

## SNAPSHOTS

### ⚙️ Model Configuration:

- Embedding input dim : 10000
- Embedding output dim : 64
- Sequence length : 200
- LSTM units : 64
- Bidirectional LSTM? : True
- Activation (output) : sigmoid
- Loss function : binary\_crossentropy
- Optimizer : Adam
- Metrics : ['loss', 'compile\_metrics']

```
print(f"\n Evaluation Metrics on Full Dataset (50,000 samples):")
print(f"- Accuracy : {acc * 100:.2f}%")
print(f"- Total Samples : {len(y_true)}")
```

### ➡️ Evaluation Metrics on Full Dataset (50,000 samples):

- Accuracy : 94.90%
- Total Samples : 50000

```
predict_sentiment("The plot was confusing and the characters were flat.")
predict_sentiment("A beautiful story with top-notch performances. It exceeded my expectations.")
predict_sentiment("This movie gave me chills. Truly a work of art.")
predict_sentiment("Avoid this movie at all costs. It's painfully bad.")
```

➡️ 1/1 ————— 0s 71ms/step

🗨️ Review: The plot was confusing and the characters were flat.  
📊 Score: 0.0554  
📊 Sentiment: Negative 😞

1/1 ————— 0s 70ms/step

🗨️ Review: A beautiful story with top-notch performances. It exceeded my expectations.  
📊 Score: 0.7278  
📊 Sentiment: Positive 😊

1/1 ————— 0s 77ms/step

🗨️ Review: This movie gave me chills. Truly a work of art.  
📊 Score: 0.7270  
📊 Sentiment: Positive 😊

1/1 ————— 0s 87ms/step

🗨️ Review: Avoid this movie at all costs. It's painfully bad.  
📊 Score: 0.0057  
📊 Sentiment: Negative 😞

### 📄 Model Architecture Summary:

Model: "sequential"

| Layer (type)                  | Output Shape    | Param # |
|-------------------------------|-----------------|---------|
| embedding (Embedding)         | (None, 200, 64) | 640,000 |
| bidirectional (Bidirectional) | (None, 128)     | 66,048  |
| dense (Dense)                 | (None, 1)       | 129     |

Total params: 2,118,533 (8.08 MB)

Trainable params: 706,177 (2.69 MB)

Non-trainable params: 0 (0.00 B)

Optimizer params: 1,412,356 (5.39 MB)

```

predict_sentiment("I loved every minute of this film. The acting was brilliant and the story was touching.")
predict_sentiment("What a waste of time. I can't believe I sat through the entire thing.")
predict_sentiment("An absolute masterpiece. Visually stunning and emotionally powerful.")
predict_sentiment("Avoid this movie at all costs. It's painfully bad.")

```

1/1 — 0s 72ms/step

Review: I loved every minute of this film. The acting was brilliant and the story was touching.  
 Score: 0.9896  
 Sentiment: Positive 😊

1/1 — 0s 73ms/step

Review: What a waste of time. I can't believe I sat through the entire thing.  
 Score: 0.0085  
 Sentiment: Negative 😞

1/1 — 0s 78ms/step

Review: Poorly acted, poorly written, and just plain boring.  
 Score: 0.0029  
 Sentiment: Negative 😞

1/1 — 0s 81ms/step

Review: An absolute masterpiece. Visually stunning and emotionally powerful.  
 Score: 0.9713  
 Sentiment: Positive 😊

1/1 — 0s 68ms/step

Review: Avoid this movie at all costs. It's painfully bad.  
 Score: 0.0057  
 Sentiment: Negative 😞

```

predict_sentiment("A tight screenplay combined with strong cinematography made this a surprisingly good watch.")
predict_sentiment("Disjointed narrative structure completely failed to create emotional resonance.")

```

1/1 — 0s 117ms/step

Review: A tight screenplay combined with strong cinematography made this a surprisingly good watch.  
 Score: 0.9362  
 Sentiment: Positive 😊

1/1 — 0s 133ms/step

Review: Disjointed narrative structure completely failed to create emotional resonance.  
 Score: 0.0561  
 Sentiment: Negative 😞

✓ Accuracy: 94.71%

📊 Classification Report:

|              | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| Negative     | 0.94      | 0.95   | 0.95     | 25000   |
| Positive     | 0.95      | 0.94   | 0.95     | 25000   |
| accuracy     |           |        | 0.95     | 50000   |
| macro avg    | 0.95      | 0.95   | 0.95     | 50000   |
| weighted avg | 0.95      | 0.95   | 0.95     | 50000   |

📊 Confusion Matrix:

```

[[23850 1150]
 [ 1493 23507]]

```