

```
In [1]: from tensorflow.keras.datasets import imdb
        from tensorflow.keras.preprocessing.sequence import pad_sequences

        (x_train, y_train), (x_test, y_test) = imdb.load_data(num_words=10000)

        max_len = 200
        x_train = pad_sequences(x_train, maxlen=max_len)
        x_test = pad_sequences(x_test, maxlen=max_len)
```

Downloading data from <https://storage.googleapis.com/tensorflow/tf-keras-datasets/imdb.npz>  
17464789/17464789 ————— 11s 1us/step

```
In [2]: from tensorflow.keras.models import Sequential
        from tensorflow.keras.layers import Embedding, GRU, Dense, Dropout

        model = Sequential([
            Embedding(input_dim=10000, output_dim=128, input_length=max_len),
            GRU(64, return_sequences=False),
            Dropout(0.5),
            Dense(1, activation='sigmoid')
        ])

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

        history = model.fit(x_train, y_train, epochs=4, batch_size=128, validation_split=0.2)
```

C:\Users\Admin\anaconda3\Lib\site-packages\keras\src\layers\core\embedding.py:90: UserWarning: Argument `input\_length` is deprecated. Just remove it.  
warnings.warn(

```
Epoch 1/4
157/157 ————— 75s 421ms/step - accuracy: 0.6384 - loss: 0.6075 - val_accuracy: 0.8170 - val_loss: 0.4098
Epoch 2/4
157/157 ————— 64s 410ms/step - accuracy: 0.8899 - loss: 0.2806 - val_accuracy: 0.8710 - val_loss: 0.3186
Epoch 3/4
157/157 ————— 64s 409ms/step - accuracy: 0.9289 - loss: 0.1957 - val_accuracy: 0.8698 - val_loss: 0.3389
Epoch 4/4
157/157 ————— 64s 409ms/step - accuracy: 0.9506 - loss: 0.1435 - val_accuracy: 0.8680 - val_loss: 0.3770
```

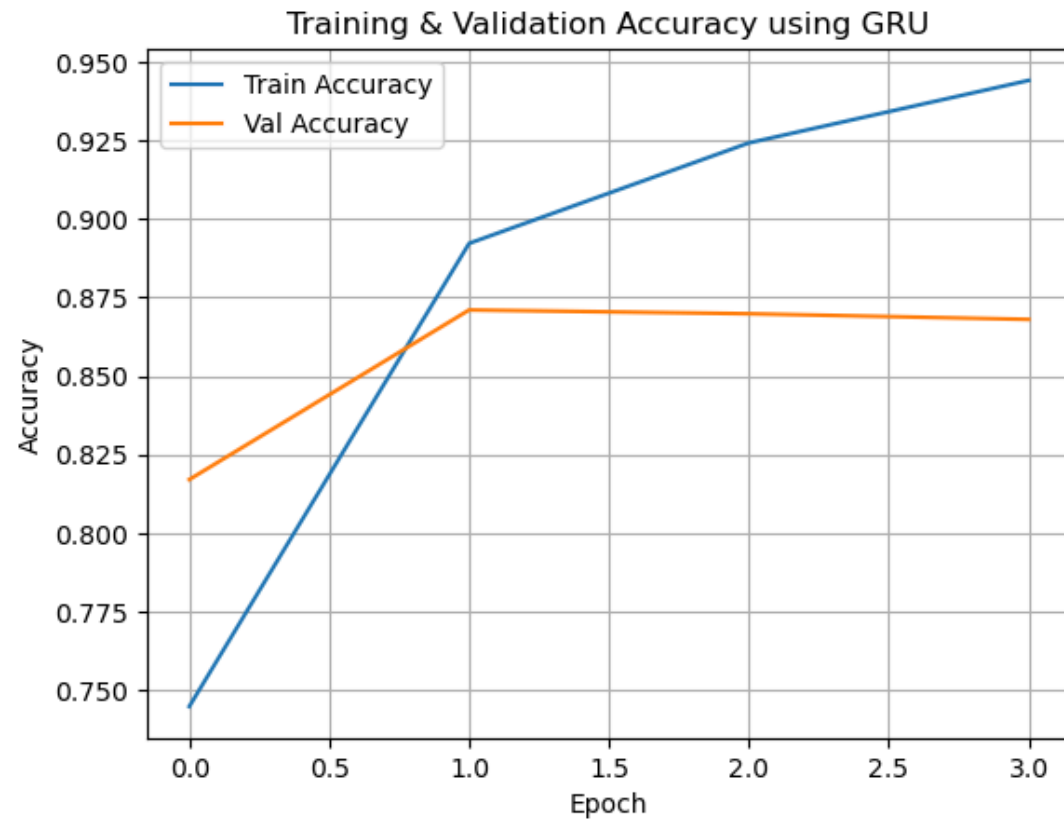
```
In [3]: loss, accuracy = model.evaluate(x_test, y_test)
        print(f"Test Accuracy: {accuracy:.4f}")
```

```
782/782 ————— 44s 57ms/step - accuracy: 0.8506 - loss: 0.4116
Test Accuracy: 0.8473
```

```
In [4]: import matplotlib.pyplot as plt

        plt.plot(history.history['accuracy'], label='Train Accuracy')
        plt.plot(history.history['val_accuracy'], label='Val Accuracy')
        plt.title('Training & Validation Accuracy using GRU')
```

```
plt.xlabel('Epoch')  
plt.ylabel('Accuracy')  
plt.legend()  
plt.grid(True)  
plt.show()
```



In [ ]: