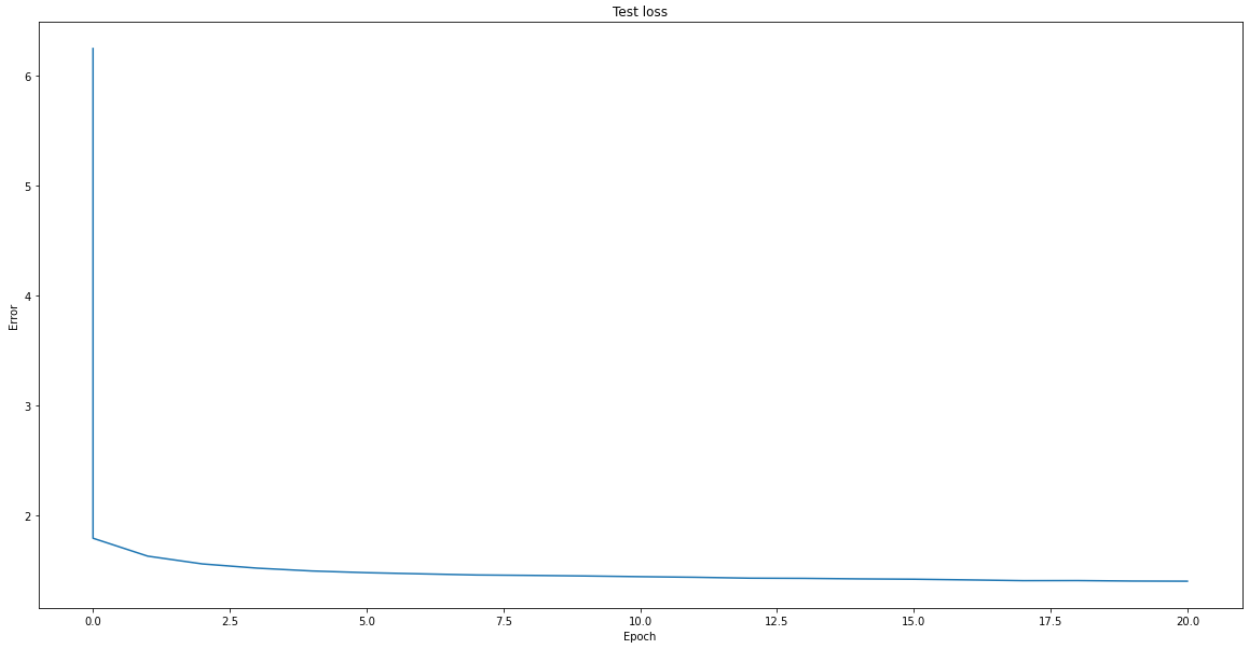

Test perplexity
35
30
25
20
15
10
5
Error
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
Epoch

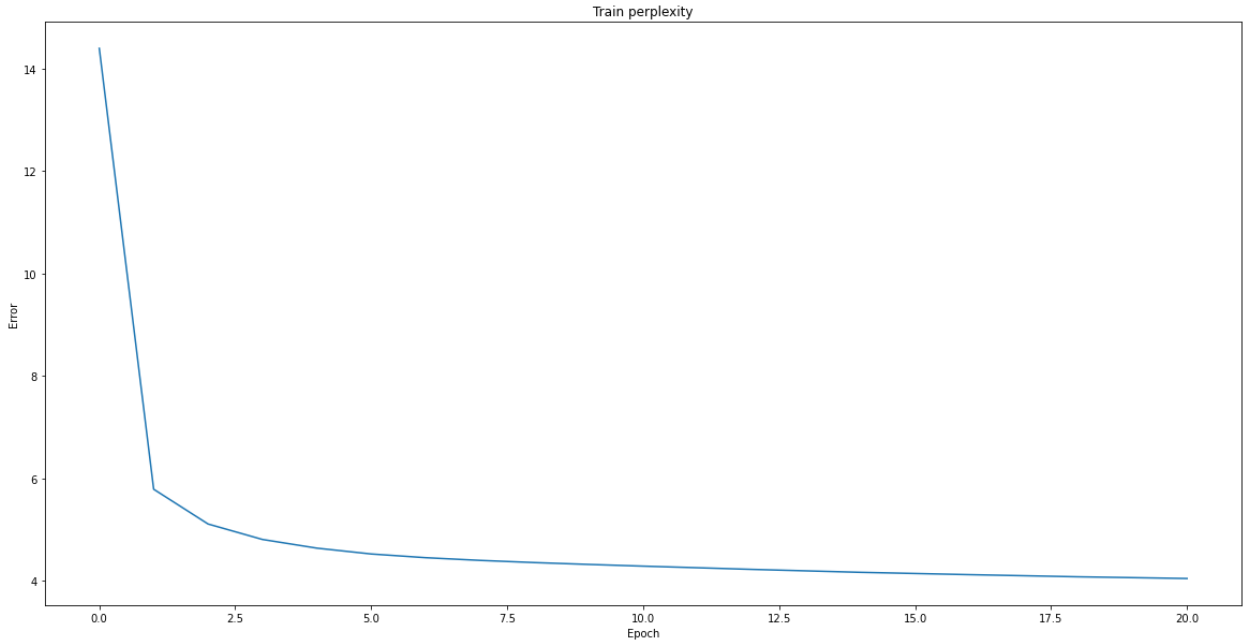


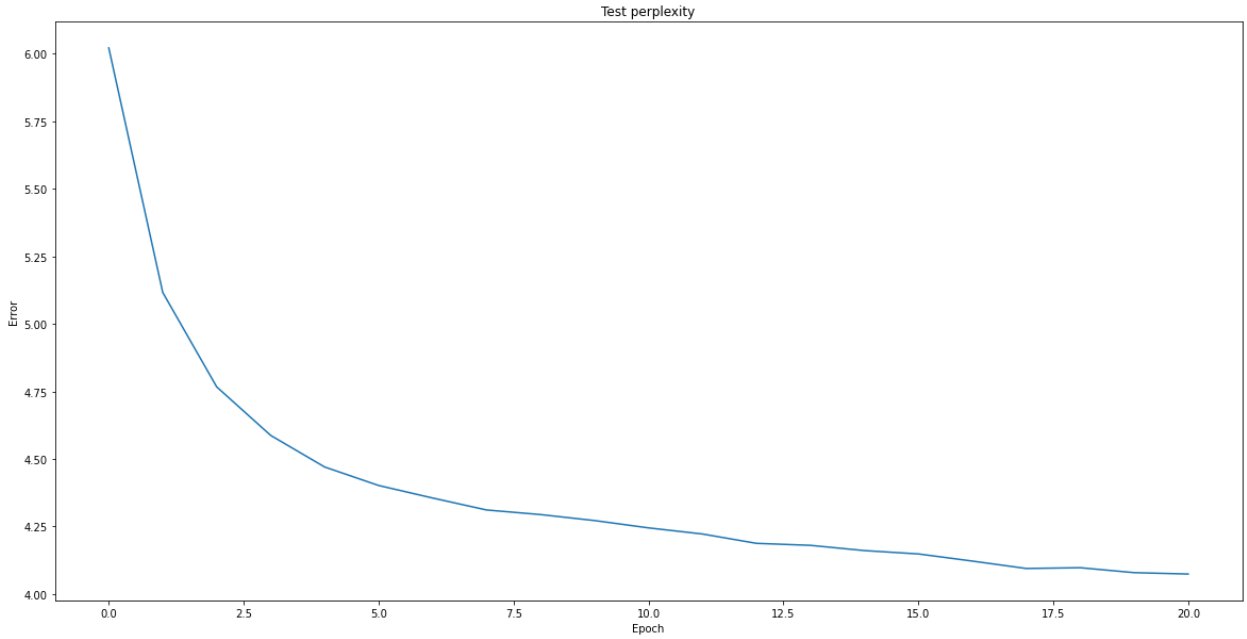
2. Find a better network architecture.

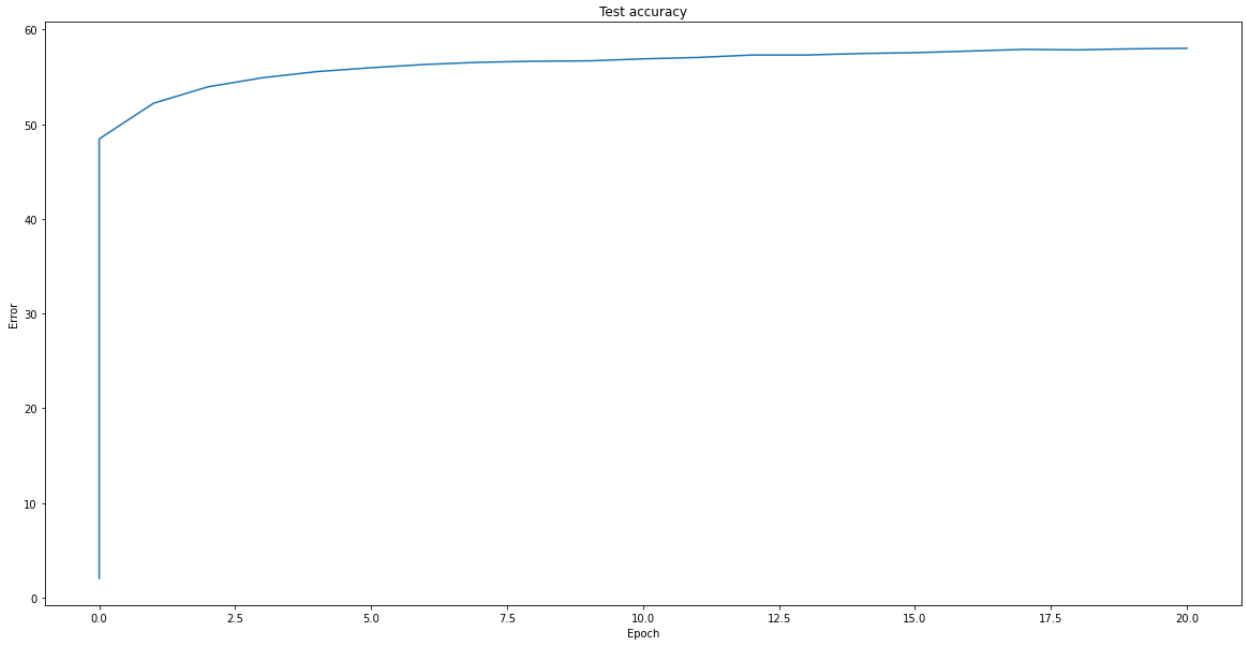
We added another stack of GRU layer to our original GRU network with a dropout probability of 0.4. This network architecture is deeper than our original one but it doesn't improve the accuracy or lower the loss. Our original model gave us a final test accuracy of 60% and 1.3441 loss. This new model gave us a **final test accuracy** of 58% and **final test perplexity** of 4.0741 (1.4047 loss).


Train loss
Error
Epoch
2.6
2.4
2.2
2.0
1.8
1.6
1.4
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Test loss
Error
Epoch
6
5
4
3
2
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Train perplexity
Error
Epoch
14
12
10
8
6
4
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


Test perplexity
Error
Epoch
6.00
5.75
5.50
5.25
5.00
4.75
4.50
4.25
4.00
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0



3. Use an LSTM instead of a GRU.

> **What was your favorite sentence generated via each of the sampling methods? What was the prompt you gave to generate that sentence?**

Seed Words: ‘`Harry Potter, Voldemort, and Dumbledore walk into a bar. ‘`

Generated Max: `Harry Potter, Voldemort, and Dumbledore walk into a bar. "I was all right, the start of the start of the stairs of the stairs of the stairs and said the stairs and started to the start of the stairs and started to the start of the stairs and started to the`

Generated Sample: `Harry Potter, Voldemort, and Dumbledore walk into a bar. "" said you migst still, world, reading his bad Sleepter fartHer burghans, and Hermione had been changes aringed and lup duagling. "Her mesticked." "Pery tower Ma. Aop, is follow to tell your around,"`

Generated Beam: `Harry Potter, Voldemort, and Dumbledore walk into a bar. " . heste as ines " n hedes s " s, inseenenes We lye n tineral s te n h ay," henonin has " atanenes t " " h one hene " ator s anen " h hes nd anineded on hes ath n d . ainan h hepe .. s nen seral . "`