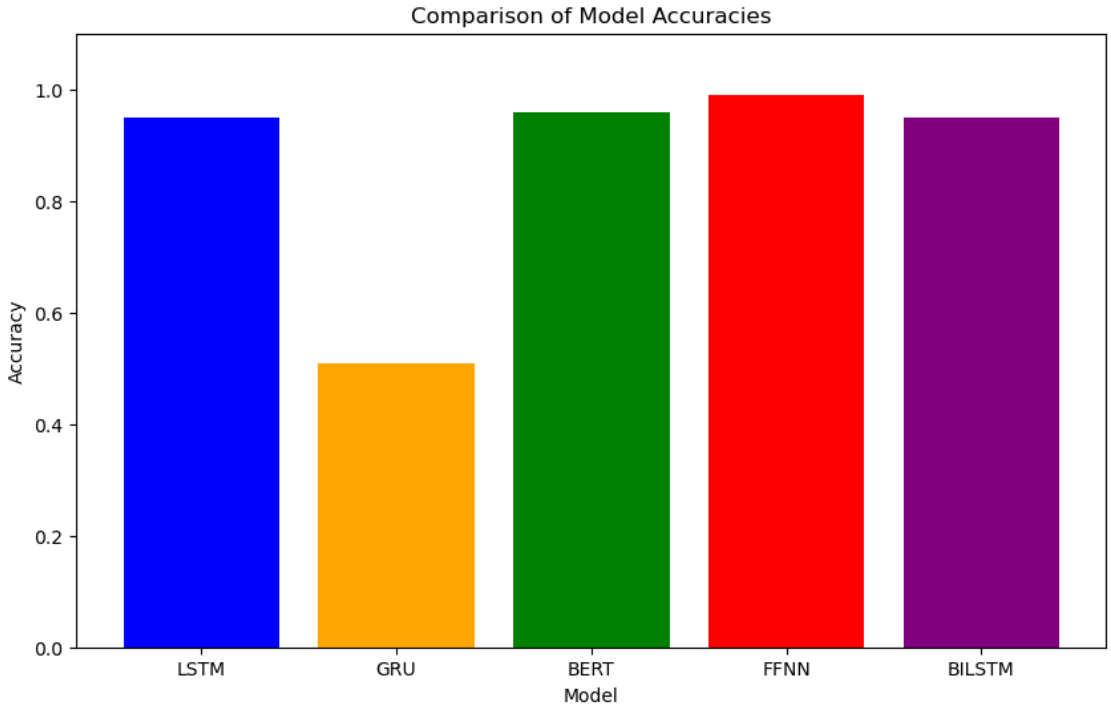
RESULTS

July 14, 2023

[1]:
```
import matplotlib.pyplot as plt

# Create a dictionary of model accuracies
model_accuracies = {
    'LSTM': 0.95,
    'GRU': 0.51,
    'BERT': 0.96,
    'FFNN': 0.99,
    'BILSTM': 0.95
}

# Create a bar chart
plt.figure(figsize=(10, 6))
plt.bar(model_accuracies.keys(), model_accuracies.values(), color=['blue',␣
 ↪'orange', 'green', 'red', 'purple'])
plt.xlabel('Model')
plt.ylabel('Accuracy')
plt.title('Comparison of Model Accuracies')
plt.ylim(0, 1.1)  # Limit the y-axis values to make differences clearer
plt.show()
```



[2]:
```
import pandas as pd
```

[3]:
```
model_performance = {
    'Model': ['GRU', 'LSTM', 'BERT', 'FFNN', 'BiLSTM'],
    'Precision': [0.51, 0.95, 0.96, 0.99, 0.96],
    'Recall': [0.51, 0.95, 0.96, 0.99, 0.96],
    'F1-Score': [0.51, 0.95, 0.96, 0.99, 0.96],
    'Accuracy': [0.51, 0.95, 0.96, 0.99, 0.95]
}
```

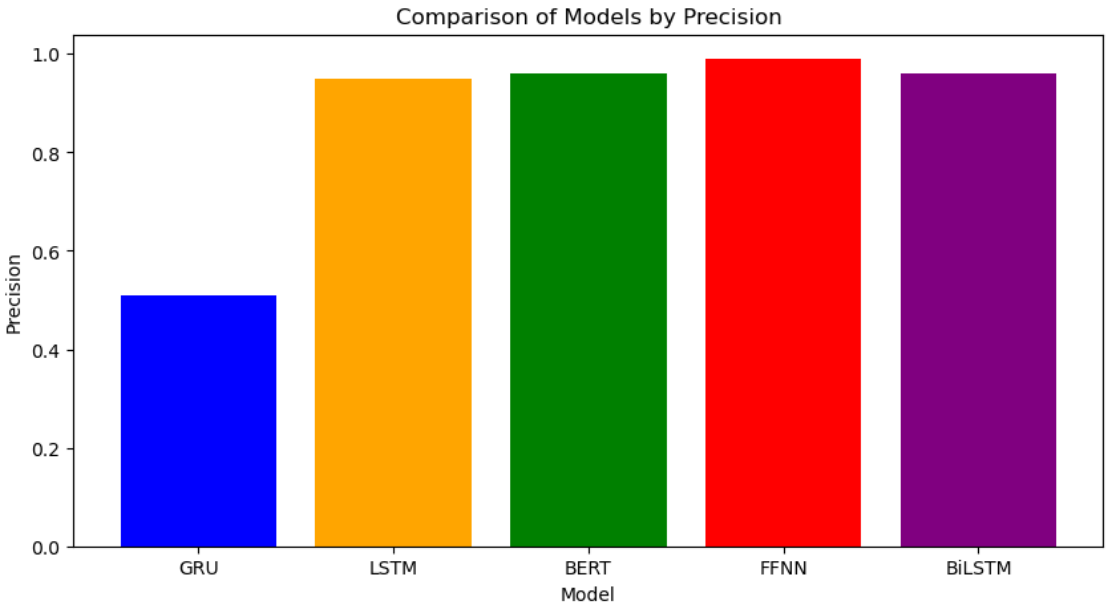
[4]:
```
performance_df = pd.DataFrame(model_performance)
```

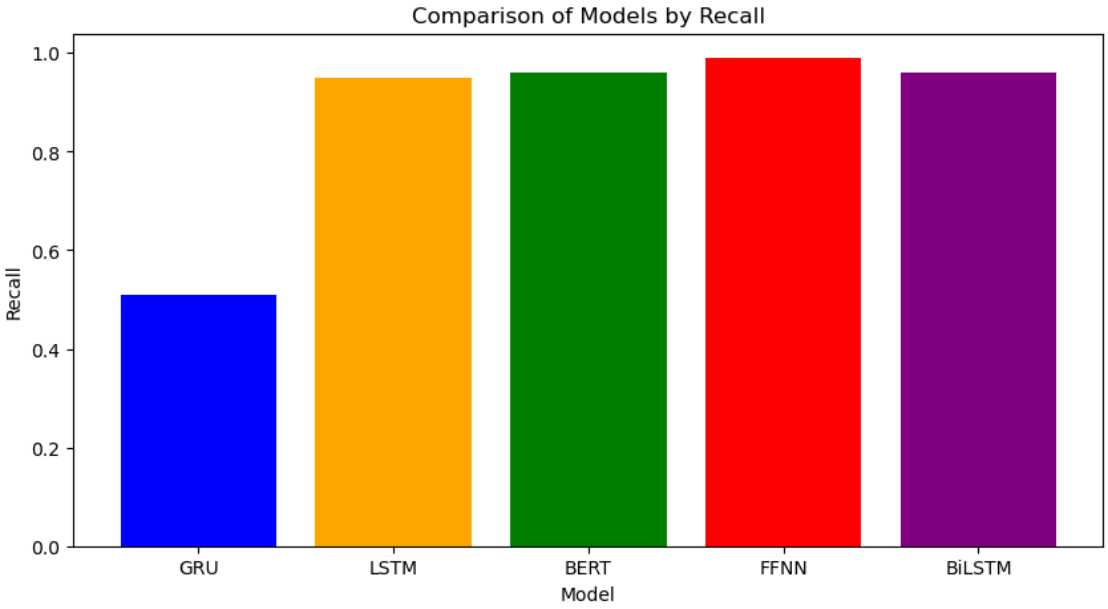
[5]:
```
print(performance_df)
```

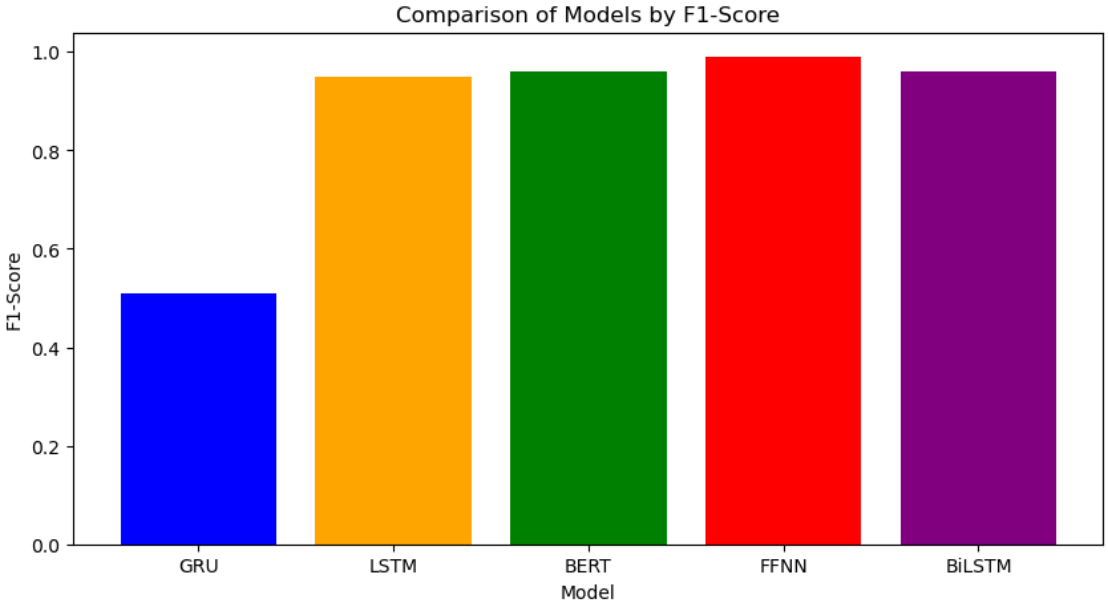
```
    Model  Precision  Recall  F1-Score  Accuracy
0     GRU       0.51    0.51      0.51      0.51
1    LSTM       0.95    0.95      0.95      0.95
2    BERT       0.96    0.96      0.96      0.96
3    FFNN       0.99    0.99      0.99      0.99
4  BiLSTM       0.96    0.96      0.96      0.95
```

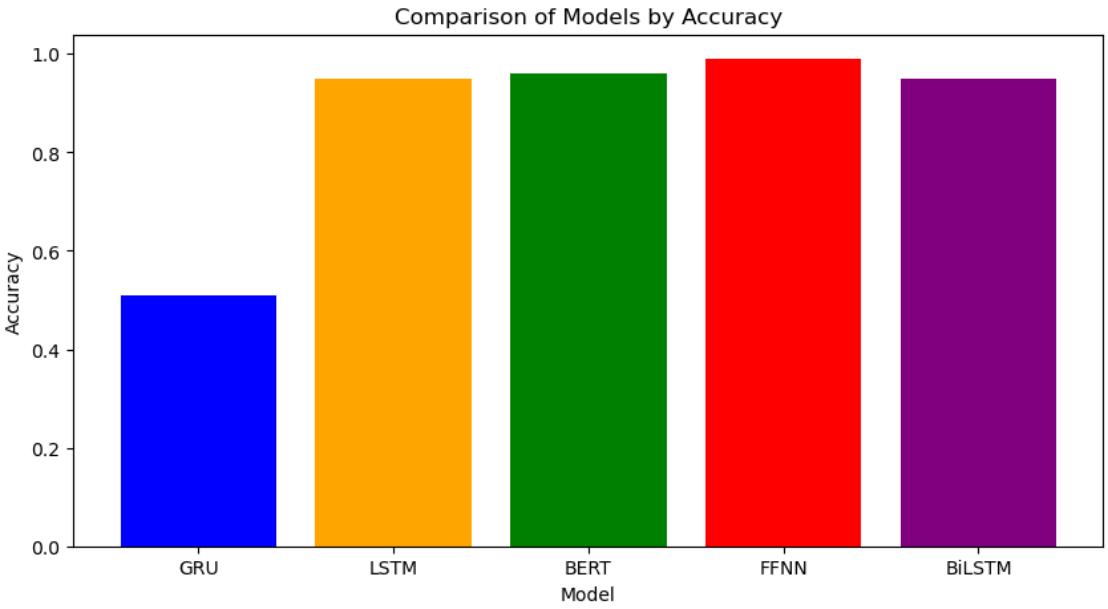
[6]:
```
metrics = ['Precision', 'Recall', 'F1-Score', 'Accuracy']
```

[7]:
```
for metric in metrics:
    plt.figure(figsize=(10, 5))
    plt.bar(performance_df['Model'], performance_df[metric], color=['blue',␣
 ↪'orange', 'green', 'red', 'purple'])
    plt.title(f'Comparison of Models by {metric}')
    plt.xlabel('Model')
    plt.ylabel(metric)
    plt.show()
```






Comparison of Models by F1-Score
F1-Score
1.0
0.8
0.6
0.4
0.2
0.0
GRU
LSTM
BERT
FFNN
BiLSTM
Model


Comparison of Models by Accuracy
Accuracy
1.0
0.8
0.6
0.4
0.2
0.0
GRU
LSTM
BERT
FFNN
BiLSTM
Model

[ ]: