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import tensorflow as tf
from tensorflow.keras.datasets import imdb
from tensorflow.keras.preprocessing.sequence import pad_sequences

# Load the IMDB dataset
vocab_size = 10000
(X_train, y_train), (X_test, y_test) =
imdb.load_data(num_words=vocab_size)

# Pad the sequences to have the same length
max_length = 500
X_train = pad_sequences(X_train, maxlen=max_length)
X_test = pad_sequences(X_test, maxlen=max_length)

model = tf.keras.Sequential([
    tf.keras.layers.Embedding(vocab_size, 64,
input_length=max_length),
    tf.keras.layers.Conv1D(128, 5, activation='relu'),
    tf.keras.layers.GlobalMaxPooling1D(),
    tf.keras.layers.Dense(64, activation='relu'),
    tf.keras.layers.Dense(1, activation='sigmoid')
])

model.compile(optimizer='adam', loss='binary_crossentropy',
metrics=['accuracy'])

model.fit(X_train, y_train, epochs=5, batch_size=32)

Epoch 1/5
782/782 [=====] - 54s 68ms/step - loss:
0.3822 - accuracy: 0.8113
Epoch 2/5
782/782 [=====] - 52s 67ms/step - loss:
0.1598 - accuracy: 0.9406
Epoch 3/5
782/782 [=====] - 51s 65ms/step - loss:
0.0477 - accuracy: 0.9867
Epoch 4/5
782/782 [=====] - 50s 64ms/step - loss:
0.0101 - accuracy: 0.9982
Epoch 5/5
782/782 [=====] - 61s 78ms/step - loss:
0.0017 - accuracy: 0.9999

<keras.callbacks.History at 0x258b60a0b20>

# Evaluate the model on the test set
loss, accuracy = model.evaluate(X_test, y_test)
print("Test Loss:", loss)
print("Test Accuracy:", accuracy)

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# Make predictions on the test set
predictions = model.predict(X_test[:10])
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# Print some example predictions
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for i in range(10):
    review = 'Positive' if predictions[i] > 0.5 else 'Negative'
    print("Review:", ' '.join([str(x) for x in X_test[i]]))
    print("Prediction:", review)
    print()
```

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782/782 [=====] - 10s 12ms/step - loss:
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0.6312 - accuracy: 0.6786

Test Loss: 0.6312212944030762

Test Accuracy: 0.6785600185394287

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1/1 [=====] - 0s 106ms/step
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[illegible]

Prediction: Negative

[illegible]

551 14 22 9 1193 21 45 4829 5 45 252 8 2 6 565 921 3639 39 4 529 48 25
181 8 67 35 1732 22 49 238 60 135 1162 14 9 290 4 58 10 10 472 45 55
878 8 169 11 374 5687 25 203 28 8 818 12 125 4 3077

Prediction: Positive

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Review: 33 6 58 54 1270 431 748 7 32 2580 16 11 94 2 10 10 4 993 2 7 4
1766 2634 2164 2 8 847 8 1450 121 31 7 27 86 2663 2 16 6 465 993 2006
2 573 17 2 42 4 2 37 473 6 711 6 8869 7 328 212 70 30 258 11 220 32 7
108 21 133 12 9 55 465 849 3711 53 33 2071 1969 37 70 1144 4 5940 1409
74 476 37 62 91 1329 169 4 1330 2 146 655 2212 5 258 12 184 2 546 5
849 2 7 4 22 1436 18 631 1386 797 7 4 8712 71 348 425 4320 1061 19 2 5
2 11 661 8 339 2 4 2455 2 7 4 1962 10 10 263 787 9 270 11 6 9466 4 2 2
121 4 5437 26 4434 19 68 1372 5 28 446 6 318 7149 8 67 51 36 70 81 8
4392 2294 36 1197 8 2 2 18 6 711 4 9909 26 2 1125 11 14 636 720 12 426
28 77 776 8 97 38 111 7489 6175 168 1239 5189 137 2 18 27 173 9 2399
17 6 2 428 2 232 11 4 8014 37 272 40 2708 247 30 656 6 2 54 2 3292 98
6 2840 40 558 37 6093 98 4 2 1197 15 14 9 57 4893 5 4659 6 275 711
7937 2 3292 98 6 2 10 10 6639 19 14 2 267 162 711 37 5900 752 98 4 2
2378 90 19 6 2 7 2 1810 2 4 4770 3183 930 8 508 90 4 1317 8 4 2 17 2
3965 1853 4 1494 8 4468 189 4 2 6287 5774 4 4770 5 95 271 23 6 7742
6063 2 5437 33 1526 6 425 3155 2 4535 1636 7 4 4669 2 469 4 4552 54 4
150 5664 2 280 53 2 2 18 339 29 1978 27 7885 5 2 68 1830 19 6571 2 4
1515 7 263 65 2132 34 6 5680 7489 43 159 29 9 4706 9 387 73 195 584 10
10 1069 4 58 810 54 14 6078 117 22 16 93 5 1069 4 192 15 12 16 93 34 6
1766 2 33 4 5673 7 15 2 9252 3286 325 12 62 30 776 8 67 14 17 6 2 44
148 687 2 203 42 203 24 28 69 2 6676 11 330 54 29 93 2 21 845 2 27
1099 7 819 4 22 1407 17 6 2 787 7 2460 2 2 100 30 4 3737 3617 3169
2321 42 1898 11 4 3814 42 101 704 7 101 999 15 1625 94 2926 180 5 9
9101 34 2 45 6 1429 22 60 6 1220 31 11 94 6408 96 21 94 749 9 57 975
```

Prediction: Negative

[illegible]

Prediction: Negative

[illegible]

Review: 303 343 34 1265 2 11 443 7945 271 8 513 5 909 308 2 21 11 2 57
31 2267 9 177 17 6 632 42 1886 4 65 9 579 143 6 201 7 139 15 26 2505
11 6 318 962 573 17 4226 4 802 5 5560 7 346 3309 8 2242 6 4630 962 23
4 529 1095 1992 5178 82 343 4 4226 21 57 31 2 12 38 73 17 2 10 10 4
1614 1423 7 4 1051 2765 11 68 9 2 34 4 2 7030 7 8915 9429 39 9653 11 4
2 11 2288 4 5127 200 4 1051 5 68 4155 9 5339 19 9014 5 4 2 2 7 4 5075
6469 68 3980 19 8313 10 10 2 1725 4 3120 7 800 35 206 5 5686 12 174 21
39 6 1076 275 2651 8 6469 3033 4 2244 7 6 7479 7382 4 715 202 178 14

6514 2 3527 2953 21 171 7 134 7016 28 3405 4 2181 7 58 4 91 906 71 4
2636 2370 2907 2 108 63 28 196 237 413 1250 14 31 9 1061 19 2278 690 2
2 5 2764 45 6 371 9687 7 6247 5 184 751 2 639 12 16 2305 18 94 3268
318 302 63 26 220 2 11 14 251 5 559 2 1424 7 2873 1381 4 64 1339 1123
792 63 6095 9 94 307 1399 5 7890 619 8 135 7 4 111 108 93 11 14 512
171 7 98 216 56 8 3802 2 204 3036 7 2 220 101 85 2 3527 22 9 1731 8 14
31 151 45 6 3358
Prediction: Positive

Review: 0
0
0
0
121 4 1354 3135 3882 8 28 2230 151 13 80 2 15 4 1008 496 1354 1437 71
321 5 100 28 77 714 5372 34 6 3275 167 17 12 679 46 14 16 24 8 30 4
420 10 10 684 2991 1094 7129 71 685 19 89 465 14 333 1354 22 39 1756
3555 679 46 972 39 4 8801 7 1017 233 334 39 3555 5 4 4528 2 7 68 3691
2154 8 471 4 3135 83 35 3490 8 4 4997 248 201 13 1854 8 391 89 1354
1747 70 30 1192 33 32 1332 10 10 283 12 9 24 179 4 3215 7 4 86 22 151
12 2 32 4 1403 2 7 405 258 11 1354 6 6118 229 15 2 4 2 200 24 43 107
21 289 105 5386 2 5719 8 4 4796 8173 7 2065 5 718 4462 17 4 6199 11 4
86 22 246 18 32 14 12 1287 6 2 465 22 283 8 4 96 4 1354 16 210 981 8
30 5 545 2349 10 10 488 2065 1747 17 4 1354 5 27 6765 3530 1478 2451
19 2 2431 2 1368 3590 773 11 9658 7 4 8712 1124 1295 284 27 1943 11
823 2 2 4 8976 1738 2 11 530 2430 2781 7 5428 2 745 3448 5 2 5134 4 2
2861 6984 937 2451 6978 199 17 309 5 17 4 1354 4 689 6495 471 11 321
354 262 3590 5 2 137 295 2065 5 6984 3739 4 3778 499 7 1405 8681 10 10
50 26 49 1774 5867 11 14 22 44 4 64 5340 13 70 66 213 46 9 6 813 8 4
229 11 49 1370 63 13 104 9 688 669 8 4 96 14 22 9 6 689 2 548 50 331
218 195 58 8 2887 3739 803 170 23 10 10 2185 14 9 6 1543 52 22 13 545
386 149 14 11 2 19 4 86 5 95 2 18 89 52 4 201 100 28 77 69 12 3501 467
3555 5 2065
Prediction: Negative