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import numpy as np
from tensorflow import keras
from tensorflow.keras.preprocessing.sequence import pad_sequences

# Sample text data
text = "This is some sample text data for the next word prediction example. We will create a simple model to predict the next word based on tl

# Preprocess the text data
tokenizer = keras.preprocessing.text.Tokenizer()
tokenizer.fit_on_texts([text])

# Convert text to sequences of tokens
sequences = tokenizer.texts_to_sequences([text])[0]

# Generate input-output pairs
input_sequences = []
output_words = []
for i in range(1, len(sequences)):
    input_sequence = sequences[:i]
    output_word = sequences[i]
    input_sequences.append(input_sequence)
    output_words.append(output_word)

# Pad input sequences to make them uniform in length
max_sequence_length = max(map(len, input_sequences))
padded_input_sequences = pad_sequences(input_sequences, maxlen=max_sequence_length)

# Convert output words to numpy array
output_words = np.array(output_words)

# Define the model architecture
model = keras.Sequential([
    keras.layers.Embedding(input_dim=len(tokenizer.word_index) + 1, output_dim=100, input_length=max_sequence_length),
    keras.layers.LSTM(150),
    keras.layers.Dense(len(tokenizer.word_index) + 1, activation='softmax')
])

# Compile the model
model.compile(loss='sparse_categorical_crossentropy', optimizer='adam', metrics=['accuracy'])

# Train the model
model.fit(padded_input_sequences, output_words, epochs=100, verbose=1)

# Generate predictions for the next word
test_input = padded_input_sequences[0].reshape(1, -1)
predicted_word = np.argmax(model.predict(test_input), axis=-1)
predicted_word = tokenizer.index_word[predicted_word[0]]

print(f"The predicted next word is: {predicted_word}")
```

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Epoch 1/100
1/1 [==============================] - 3s 3s/step - loss: 3.2168 - accuracy: 0.1111
Epoch 2/100
1/1 [==============================] - 0s 57ms/step - loss: 3.2072 - accuracy: 0.1481
Epoch 3/100
1/1 [==============================] - 0s 53ms/step - loss: 3.1973 - accuracy: 0.1481
Epoch 4/100
1/1 [==============================] - 0s 61ms/step - loss: 3.1863 - accuracy: 0.1852
Epoch 5/100
1/1 [==============================] - 0s 57ms/step - loss: 3.1736 - accuracy: 0.1481
Epoch 6/100
1/1 [==============================] - 0s 72ms/step - loss: 3.1582 - accuracy: 0.1481
Epoch 7/100
1/1 [==============================] - 0s 53ms/step - loss: 3.1383 - accuracy: 0.1481
Epoch 8/100
1/1 [==============================] - 0s 58ms/step - loss: 3.1117 - accuracy: 0.1481
Epoch 9/100
1/1 [==============================] - 0s 51ms/step - loss: 3.0755 - accuracy: 0.1481
Epoch 10/100
1/1 [==============================] - 0s 52ms/step - loss: 3.0327 - accuracy: 0.1481
Epoch 11/100
1/1 [==============================] - 0s 56ms/step - loss: 3.0126 - accuracy: 0.1481
Epoch 12/100
1/1 [==============================] - 0s 54ms/step - loss: 2.9926 - accuracy: 0.1111
Epoch 13/100
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1/1 [==============================] - 0s 58ms/step - loss: 2.9456 - accuracy: 0.1111
Epoch 14/100
1/1 [==============================] - 0s 61ms/step - loss: 2.9020 - accuracy: 0.1111
Epoch 15/100
1/1 [==============================] - 0s 55ms/step - loss: 2.8614 - accuracy: 0.1111
Epoch 16/100
1/1 [==============================] - 0s 55ms/step - loss: 2.8106 - accuracy: 0.1852
Epoch 17/100
1/1 [==============================] - 0s 55ms/step - loss: 2.7735 - accuracy: 0.1481
Epoch 18/100
1/1 [==============================] - 0s 51ms/step - loss: 2.7217 - accuracy: 0.1481
Epoch 19/100
1/1 [==============================] - 0s 53ms/step - loss: 2.6752 - accuracy: 0.1481
Epoch 20/100
1/1 [==============================] - 0s 60ms/step - loss: 2.6187 - accuracy: 0.1852
Epoch 21/100
1/1 [==============================] - 0s 56ms/step - loss: 2.5922 - accuracy: 0.1111
Epoch 22/100
1/1 [==============================] - 0s 55ms/step - loss: 2.5269 - accuracy: 0.2222
Epoch 23/100
1/1 [==============================] - 0s 69ms/step - loss: 2.4750 - accuracy: 0.1852
Epoch 24/100
1/1 [==============================] - 0s 56ms/step - loss: 2.4522 - accuracy: 0.1111
Epoch 25/100
1/1 [==============================] - 0s 53ms/step - loss: 2.3897 - accuracy: 0.2222
Epoch 26/100
1/1 [==============================] - 0s 56ms/step - loss: 2.3286 - accuracy: 0.2963
Epoch 27/100
1/1 [==============================] - 0s 56ms/step - loss: 2.2956 - accuracy: 0.1481
Epoch 28/100
1/1 [==============================] - 0s 63ms/step - loss: 2.2533 - accuracy: 0.3333
Epoch 29/100
1/1 [==============================] - 0s 59ms/step - loss: 2.1970 - accuracy: 0.2593
```