X\_train shape: (19331, 79, 257, 1)

X\_test shape: (4833, 79, 257, 1)

Epoch 1/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **109s** 338ms/step - accuracy: 0.7840 - loss: 0.5215 - val\_accuracy: 0.8243 - val\_loss: 0.5684

Epoch 2/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **99s** 326ms/step - accuracy: 0.8212 - loss: 0.4734 - val\_accuracy: 0.8243 - val\_loss: 0.5084

Epoch 3/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **103s** 340ms/step - accuracy: 0.8304 - loss: 0.4584 - val\_accuracy: 0.8243 - val\_loss: 0.4894

Epoch 4/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **142s** 339ms/step - accuracy: 0.8263 - loss: 0.4662 - val\_accuracy: 0.8243 - val\_loss: 0.6416

Epoch 5/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **100s** 331ms/step - accuracy: 0.8259 - loss: 0.4657 - val\_accuracy: 0.8243 - val\_loss: 0.4753

Epoch 6/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **101s** 333ms/step - accuracy: 0.8224 - loss: 0.4713 - val\_accuracy: 0.8243 - val\_loss: 0.6019

Epoch 7/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **99s** 326ms/step - accuracy: 0.8265 - loss: 0.4648 - val\_accuracy: 0.8243 - val\_loss: 0.4665

Epoch 8/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **103s** 339ms/step - accuracy: 0.8235 - loss: 0.4698 - val\_accuracy: 0.8243 - val\_loss: 0.4661

Epoch 9/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **144s** 474ms/step - accuracy: 0.8247 - loss: 0.4658 - val\_accuracy: 0.8243 - val\_loss: 0.4650

Epoch 10/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **143s** 471ms/step - accuracy: 0.8224 - loss: 0.4707 - val\_accuracy: 0.8243 - val\_loss: 0.4817

Epoch 11/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **142s** 470ms/step - accuracy: 0.8236 - loss: 0.4687 - val\_accuracy: 0.8243 - val\_loss: 0.4681

Epoch 12/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **142s** 470ms/step - accuracy: 0.8241 - loss: 0.4676 - val\_accuracy: 0.8243 - val\_loss: 0.4698

Epoch 13/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **143s** 470ms/step - accuracy: 0.8306 - loss: 0.4567 - val\_accuracy: 0.8243 - val\_loss: 0.4674

Epoch 14/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **143s** 473ms/step - accuracy: 0.8277 - loss: 0.4610 - val\_accuracy: 0.8243 - val\_loss: 0.4687

Epoch 15/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **141s** 465ms/step - accuracy: 0.8252 - loss: 0.4651 - val\_accuracy: 0.8243 - val\_loss: 0.4690

Epoch 16/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **144s** 474ms/step - accuracy: 0.8244 - loss: 0.4662 - val\_accuracy: 0.8243 - val\_loss: 0.4776

Epoch 17/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **140s** 462ms/step - accuracy: 0.8264 - loss: 0.4646 - val\_accuracy: 0.8243 - val\_loss: 0.4712

Epoch 18/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **144s** 474ms/step - accuracy: 0.8207 - loss: 0.4715 - val\_accuracy: 0.8243 - val\_loss: 0.4650

Epoch 19/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **80s** 264ms/step - accuracy: 0.8306 - loss: 0.4573 - val\_accuracy: 0.8243 - val\_loss: 0.4753

Epoch 20/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **126s** 416ms/step - accuracy: 0.8292 - loss: 0.4576 - val\_accuracy: 0.8243 - val\_loss: 0.4792

Epoch 21/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **142s** 469ms/step - accuracy: 0.8273 - loss: 0.4611 - val\_accuracy: 0.8243 - val\_loss: 0.4647

Epoch 22/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **134s** 442ms/step - accuracy: 0.8230 - loss: 0.4693 - val\_accuracy: 0.8243 - val\_loss: 0.4650

Epoch 23/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 148ms/step - accuracy: 0.8225 - loss: 0.4684 - val\_accuracy: 0.8243 - val\_loss: 0.4650

Epoch 24/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 149ms/step - accuracy: 0.8244 - loss: 0.4659 - val\_accuracy: 0.8243 - val\_loss: 0.4651

Epoch 25/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 149ms/step - accuracy: 0.8220 - loss: 0.4692 - val\_accuracy: 0.8243 - val\_loss: 0.4665

Epoch 26/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **44s** 145ms/step - accuracy: 0.8220 - loss: 0.4694 - val\_accuracy: 0.8243 - val\_loss: 0.4816

Epoch 27/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **44s** 146ms/step - accuracy: 0.8254 - loss: 0.4641 - val\_accuracy: 0.8243 - val\_loss: 0.4680

Epoch 28/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 148ms/step - accuracy: 0.8238 - loss: 0.4674 - val\_accuracy: 0.8243 - val\_loss: 0.4661

Epoch 29/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **43s** 143ms/step - accuracy: 0.8223 - loss: 0.4694 - val\_accuracy: 0.8243 - val\_loss: 0.4648

Epoch 30/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **46s** 150ms/step - accuracy: 0.8212 - loss: 0.4707 - val\_accuracy: 0.8243 - val\_loss: 0.4687

Epoch 31/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **46s** 151ms/step - accuracy: 0.8275 - loss: 0.4613 - val\_accuracy: 0.8243 - val\_loss: 0.4689

Epoch 32/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 147ms/step - accuracy: 0.8273 - loss: 0.4611 - val\_accuracy: 0.8243 - val\_loss: 0.4653

Epoch 33/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **47s** 153ms/step - accuracy: 0.8247 - loss: 0.4653 - val\_accuracy: 0.8243 - val\_loss: 0.4658

Epoch 34/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **48s** 158ms/step - accuracy: 0.8265 - loss: 0.4620 - val\_accuracy: 0.8243 - val\_loss: 0.4682

Epoch 35/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **47s** 154ms/step - accuracy: 0.8246 - loss: 0.4653 - val\_accuracy: 0.8243 - val\_loss: 0.4701

Epoch 36/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **46s** 150ms/step - accuracy: 0.8199 - loss: 0.4724 - val\_accuracy: 0.8243 - val\_loss: 0.4655

Epoch 37/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **43s** 143ms/step - accuracy: 0.8242 - loss: 0.4650 - val\_accuracy: 0.8243 - val\_loss: 0.4719

Epoch 38/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **44s** 146ms/step - accuracy: 0.8250 - loss: 0.4642 - val\_accuracy: 0.8243 - val\_loss: 0.4703

Epoch 39/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **46s** 151ms/step - accuracy: 0.8271 - loss: 0.4613 - val\_accuracy: 0.8243 - val\_loss: 0.4652

Epoch 40/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **44s** 146ms/step - accuracy: 0.8221 - loss: 0.4685 - val\_accuracy: 0.8243 - val\_loss: 0.4649

Epoch 41/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **43s** 142ms/step - accuracy: 0.8241 - loss: 0.4655 - val\_accuracy: 0.8243 - val\_loss: 0.4733

Epoch 42/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **46s** 151ms/step - accuracy: 0.8282 - loss: 0.4597 - val\_accuracy: 0.8243 - val\_loss: 0.4659

Epoch 43/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 150ms/step - accuracy: 0.8250 - loss: 0.4632 - val\_accuracy: 0.8243 - val\_loss: 0.4650

Epoch 44/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **46s** 152ms/step - accuracy: 0.8225 - loss: 0.4673 - val\_accuracy: 0.8243 - val\_loss: 0.4951

Epoch 45/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 148ms/step - accuracy: 0.8238 - loss: 0.4651 - val\_accuracy: 0.8243 - val\_loss: 0.4649

Epoch 46/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 149ms/step - accuracy: 0.8304 - loss: 0.4549 - val\_accuracy: 0.8243 - val\_loss: 0.4743

Epoch 47/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **43s** 141ms/step - accuracy: 0.8226 - loss: 0.4656 - val\_accuracy: 0.8243 - val\_loss: 0.4865

Epoch 48/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **42s** 140ms/step - accuracy: 0.8226 - loss: 0.4656 - val\_accuracy: 0.8243 - val\_loss: 0.5117

Epoch 49/50

**303/303** ━━━━━━━━━━━━━━━━━━━━ **44s** 144ms/step - accuracy: 0.8223 - loss: 0.4649 - val\_accuracy: 0.8243 - val\_loss: 0.5259

Epoch 50/50

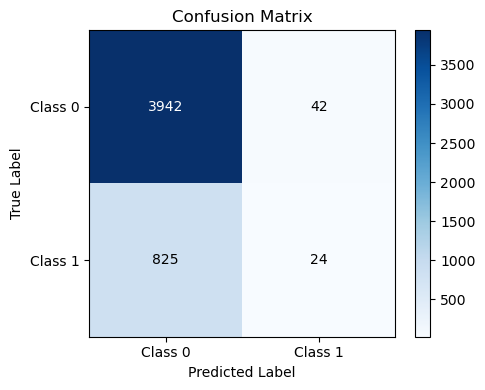
**303/303** ━━━━━━━━━━━━━━━━━━━━ **45s** 150ms/step - accuracy: 0.8274 - loss: 0.4558 - val\_accuracy: 0.8206 - val\_loss: 0.6498

**152/152** ━━━━━━━━━━━━━━━━━━━━ **3s** 20ms/step

Confusion Matrix:

[[3942 42]

[ 825 24]]



Classification Report:

precision recall f1-score support

0.0 0.83 0.99 0.90 3984

1.0 0.36 0.03 0.05 849

accuracy 0.82 4833

macro avg 0.60 0.51 0.48 4833

weighted avg 0.75 0.82 0.75 4833

ROC AUC Score: 0.6074470142052308

