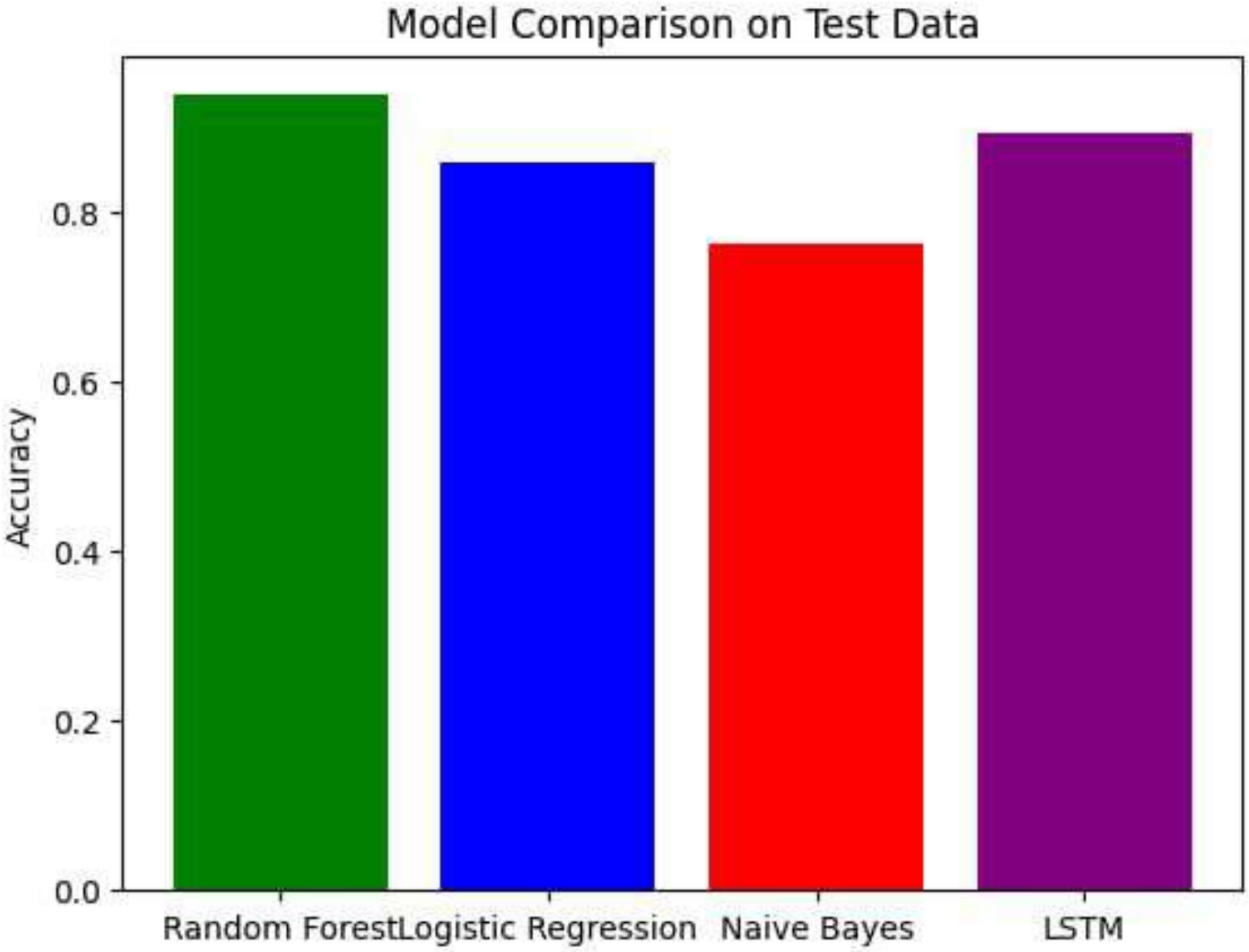
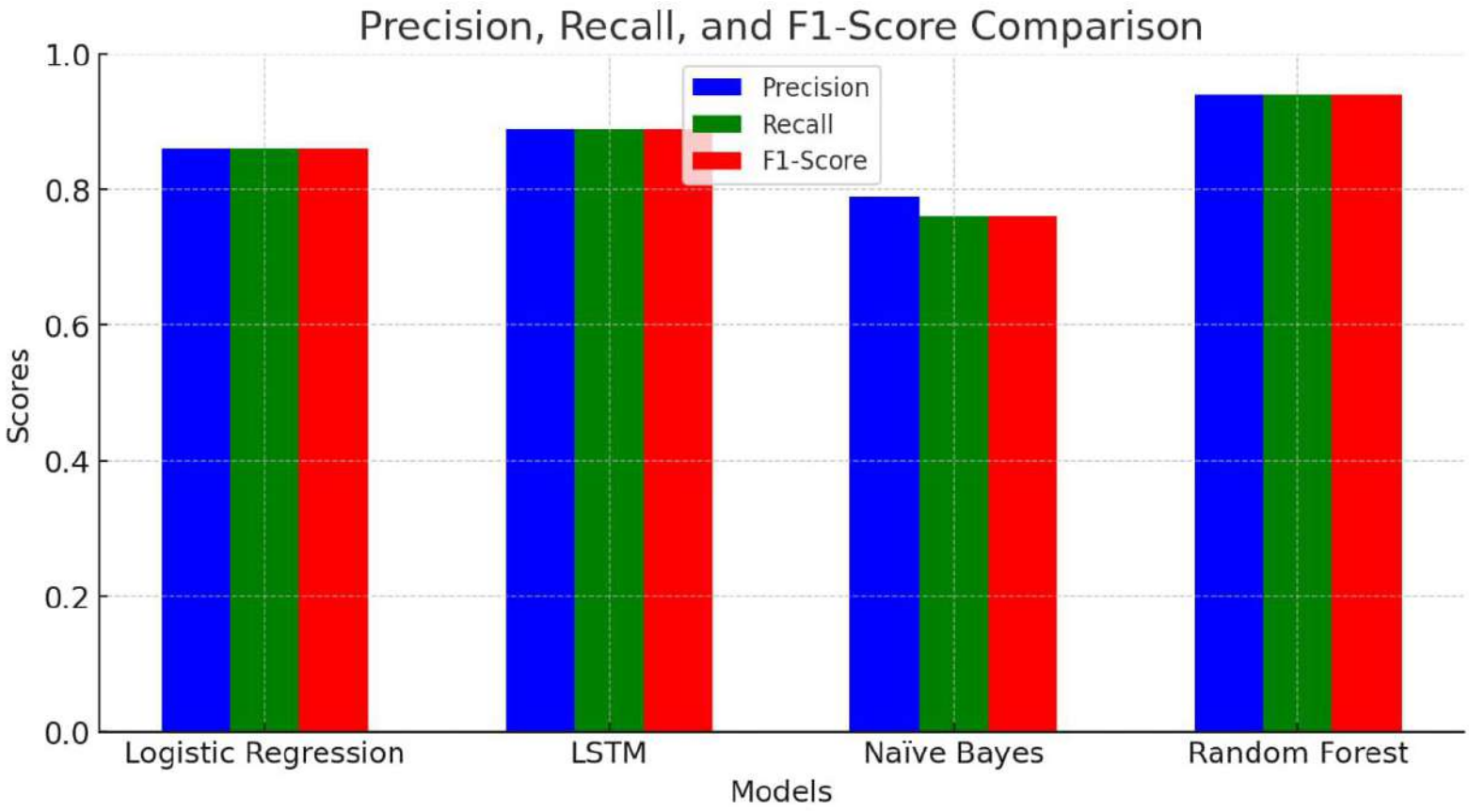
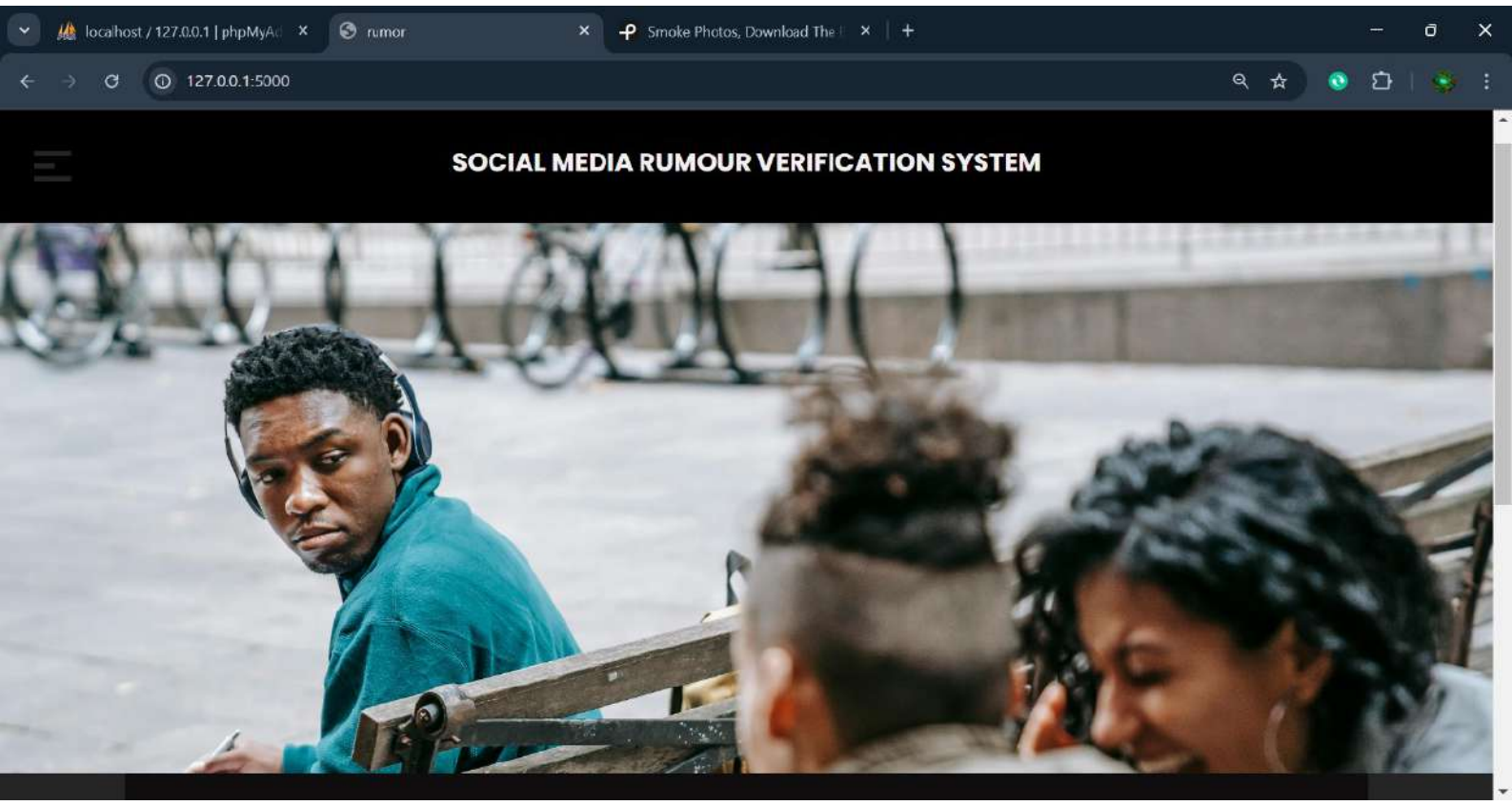
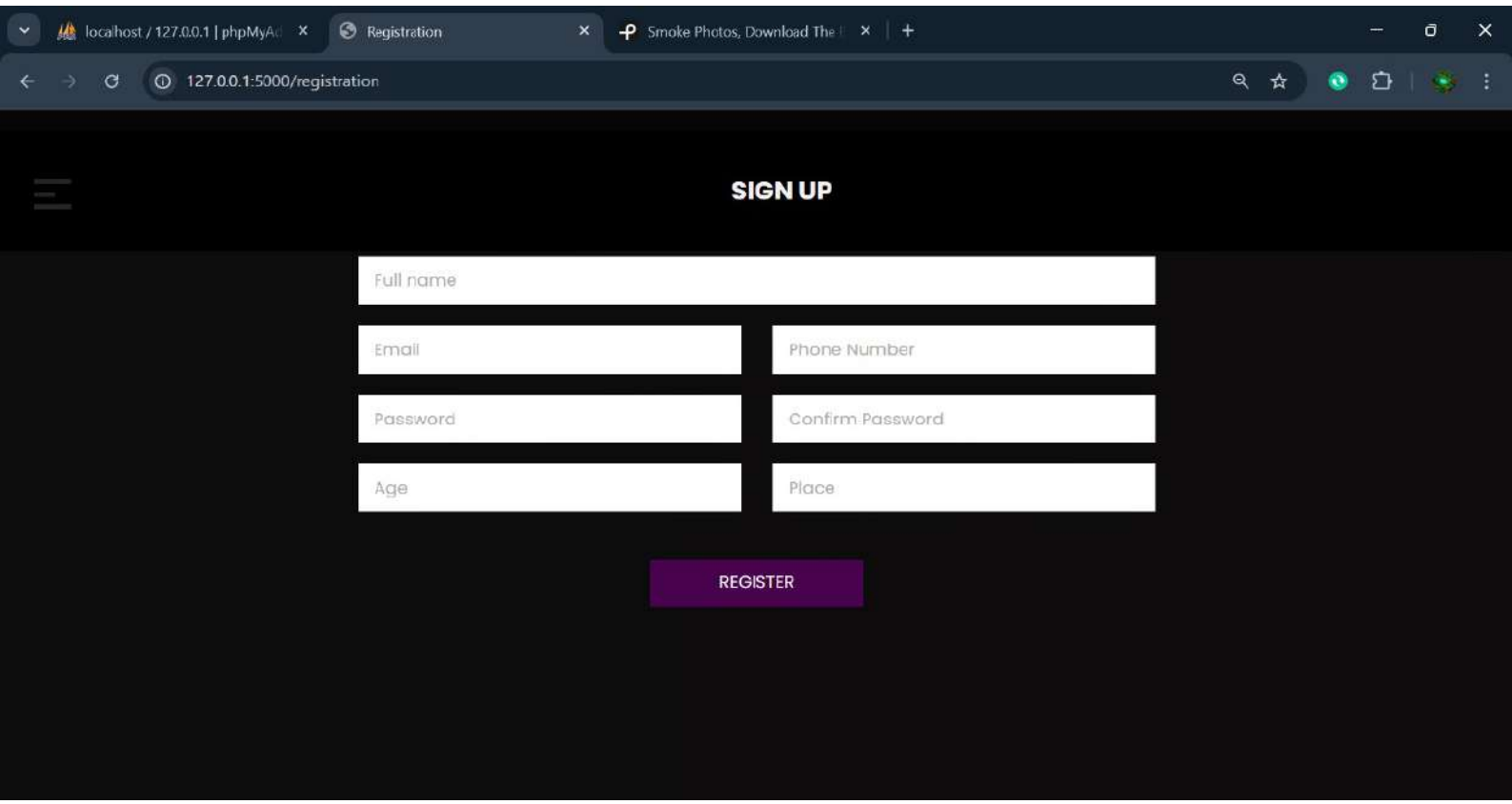

Model Comparison on Test Data
Accuracy
0.0
0.2
0.4
0.6
0.8
Random Forest
Logistic Regression
Naive Bayes
LSTM


Precision, Recall, and F1-Score Comparison
Precision
Recall
F1-Score
Scores
1.0
0.8
0.6
0.4
0.2
0.0
Logistic Regression
LSTM
Naïve Bayes
Random Forest
Models


localhost / 127.0.0.1 | phpMyAd
rumor
Smoke Photos, Download The
127.0.0.1:5000
SOCIAL MEDIA RUMOUR VERIFICATION SYSTEM


localhost / 127.0.0.1 | phpMyAd
Registration
Smoke Photos, Download The
127.0.0.1:5000/registration
SIGN UP
Full name
Email
Phone Number
Password
Confirm Password
Age
Place
REGISTER

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rumour1.ipynb

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Curve: The orange curve represents the ROC curve for this classifier. The area under the curve (AUC) is 0.92, indicating good performance but not as high as the first model.

Diagonal Line: The dashed diagonal line represents the line of no discrimination (AUC = 0.5).

```
# Print the classification report
logistic = classification_report(y_test, log_reg_preds)
print("Logistic Regression Classification Report:\n", logistic)
```

[47] Python

```
Logistic Regression Classification Report:
              precision    recall  f1-score   support

           0       0.86      0.86      0.86      9718
           1       0.86      0.86      0.86      9730

    accuracy                           0.86     19448
   macro avg       0.86      0.86      0.86     19448
weighted avg       0.86      0.86      0.86     19448
```

Naive_bayes

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rumour1.ipynb

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Diagonal Line: The dashed diagonal line represents the line of no discrimination, where the classifier performs no better than random chance (AUC = 0.5).

[43]
```python
# Print the classification report
rf = classification_report(y_test, rf_preds)
print("Random Forest Classification Report:\n", rf)
```
Python

```
Random Forest Classification Report:
              precision    recall  f1-score   support

           0       0.95      0.93      0.94      9718
           1       0.93      0.95      0.94      9730

    accuracy                           0.94     19448
   macro avg       0.94      0.94      0.94     19448
weighted avg       0.94      0.94      0.94     19448
```

LogisticRegression

[44]
```python
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score, classification_report
```

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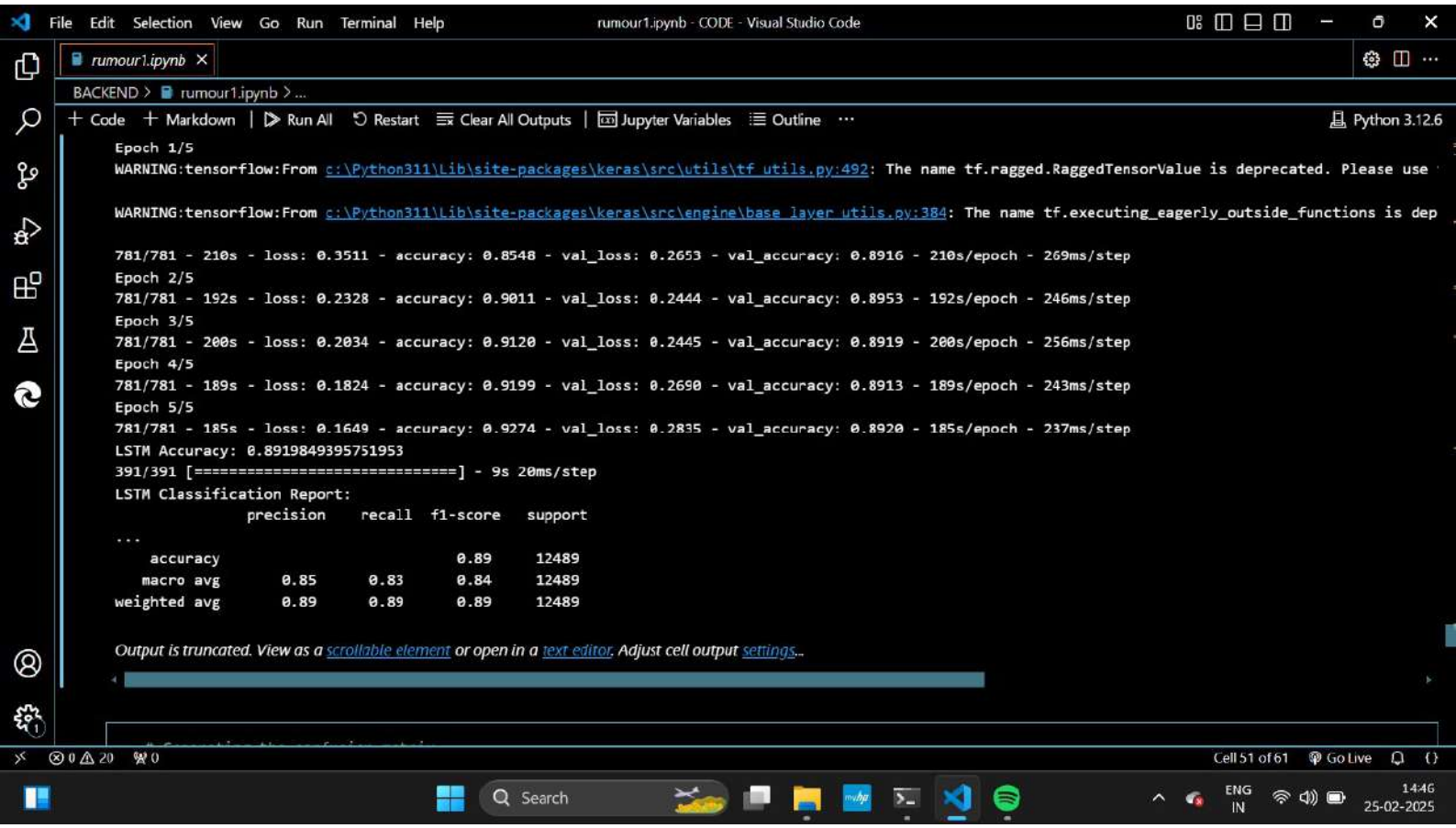
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rumour1.ipynb - CODE - Visual Studio Code
rumour1.ipynb
BACKEND > rumour1.ipynb > ...
+ Code + Markdown | Run All Restart Clear All Outputs | Jupyter Variables Outline ...
Python 3.12.6
Epoch 1/5
WARNING:tensorflow:From c:\Python311\Lib\site-packages\keras\src\utils\tf_utils.py:492: The name tf.ragged.RaggedTensorValue is deprecated. Please use
WARNING:tensorflow:From c:\Python311\Lib\site-packages\keras\src\engine\base_layer_utils.py:384: The name tf.executing_eagerly_outside_functions is dep
781/781 - 210s - loss: 0.3511 - accuracy: 0.8548 - val_loss: 0.2653 - val_accuracy: 0.8916 - 210s/epoch - 269ms/step
Epoch 2/5
781/781 - 192s - loss: 0.2328 - accuracy: 0.9011 - val_loss: 0.2444 - val_accuracy: 0.8953 - 192s/epoch - 246ms/step
Epoch 3/5
781/781 - 200s - loss: 0.2034 - accuracy: 0.9120 - val_loss: 0.2445 - val_accuracy: 0.8919 - 200s/epoch - 256ms/step
Epoch 4/5
781/781 - 189s - loss: 0.1824 - accuracy: 0.9199 - val_loss: 0.2690 - val_accuracy: 0.8913 - 189s/epoch - 243ms/step
Epoch 5/5
781/781 - 185s - loss: 0.1649 - accuracy: 0.9274 - val_loss: 0.2835 - val_accuracy: 0.8920 - 185s/epoch - 237ms/step
LSTM Accuracy: 0.8919849395751953
391/391 [==============================] - 9s 20ms/step
LSTM Classification Report:
precision recall f1-score support
...
accuracy 0.89 12489
macro avg 0.85 0.83 0.84 12489
weighted avg 0.89 0.89 0.89 12489
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rumour1.ipynb

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+ Code + Markdown

```
# Print the classification report
naive_bayes = classification_report(y_test, naive_bayes_preds)
print("Naive Bayes Classification Report:\n",naive_bayes )
```

[49] Python

```
Naive Bayes Classification Report:
              precision    recall  f1-score   support

           0       0.87      0.62      0.72      9718
           1       0.70      0.91      0.79      9730

    accuracy                           0.76     19448
   macro avg       0.79      0.76      0.76     19448
weighted avg       0.79      0.76      0.76     19448
```

```
#Generate confusion matrix
cm = confusion_matrix(y_test, naive_bayes_preds)
print("Confusion Matrix:")
print(cm)

# Plot confusion matrix
plt.figure(figsize=(8, 6))
sns.heatmap(cm, annot=True, fmt='d', cmap='Blues',
```

[50]

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