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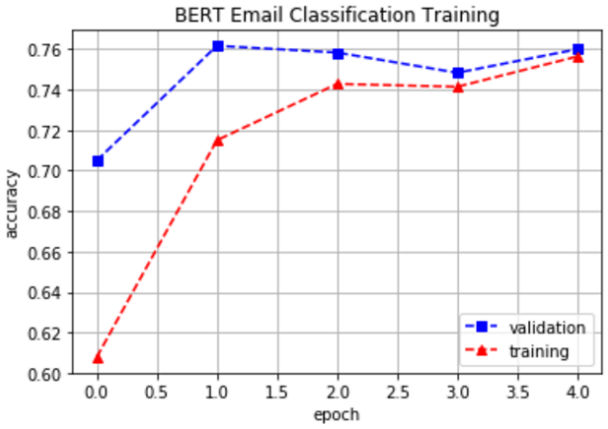
Entrenamiento de modelos de clasificación con BERT - 2

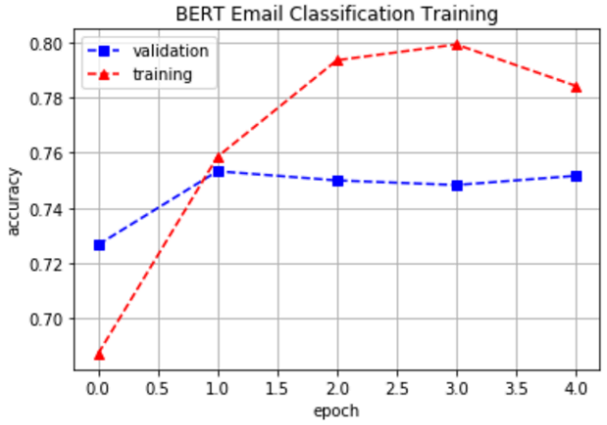
Modelo BERT

- Nsamp = 1000, maxtokens = 50, maxtokenlen = 20



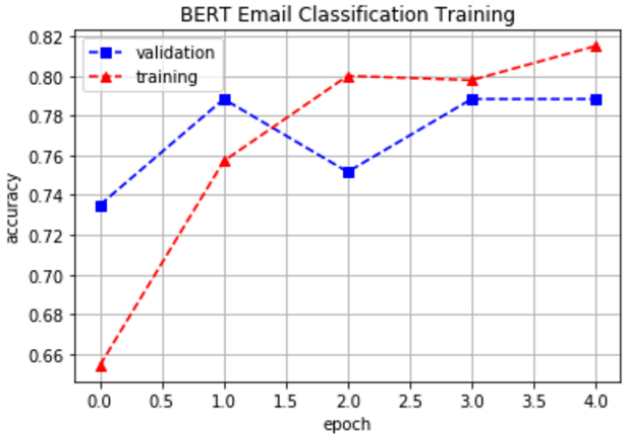

```
Train on 1400 samples, validate on 600 samples
Epoch 1/5
1400/1400 [==============================] - 10s 7ms/sample - loss: 0.6607 - acc: 0.6079 - val_loss: 0.5822 - val_acc: 0.70
50
Epoch 2/5
1400/1400 [==============================] - 6s 5ms/sample - loss: 0.5673 - acc: 0.7150 - val_loss: 0.5238 - val_acc: 0.761
7
Epoch 3/5
1400/1400 [==============================] - 6s 5ms/sample - loss: 0.5278 - acc: 0.7429 - val_loss: 0.5129 - val_acc: 0.758
3
Epoch 4/5
1400/1400 [==============================] - 6s 5ms/sample - loss: 0.5219 - acc: 0.7414 - val_loss: 0.5141 - val_acc: 0.748
3
Epoch 5/5
1400/1400 [==============================] - 6s 5ms/sample - loss: 0.4985 - acc: 0.7564 - val_loss: 0.5157 - val_acc: 0.760
0
```

- Nsamp = 1000, maxtokens = 100, maxtokenlen = 100



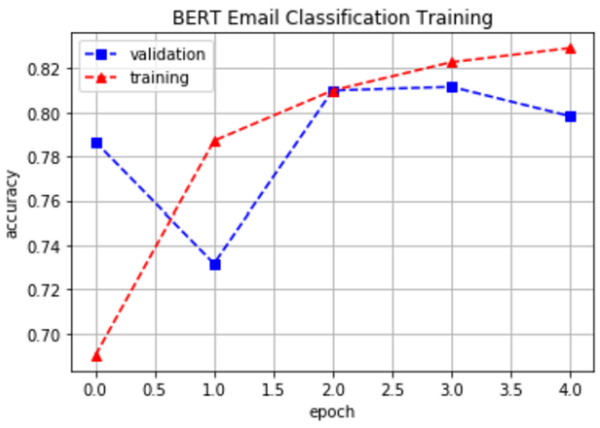
```
Epoch 1/5
1400/1400 [==============================] - 17s 12ms/sample - loss: 0.5820 - acc: 0.6871 - val_loss: 0.5339 - val_acc: 0.7
267
Epoch 2/5
1400/1400 [==============================] - 12s 9ms/sample - loss: 0.4980 - acc: 0.7586 - val_loss: 0.4909 - val_acc: 0.75
33
Epoch 3/5
1400/1400 [==============================] - 13s 9ms/sample - loss: 0.4433 - acc: 0.7936 - val_loss: 0.5544 - val_acc: 0.75
00
Epoch 4/5
1400/1400 [==============================] - 13s 9ms/sample - loss: 0.4309 - acc: 0.7993 - val_loss: 0.4873 - val_acc: 0.74
83
Epoch 5/5
1400/1400 [==============================] - 13s 9ms/sample - loss: 0.4467 - acc: 0.7843 - val_loss: 0.5041 - val_acc: 0.75
17
```

- Nsamp = 1000, maxtokens = 200, maxtokenlen = 200




```
Epoch 1/5
1400/1400 [==============================] - 32s 23ms/sample - loss: 0.6108 - acc: 0.6543 - val_loss: 0.5368 - val_acc: 0.7
350
Epoch 2/5
1400/1400 [==============================] - 27s 19ms/sample - loss: 0.4939 - acc: 0.7571 - val_loss: 0.4512 - val_acc: 0.7
883
Epoch 3/5
1400/1400 [==============================] - 28s 20ms/sample - loss: 0.4449 - acc: 0.8000 - val_loss: 0.4884 - val_acc: 0.7
517
Epoch 4/5
1400/1400 [==============================] - 28s 20ms/sample - loss: 0.4342 - acc: 0.7979 - val_loss: 0.4503 - val_acc: 0.7
883
Epoch 5/5
1400/1400 [==============================] - 29s 20ms/sample - loss: 0.4060 - acc: 0.8150 - val_loss: 0.4379 - val_acc: 0.7
883
```

- Nsamp = 1000, maxtokens = 230, maxtokenlen = 200



```
Epoch 1/5
1400/1400 [==============================] - 39s 28ms/sample - loss: 0.5837 - acc: 0.6900 - val_loss: 0.4702 - val_acc: 0.7
867
Epoch 2/5
1400/1400 [==============================] - 32s 23ms/sample - loss: 0.4731 - acc: 0.7871 - val_loss: 0.5172 - val_acc: 0.7
317
Epoch 3/5
1400/1400 [==============================] - 33s 23ms/sample - loss: 0.4200 - acc: 0.8100 - val_loss: 0.4213 - val_acc: 0.8
100
Epoch 4/5
1400/1400 [==============================] - 33s 24ms/sample - loss: 0.3932 - acc: 0.8229 - val_loss: 0.4162 - val_acc: 0.8
117
Epoch 5/5
1400/1400 [==============================] - 34s 24ms/sample - loss: 0.3745 - acc: 0.8293 - val_loss: 0.4430 - val_acc: 0.7
983
```

Tabla comparativa con el modelo de Regresión Logística

	Regresión Logística	***BERT***
A - TD - IDF	0.715	-
B - TD - IDF	0.75	-
C - TD - IDF	0.78167	-
A - BOW	0.675	-
B - BOW	0.72834	-
C - BOW	0.798334	-
A - BERT	-	0.7564
B - BERT	-	0.7843
C - BERT	-	0.8160
D - BERT	-	0.8293

Como se puede observar en la tabla anterior, cuando se cambian los parámetros y se aumentan, se obtienen mejores resultados como en los incisos C y D. Igualmente, en el caso de los modelos, se puede observar que BERT tiene un mejor desempeño a comparación de la Regresión Logística, ya que si tomamos en cuenta los incisos, desde que los parámetros son mejores y no óptimos, este ya muestra buenos resultados. Y con buenos parámetros, muestra resultados de una precisión de más del 80%.