NLP Deliverable Two

Below are the links to my code implementation.

Hausa: https://colab.research.google.com/drive/1V5q0ZKtf08UUwVfA2wCLaGXkqA_RWYFu#scrollTo=o2HmJkDNqNpC

Igbo: https://colab.research.google.com/drive/1OHsftDaVlNF3YYoFfgflnKrhwE02Dbio

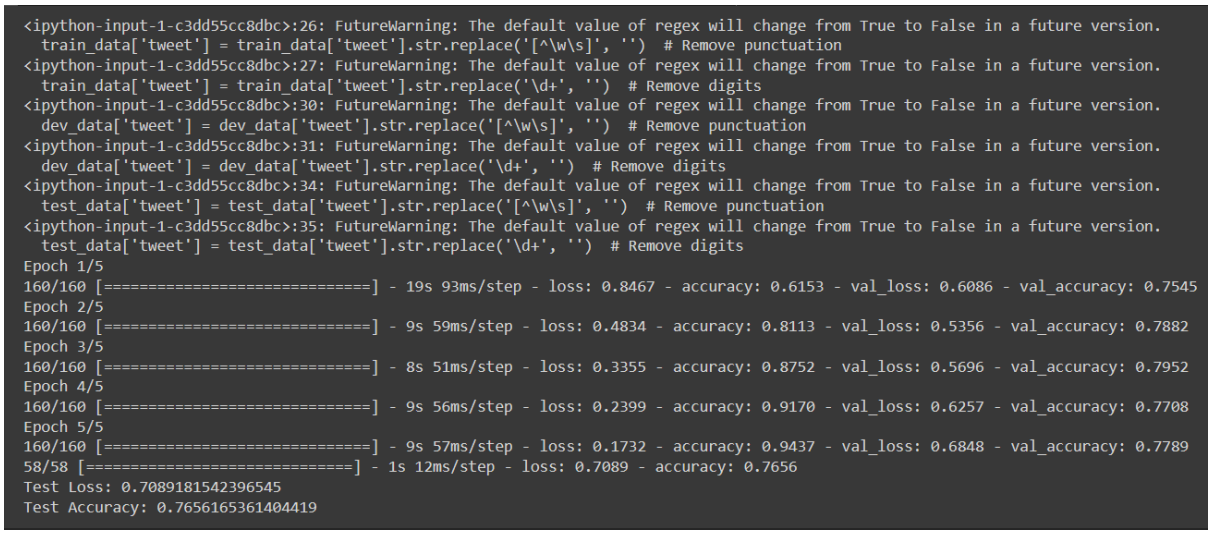
Pidgin English: https://colab.research.google.com/drive/1vowzwpdhdwq76wUeLq6222rRmKItisIK

Proof that the model is learning.

On the Hausa model, this a snapshot of the model learning after 5 epochs. The accuracy value one the epochs increase as the number of epochs increase showing that the model is learning.

```
Epoch 1/5
178/178 [==============================] - 4s 14ms/step - loss: 0.9302 - accuracy: 0.5390 - val_loss: 0.7733 - val_accuracy: 0.6201
Epoch 2/5
178/178 [==============================] - 3s 14ms/step - loss: 0.6560 - accuracy: 0.7132 - val_loss: 0.6713 - val_accuracy: 0.6991
Epoch 3/5
178/178 [==============================] - 3s 18ms/step - loss: 0.4514 - accuracy: 0.8245 - val_loss: 0.6862 - val_accuracy: 0.7005
Epoch 4/5
178/178 [==============================] - 2s 13ms/step - loss: 0.3114 - accuracy: 0.8885 - val_loss: 0.8245 - val_accuracy: 0.6917
Epoch 5/5
178/178 [==============================] - 2s 14ms/step - loss: 0.2091 - accuracy: 0.9304 - val_loss: 0.9341 - val_accuracy: 0.6836
166/166 [==============================] - 1s 3ms/step
```

On the Igbo model, this a snapshot of the model learning after 5 epochs. The accuracy value one the epochs increase as the number of epochs increase showing that the model is learning.



```
<ipython-input-1-c3dd55cc8dbc>:26: FutureWarning: The default value of regex will change from True to False in a future version.
  train_data['tweet'] = train_data['tweet'].str.replace('[^\w\s]', '')  # Remove punctuation
<ipython-input-1-c3dd55cc8dbc>:27: FutureWarning: The default value of regex will change from True to False in a future version.
  train_data['tweet'] = train_data['tweet'].str.replace('\d+', '')  # Remove digits
<ipython-input-1-c3dd55cc8dbc>:30: FutureWarning: The default value of regex will change from True to False in a future version.
  dev_data['tweet'] = dev_data['tweet'].str.replace('[^\w\s]', '')  # Remove punctuation
<ipython-input-1-c3dd55cc8dbc>:31: FutureWarning: The default value of regex will change from True to False in a future version.
  dev_data['tweet'] = dev_data['tweet'].str.replace('\d+', '')  # Remove digits
<ipython-input-1-c3dd55cc8dbc>:34: FutureWarning: The default value of regex will change from True to False in a future version.
  test_data['tweet'] = test_data['tweet'].str.replace('[^\w\s]', '')  # Remove punctuation
<ipython-input-1-c3dd55cc8dbc>:35: FutureWarning: The default value of regex will change from True to False in a future version.
  test_data['tweet'] = test_data['tweet'].str.replace('\d+', '')  # Remove digits
Epoch 1/5
160/160 [==============================] - 19s 93ms/step - loss: 0.8467 - accuracy: 0.6153 - val_loss: 0.6086 - val_accuracy: 0.7545
Epoch 2/5
160/160 [==============================] - 9s 59ms/step - loss: 0.4834 - accuracy: 0.8113 - val_loss: 0.5356 - val_accuracy: 0.7882
Epoch 3/5
160/160 [==============================] - 8s 51ms/step - loss: 0.3355 - accuracy: 0.8752 - val_loss: 0.5696 - val_accuracy: 0.7952
Epoch 4/5
160/160 [==============================] - 9s 56ms/step - loss: 0.2399 - accuracy: 0.9170 - val_loss: 0.6257 - val_accuracy: 0.7708
Epoch 5/5
160/160 [==============================] - 9s 57ms/step - loss: 0.1732 - accuracy: 0.9437 - val_loss: 0.6848 - val_accuracy: 0.7789
58/58 [==============================] - 1s 12ms/step - loss: 0.7089 - accuracy: 0.7656
Test Loss: 0.7089181542396545
Test Accuracy: 0.7656165361404419
```

On the model Pidgin, this a snapshot of the model learning after 5 epochs. The accuracy value one the epochs increase as the number of epochs increase showing that the model is learning.

```
Epoch 1/5
64/64 [==============================] - 8s 70ms/step - loss: 0.7613 - accuracy: 0.6223 - val_loss: 0.7102 - val_accuracy: 0.6390
Epoch 2/5
64/64 [==============================] - 2s 34ms/step - loss: 0.7055 - accuracy: 0.6311 - val_loss: 0.6926 - val_accuracy: 0.6390
Epoch 3/5
64/64 [==============================] - 1s 19ms/step - loss: 0.6048 - accuracy: 0.7017 - val_loss: 0.6636 - val_accuracy: 0.6702
Epoch 4/5
64/64 [==============================] - 1s 13ms/step - loss: 0.4185 - accuracy: 0.8381 - val_loss: 0.7155 - val_accuracy: 0.6907
Epoch 5/5
64/64 [==============================] - 1s 13ms/step - loss: 0.2604 - accuracy: 0.9187 - val_loss: 0.8559 - val_accuracy: 0.7044
130/130 [==============================] - 1s 3ms/step
```