Part A

epochs=3, lr=5e-5, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=1

Full Fine-Tune Results:

Test Accuracy: 0.8550

Test F1: 0.8547

Training Time: 54.61s

LoRA Fine-Tune Results:

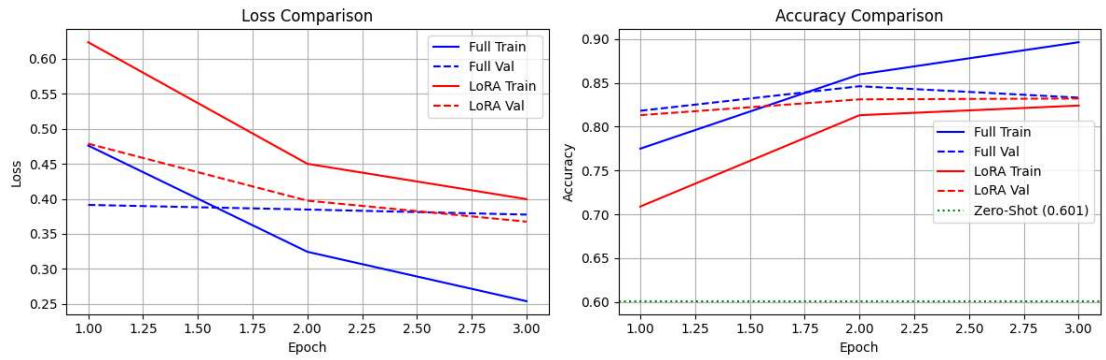
Test Accuracy: 0.8500

Test F1: 0.8500

Training Time: 51.38s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.52         0
Full Fine-Tune       0.8550       0.8547       54.61        14,350,874
LoRA Fine-Tune       0.8500       0.8500       51.38        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +25.4% but trains 14,350,874 params
  • LoRA improves by +24.9% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +0.5%
```



full_size=57432483, lora_size=251465

epochs=5, lr=5e-5, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=2

Full Fine-Tune Results:

Test Accuracy: 0.8630

Test F1: 0.8629

Training Time: 92.50s

LoRA Fine-Tune Results:

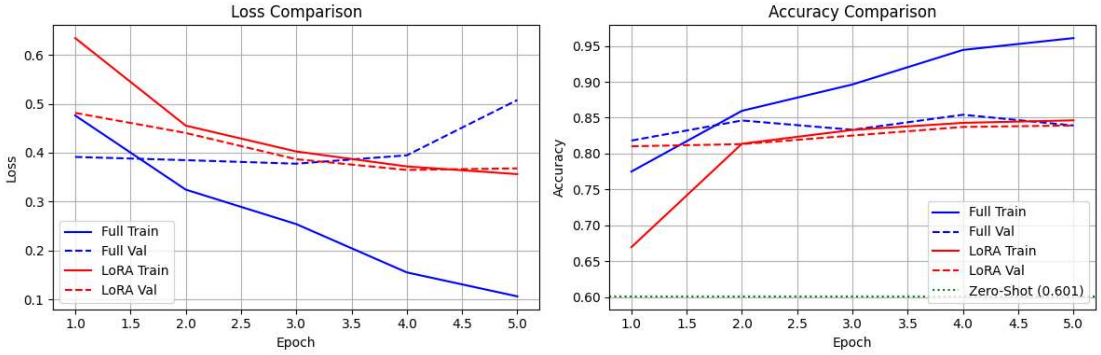
Test Accuracy: 0.8590

Test F1: 0.8589

Training Time: 85.65s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.50         0
Full Fine-Tune       0.8630       0.8629       92.50        14,350,874
LoRA Fine-Tune       0.8590       0.8589       85.65        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +26.2% but trains 14,350,874 params
  • LoRA improves by +25.8% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +0.4%
```



full_size=57432483, lora_size=251465

epochs=8, lr=5e-5, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=3

Full Fine-Tune Results:

Test Accuracy: 0.8630

Test F1: 0.8629

Training Time: 146.62s

LoRA Fine-Tune Results:

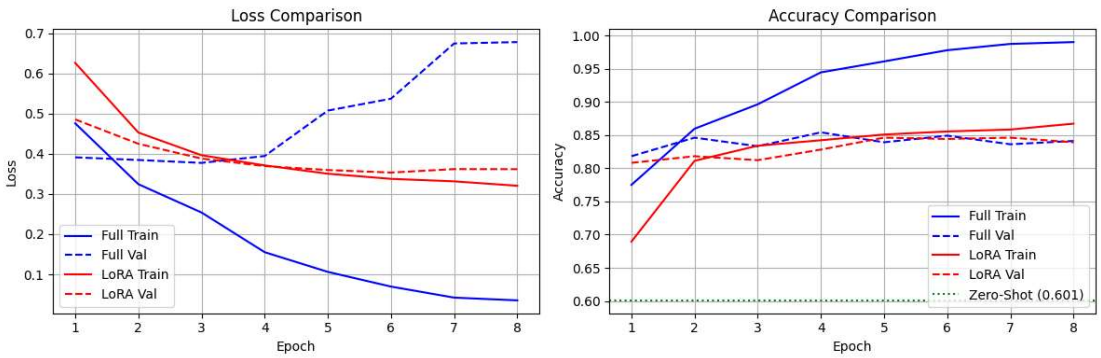
Test Accuracy: 0.8570

Test F1: 0.8570

Training Time: 136.37s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.48         0
Full Fine-Tune       0.8630       0.8629       146.62       14,350,874
LoRA Fine-Tune       0.8570       0.8570       136.37       626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +26.2% but trains 14,350,874 params
  • LoRA improves by +25.6% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +0.6%
```



full_size=57432483, lora_size=251465

epochs=5, lr=3e-5, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=4

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 91.11s

LoRA Fine-Tune Results:

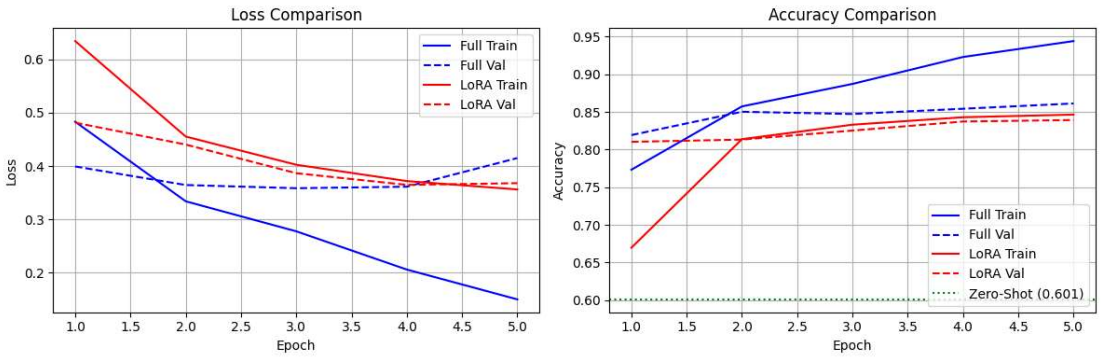
Test Accuracy: 0.8590

Test F1: 0.8589

Training Time: 85.28s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.44         0
Full Fine-Tune       0.8790       0.8789       91.11        14,350,874
LoRA Fine-Tune       0.8590       0.8589       85.28        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +25.8% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +2.0%
```



full_size=57432483, lora_size=251465

epochs=5, lr=5e-5, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=2

Full Fine-Tune Results:

Test Accuracy: 0.8630

Test F1: 0.8629

Training Time: 92.50s

LoRA Fine-Tune Results:

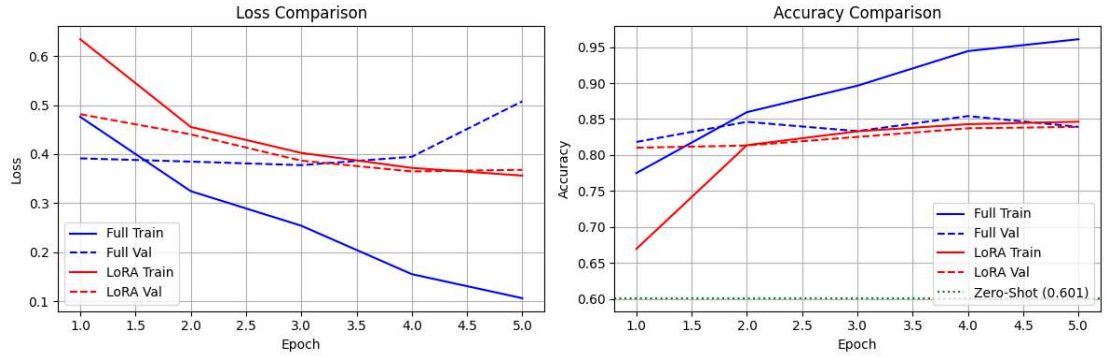
Test Accuracy: 0.8590

Test F1: 0.8589

Training Time: 85.65s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.50         0
Full Fine-Tune       0.8630       0.8629       92.50        14,350,874
LoRA Fine-Tune       0.8590       0.8589       85.65        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +26.2% but trains 14,350,874 params
  • LoRA improves by +25.8% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +0.4%
```



full_size=57432483, lora_size=251465

epochs=5, lr=1e-4, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=5

Full Fine-Tune Results:

Test Accuracy: 0.8730

Test F1: 0.8729

Training Time: 91.46s

LoRA Fine-Tune Results:

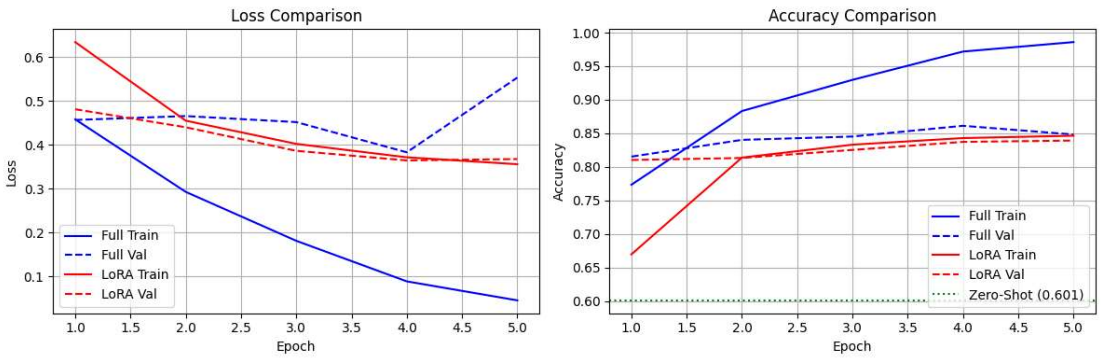
Test Accuracy: 0.8590

Test F1: 0.8589

Training Time: 85.17s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.48         0
Full Fine-Tune       0.8730       0.8729       91.46        14,350,874
LoRA Fine-Tune       0.8590       0.8589       85.17        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.2% but trains 14,350,874 params
  • LoRA improves by +25.8% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +1.4%
```



full_size=57432483, lora_size=251465

PartB

epochs=5, lr=3e-5, lora_r=4, lora_alpha=16, lora_dropout=0.05

img_name=6

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 91.02s

LoRA Fine-Tune Results:

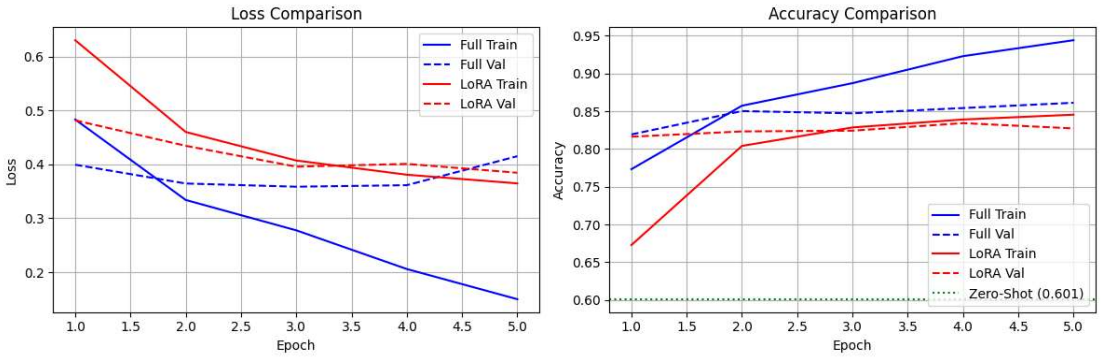
Test Accuracy: 0.8470

Test F1: 0.8465

Training Time: 85.31s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.51         0
Full Fine-Tune       0.8790       0.8789       91.02        14,350,874
LoRA Fine-Tune       0.8470       0.8465       85.31        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +24.6% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +3.2%
```



full_size=57432483, lora_size=131641

epochs=5, lr=3e-5, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=4

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 91.11s

LoRA Fine-Tune Results:

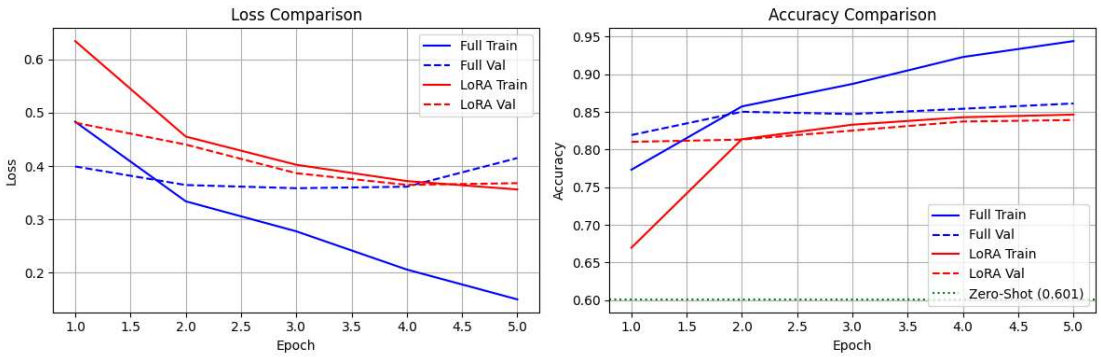
Test Accuracy: 0.8590

Test F1: 0.8589

Training Time: 85.28s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.44         0
Full Fine-Tune       0.8790       0.8789       91.11        14,350,874
LoRA Fine-Tune       0.8590       0.8589       85.28        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +25.8% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +2.0%
```



full_size=57432483, lora_size=251465

epochs=5, lr=3e-5, lora_r=16, lora_alpha=16, lora_dropout=0.05

img_name=7

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 90.79s

LoRA Fine-Tune Results:

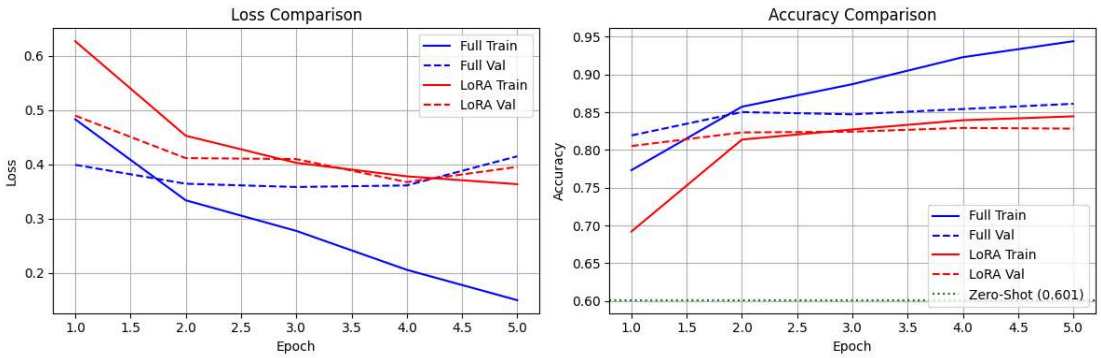
Test Accuracy: 0.8480

Test F1: 0.8480

Training Time: 85.42s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.49         0
Full Fine-Tune       0.8790       0.8789       90.79        14,350,874
LoRA Fine-Tune       0.8480       0.8480       85.42        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +24.7% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +3.1%
```



full_size=57432483, lora_size=491122

epochs=5, lr=3e-5, lora_r=8, lora_alpha=8, lora_dropout=0.05

img_name=8

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 90.93s

LoRA Fine-Tune Results:

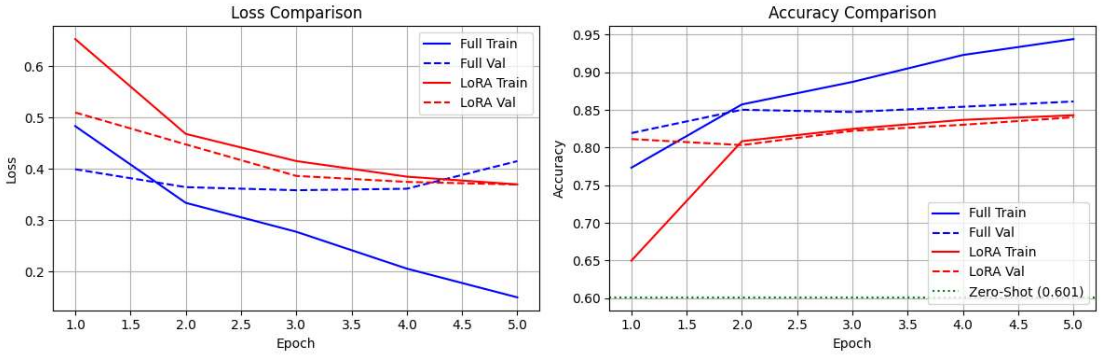
Test Accuracy: 0.8570

Test F1: 0.8569

Training Time: 84.82s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.49         0
Full Fine-Tune       0.8790       0.8789       90.93        14,350,874
LoRA Fine-Tune       0.8570       0.8569       84.82        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +25.6% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +2.2%
```



full_size=57432483, lora_size=251464

epochs=5, lr=3e-5, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=4

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 91.11s

LoRA Fine-Tune Results:

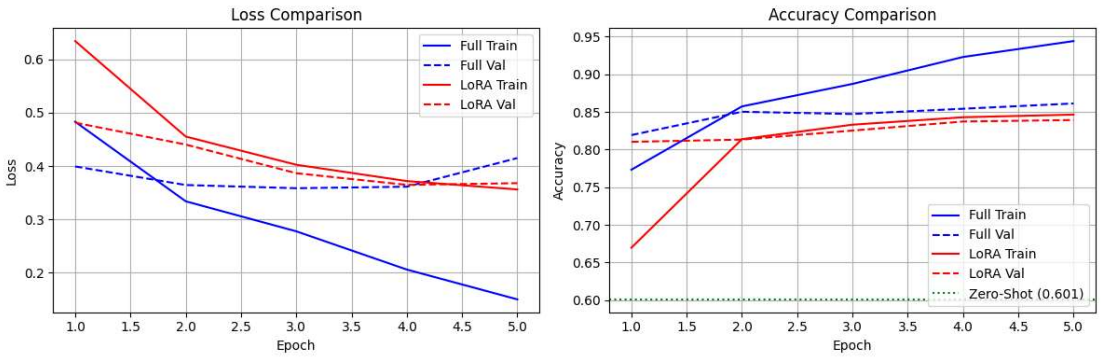
Test Accuracy: 0.8590

Test F1: 0.8589

Training Time: 85.28s (this is not overfitting)

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.44         0
Full Fine-Tune       0.8790       0.8789       91.11        14,350,874
LoRA Fine-Tune       0.8590       0.8589       85.28        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +25.8% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +2.0%
```



full_size=57432483, lora_size=251465

epochs=5, lr=3e-5, lora_r=8, lora_alpha=32, lora_dropout=0.05

img_name=9

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 91.02s

LoRA Fine-Tune Results:

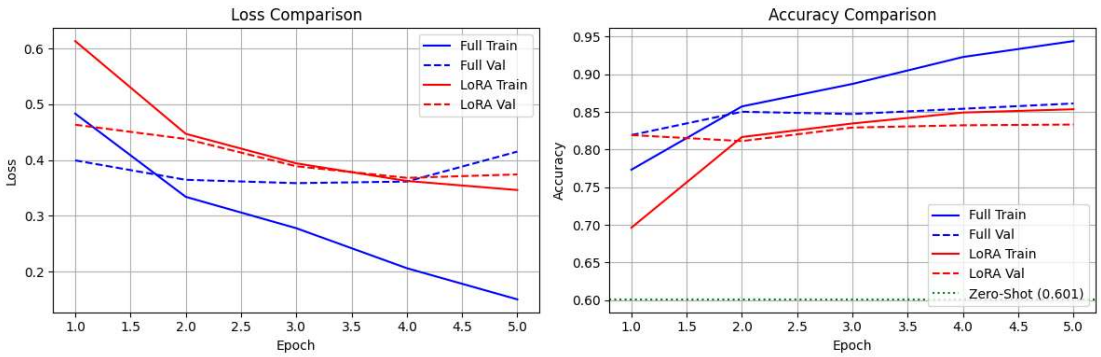
Test Accuracy: 0.8590

Test F1: 0.8589

Training Time: 85.13s

```
============================================================
FINAL COMPARISON
============================================================
Method              Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot           0.6010       0.5324       1.47         0
Full Fine-Tune      0.8790       0.8789       91.02        14,350,874
LoRA Fine-Tune      0.8590       0.8589       85.13        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +25.8% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +2.0%
```



full_size=57432483, lora_size=251465

epochs=5, lr=3e-5, lora_r=8, lora_alpha=16, lora_dropout=0.0

img_name=10

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 90.45s

LoRA Fine-Tune Results:

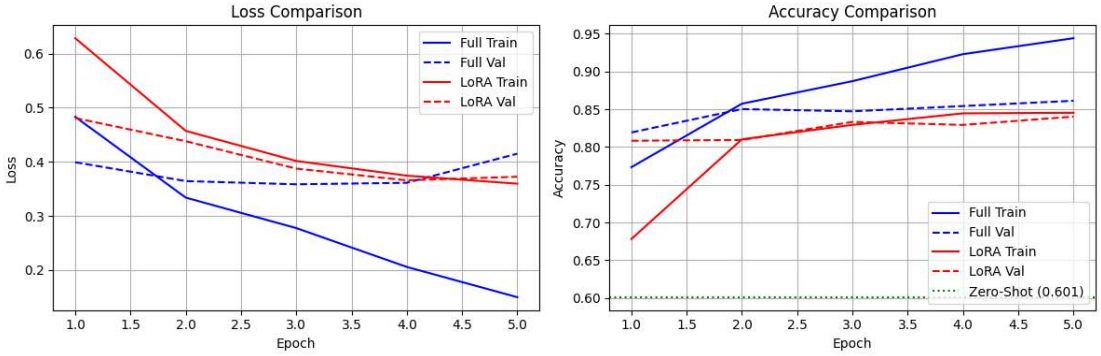
Test Accuracy: 0.8580

Test F1: 0.8578

Training Time: 84.29s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.49         0
Full Fine-Tune       0.8790       0.8789       90.45        14,350,874
LoRA Fine-Tune       0.8580       0.8578       84.29        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +25.7% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +2.1%
```



full_size=57432483, lora_size=251464

epochs=5, lr=3e-5, lora_r=8, lora_alpha=16, lora_dropout=0.05

img_name=4

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 91.11s

LoRA Fine-Tune Results:

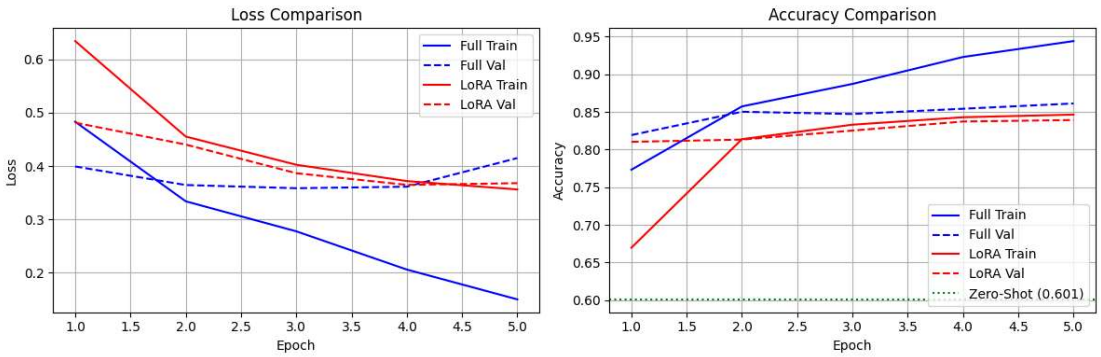
Test Accuracy: 0.8590

Test F1: 0.8589

Training Time: 85.28s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.44         0
Full Fine-Tune       0.8790       0.8789       91.11        14,350,874
LoRA Fine-Tune       0.8590       0.8589       85.28        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +25.8% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +2.0%
```



full_size=57432483, lora_size=251465

epochs=5, lr=3e-5, lora_r=8, lora_alpha=16, lora_dropout=0.1

img_name=11

Full Fine-Tune Results:

Test Accuracy: 0.8790

Test F1: 0.8789

Training Time: 90.55s

LoRA Fine-Tune Results:

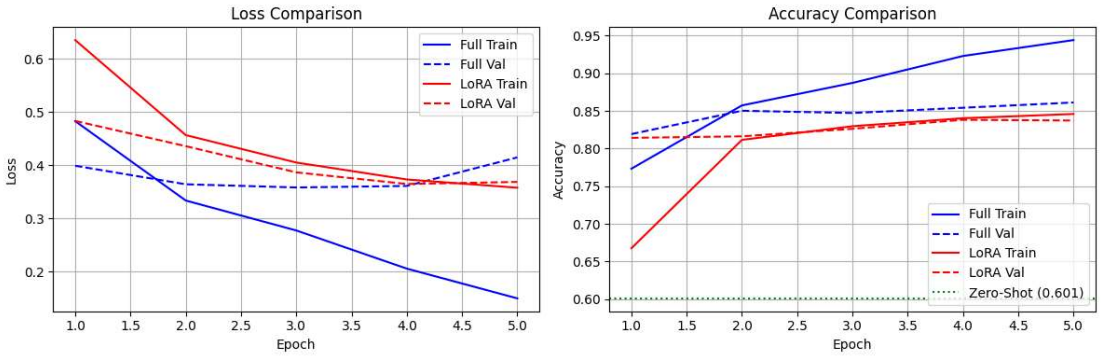
Test Accuracy: 0.8550

Test F1: 0.8550

Training Time: 84.93s

```
============================================================
FINAL COMPARISON
============================================================
Method               Accuracy     F1           Time         Params
------------------------------------------------------------
Zero-Shot            0.6010       0.5324       1.52         0
Full Fine-Tune       0.8790       0.8789       90.55        14,350,874
LoRA Fine-Tune       0.8550       0.8550       84.93        626
============================================================

📊 Key Insights:
  • Zero-shot provides 60.1% accuracy with NO training
  • Full fine-tune improves by +27.8% but trains 14,350,874 params
  • LoRA improves by +25.4% training only 626 params (0.0% of full)
  • LoRA is 1.1x faster than full fine-tuning
  • Performance gap: Full vs LoRA = +2.4%
```



full_size=57432483, lora_size=251464