```
import numpy as np
from tensorflow.keras.datasets import imdb
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Embedding,GRU,LSTM,Dense
from tensorflow.keras.preprocessing.sequence import pad_sequences
from tensorflow.keras.utils import to_categorical
from sklearn.model_selection import train_test_split
vocab_size=10000
max_len=200
(x_train,y_train),(x_test,y_test)=imdb.load_data(num_words=vocab_size)
x_train=pad_sequences(x_train,maxlen=max_len)
x_test=pad_sequences(x_test,maxlen=max_len)
y_train=to_categorical(y_train,num_classes=2)
y_test=to_categorical(y_test,num_classes=2)
x_train,x_val,y_train,y_val=train_test_split(x_train,y_train,test_size=0.2,random_state=42)
model_gru=Sequential()
model_gru.add(Embedding(vocab_size,128,input_length=max_len))
model_gru.add(GRU(64))
model_gru.add(Dense(2,activation='softmax'))
model_gru.compile(optimizer='adam',loss='categorical_crossentropy',metrics=['accuracy'])
model_gru.fit(x_train,y_train,validation_data=(x_val,y_val),epochs=3,batch_size=64)
gru_loss,gru_accuracy=model_gru.evaluate(x_test,y_test)
print(f"GRU Model-Test Loss:{gru_loss:.4f},Test Accuracy:{gru_accuracy:.4f}")
model_lstm=Sequential()
model_lstm.add(Embedding(vocab_size,128,input_length=max_len))
model_lstm.add(LSTM(64))
model_lstm.add(Dense(2,activation='softmax'))
model_lstm.compile(optimizer='adam',loss='categorical_crossentropy',metrics=['accuracy'])
model_lstm.fit(x_train,y_train,validation_data=(x_val,y_val),epochs=3,batch_size=64)
lstm_loss,lstm_accuracy=model_lstm.evaluate(x_test,y_test)
print(f"LSTM Model-Test Loss:{lstm_loss:.4f},Test Accuracy:{lstm_accuracy:.4f}")
```

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Epoch 1/3
313/313 [==============================] - 92s 286ms/step - loss: 0.4284 - accuracy: 0.7898 - val_loss: 0.3294 - val_accuracy: 0.859
Epoch 2/3
313/313 [==============================] - 88s 282ms/step - loss: 0.2281 - accuracy: 0.9131 - val_loss: 0.3136 - val_accuracy: 0.884
Epoch 3/3
313/313 [==============================] - 90s 287ms/step - loss: 0.1476 - accuracy: 0.9436 - val_loss: 0.3587 - val_accuracy: 0.868
782/782 [==============================] - 26s 33ms/step - loss: 0.3895 - accuracy: 0.8594
GRU Model-Test Loss:0.3895,Test Accuracy:0.8594
Epoch 1/3
313/313 [==============================] - 99s 306ms/step - loss: 0.4045 - accuracy: 0.8164 - val_loss: 0.3078 - val_accuracy: 0.869
Epoch 2/3
313/313 [==============================] - 96s 308ms/step - loss: 0.2335 - accuracy: 0.9083 - val_loss: 0.3133 - val_accuracy: 0.876
Epoch 3/3
313/313 [==============================] - 95s 305ms/step - loss: 0.1537 - accuracy: 0.9436 - val_loss: 0.3899 - val_accuracy: 0.864
782/782 [==============================] - 30s 38ms/step - loss: 0.4152 - accuracy: 0.8553
LSTM Model-Test Loss:0.4152,Test Accuracy:0.8553
```