EXP NO: 5

```python
from keras.datasets import imdb
from keras.models import Sequential
from keras.layers import Embedding, LSTM, Dense
from keras.preprocessing.sequence import pad_sequences

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

# Pad sequences
max_len = 100
X_train = pad_sequences(X_train, maxlen=max_len)
X_test = pad_sequences(X_test, maxlen=max_len)

# Build model
model = Sequential([
    Embedding(input_dim=10000, output_dim=32, input_length=max_len),
    LSTM(100, dropout=0.2, recurrent_dropout=0.2),
    Dense(1, activation='sigmoid')
])

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

# Train model
model.fit(X_train, y_train, epochs=5, batch_size=64, validation_split=0.2)

# Evaluate on test data
loss, accuracy = model.evaluate(X_test, y_test)
print(f'Test accuracy: {accuracy:.3f}')
```

OUTPUT:

```
Downloading data from https://storage.googleapis.com/tensorflow/tf-keras-datasets/imdb.npz
17464789/17464789 ━━━━━━━━━━━━━━━━━━━━ 0s 0us/step
Epoch 1/5
/usr/local/lib/python3.12/dist-packages/keras/src/layers/core/embedding.py:97: UserWarning: Argument `input_length` is deprecated. Just remove it.
  warnings.warn(
313/313 ━━━━━━━━━━━━━━━━━━━━ 70s 212ms/step - accuracy: 0.6712 - loss: 0.5943 - val_accuracy: 0.8252 - val_loss: 0.3754
Epoch 2/5
313/313 ━━━━━━━━━━━━━━━━━━━━ 81s 208ms/step - accuracy: 0.8632 - loss: 0.3370 - val_accuracy: 0.8178 - val_loss: 0.4077
Epoch 3/5
313/313 ━━━━━━━━━━━━━━━━━━━━ 82s 208ms/step - accuracy: 0.8940 - loss: 0.2763 - val_accuracy: 0.8458 - val_loss: 0.3709
Epoch 4/5
```