ASSIGNMENT 2

```
import tensorflow as tf
from tensorflow.keras import layers, models
from tensorflow.keras.datasets import imdb
from tensorflow.keras.preprocessing import sequence
```

```
num_words = 10000
(X_train, y_train), (X_test, y_test) = imdb.load_data(num_words=num_words)
```

```
Downloading data from https://storage.googleapis.com/tensorflow/tf-keras-datasets/imdb.npz
17464789/17464789 ━━━━━━━━━━━━━━━━━━━━ 0s 0us/step
```

```
max_len = 200
X_train = sequence.pad_sequences(X_train, maxlen=max_len)
X_test = sequence.pad_sequences(X_test, maxlen=max_len)
```

```
model = models.Sequential([
    layers.Embedding(input_dim=num_words, output_dim=32, input_length=max_len),
    layers.Flatten(),
    layers.Dense(128, activation='relu'),
    layers.Dense(64, activation='relu'),
    layers.Dense(1, activation='sigmoid')  # Binary classification (0 = negative, 1 = positive)
])
```

```
/usr/local/lib/python3.11/dist-packages/keras/src/layers/core/embedding.py:90: UserWarning: Argument `input_length` is deprecated. Just remove it.
  warnings.warn(
```

```
model.compile(optimizer='adam', loss='binary_crossentropy', metrics=['accuracy'])
model.fit(X_train, y_train, epochs=5, batch_size=32, validation_data=(X_test, y_test))
```

```
Epoch 1/5
782/782 ━━━━━━━━━━━━━━━━━━━━ 16s 18ms/step - accuracy: 0.7145 - loss: 0.5121 - val_accuracy: 0.8634 - val_loss: 0.3215
Epoch 2/5
782/782 ━━━━━━━━━━━━━━━━━━━━ 14s 18ms/step - accuracy: 0.9586 - loss: 0.1186 - val_accuracy: 0.8483 - val_loss: 0.4191
Epoch 3/5
782/782 ━━━━━━━━━━━━━━━━━━━━ 20s 18ms/step - accuracy: 0.9928 - loss: 0.0220 - val_accuracy: 0.8424 - val_loss: 0.6108
Epoch 4/5
782/782 ━━━━━━━━━━━━━━━━━━━━ 20s 17ms/step - accuracy: 0.9959 - loss: 0.0115 - val_accuracy: 0.8406 - val_loss: 0.9056
Epoch 5/5
782/782 ━━━━━━━━━━━━━━━━━━━━ 14s 18ms/step - accuracy: 0.9981 - loss: 0.0068 - val_accuracy: 0.8358 - val_loss: 0.8771
<keras.src.callbacks.history.History at 0x783b4a52bb90>
```

```
loss, acc = model.evaluate(X_test, y_test)
print(f"Test Accuracy: {acc:.2%}")
```

```
782/782 ━━━━━━━━━━━━━━━━━━━━ 2s 3ms/step - accuracy: 0.8353 - loss: 0.8836
Test Accuracy: 83.58%
```

```
Start coding or generate with AI.
```