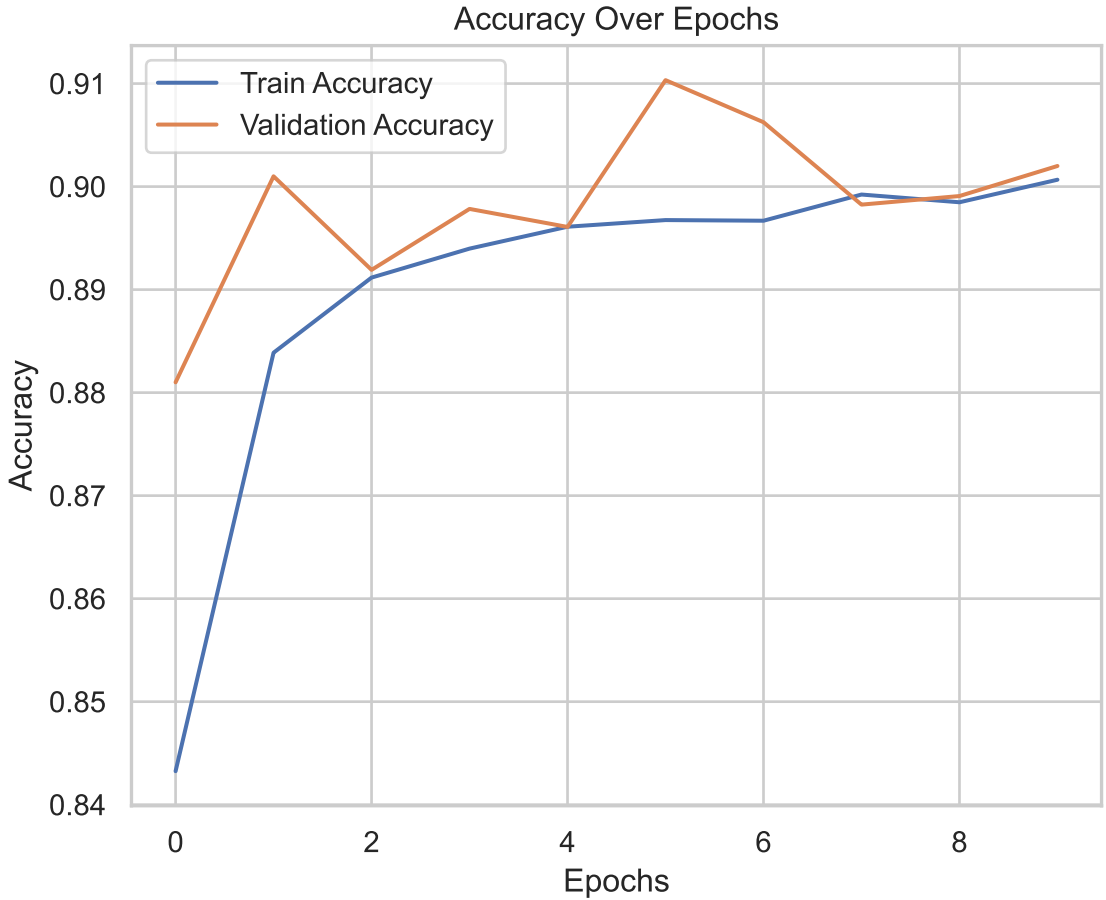
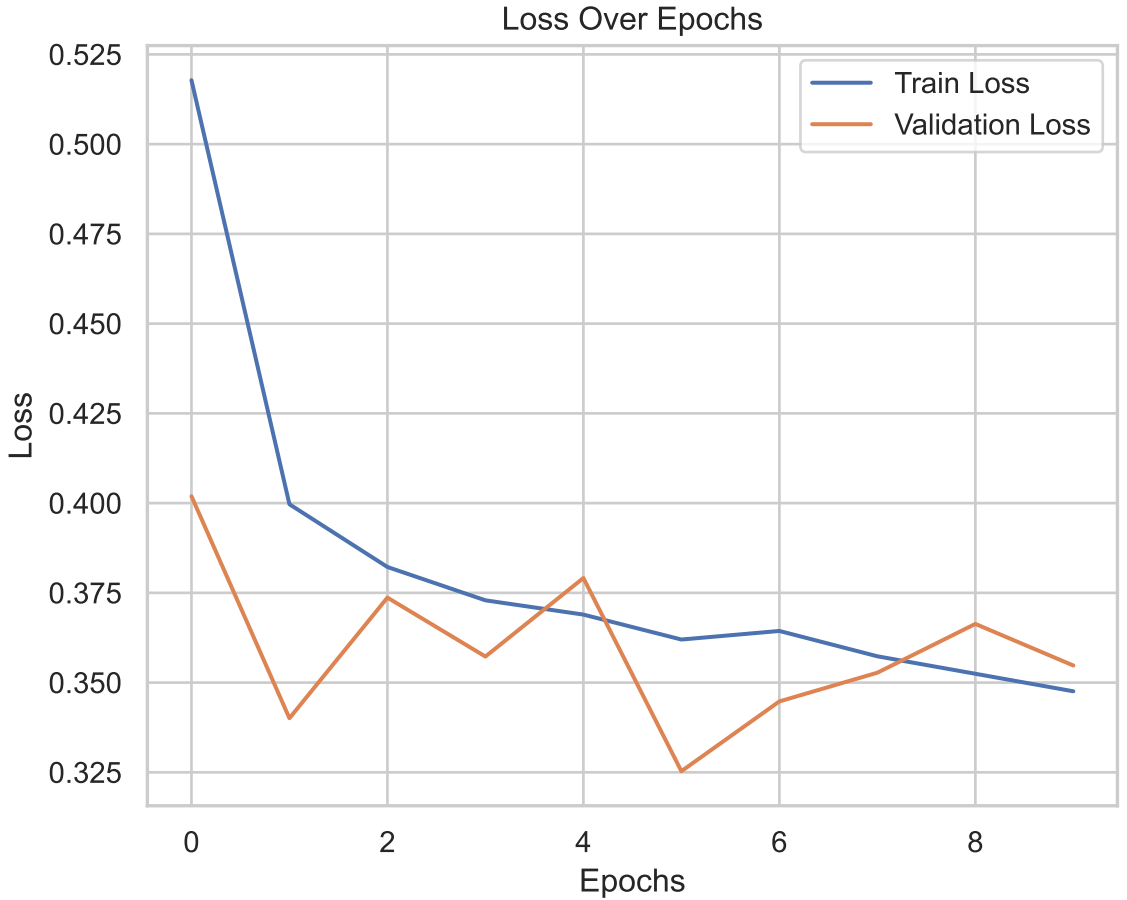
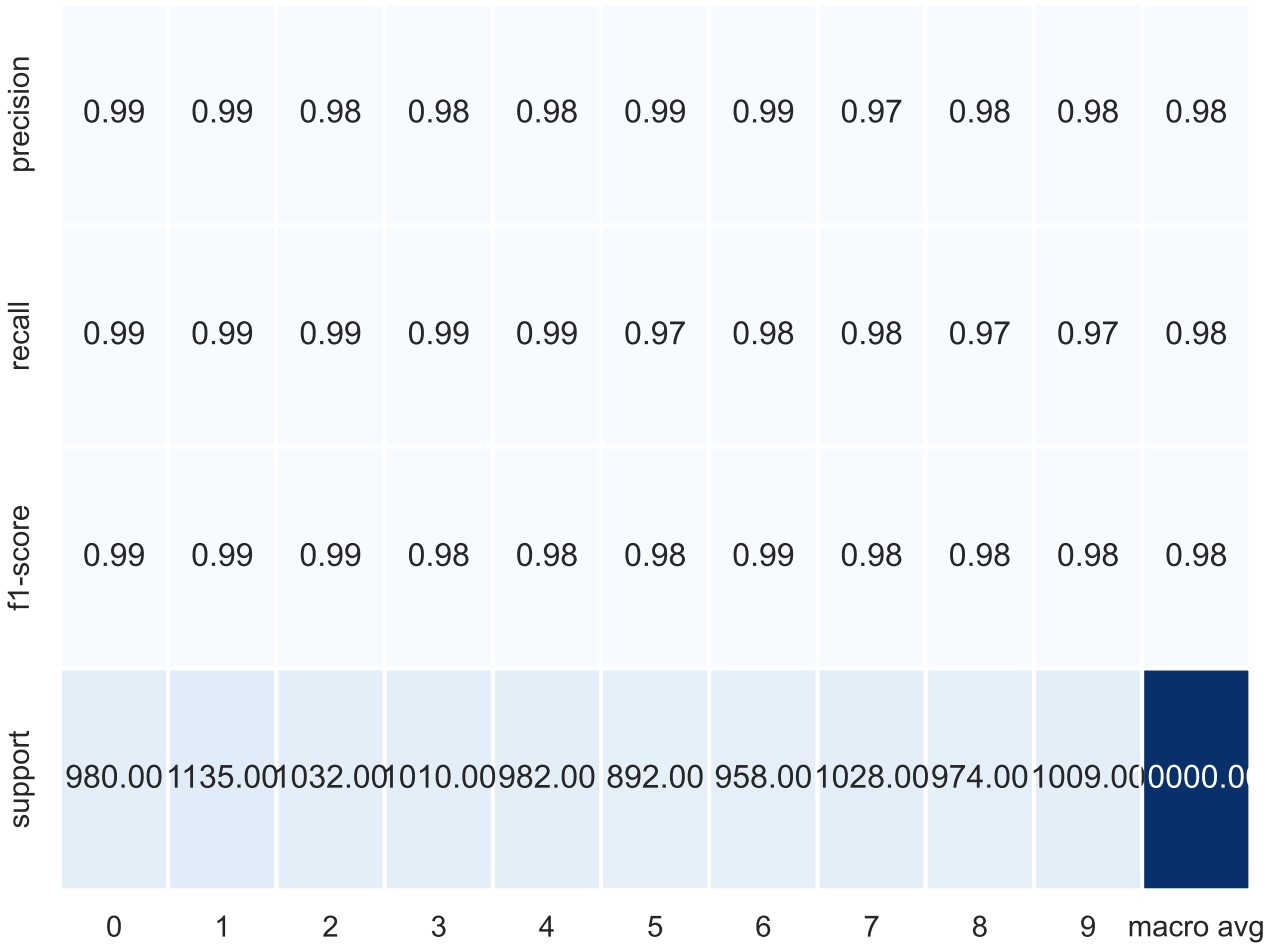
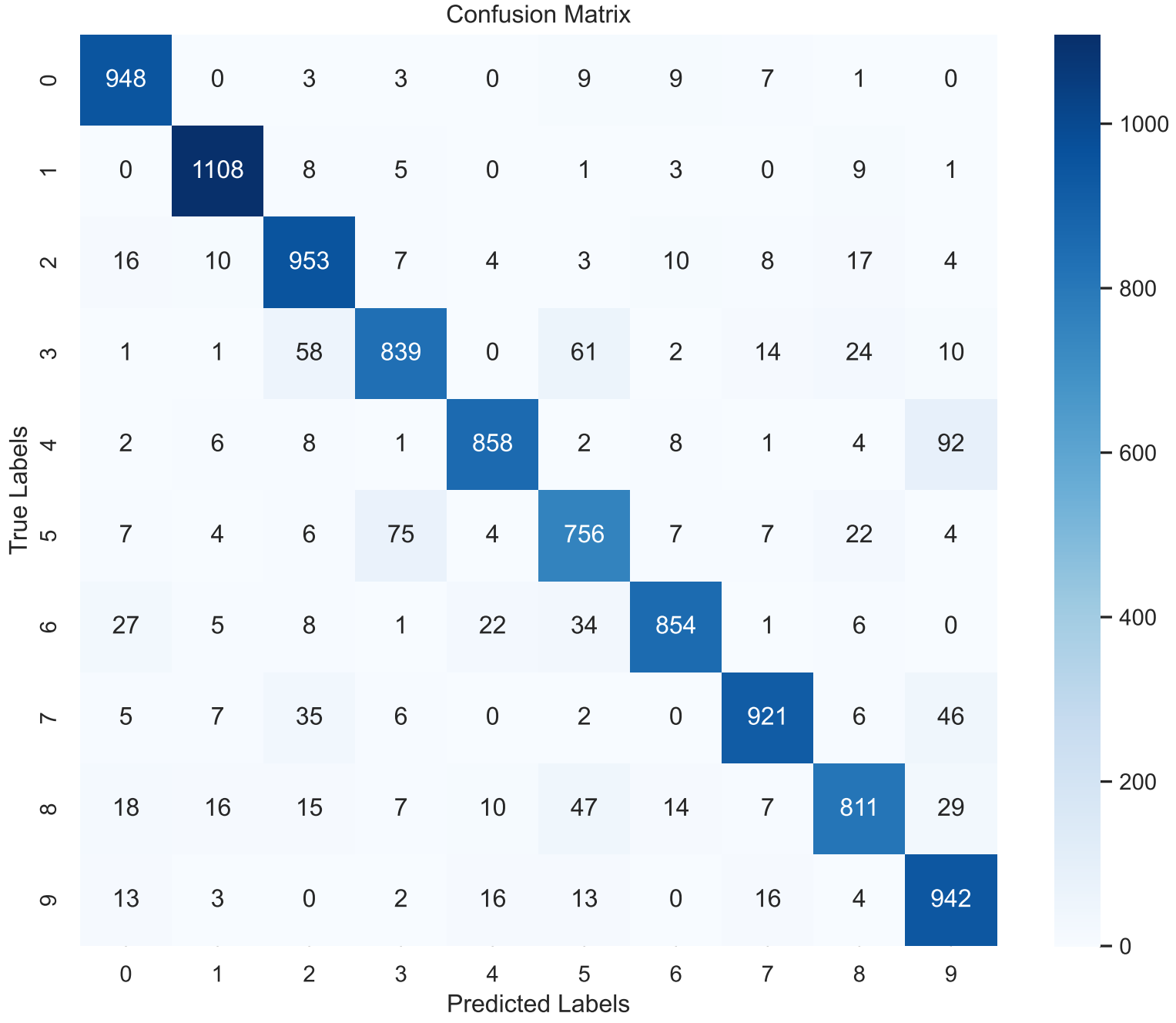
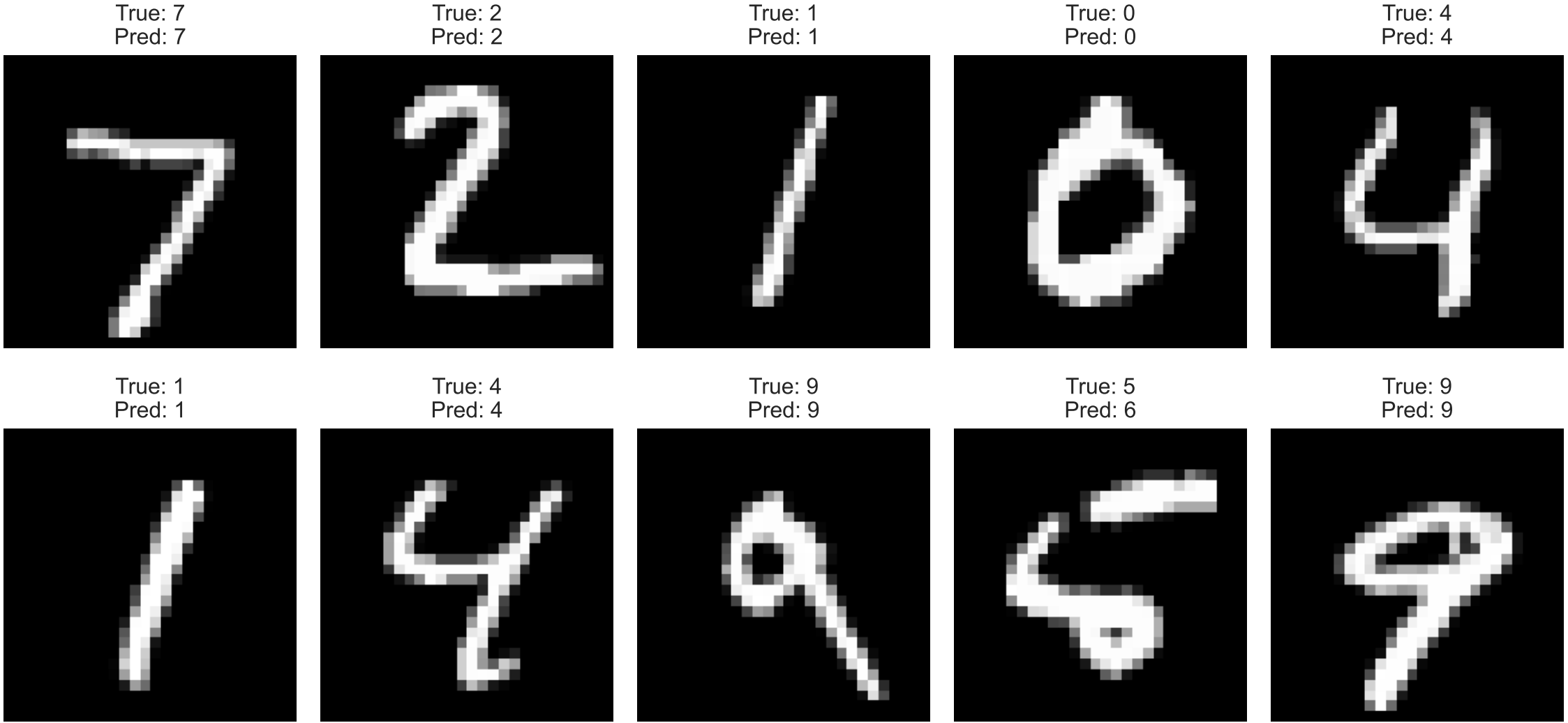
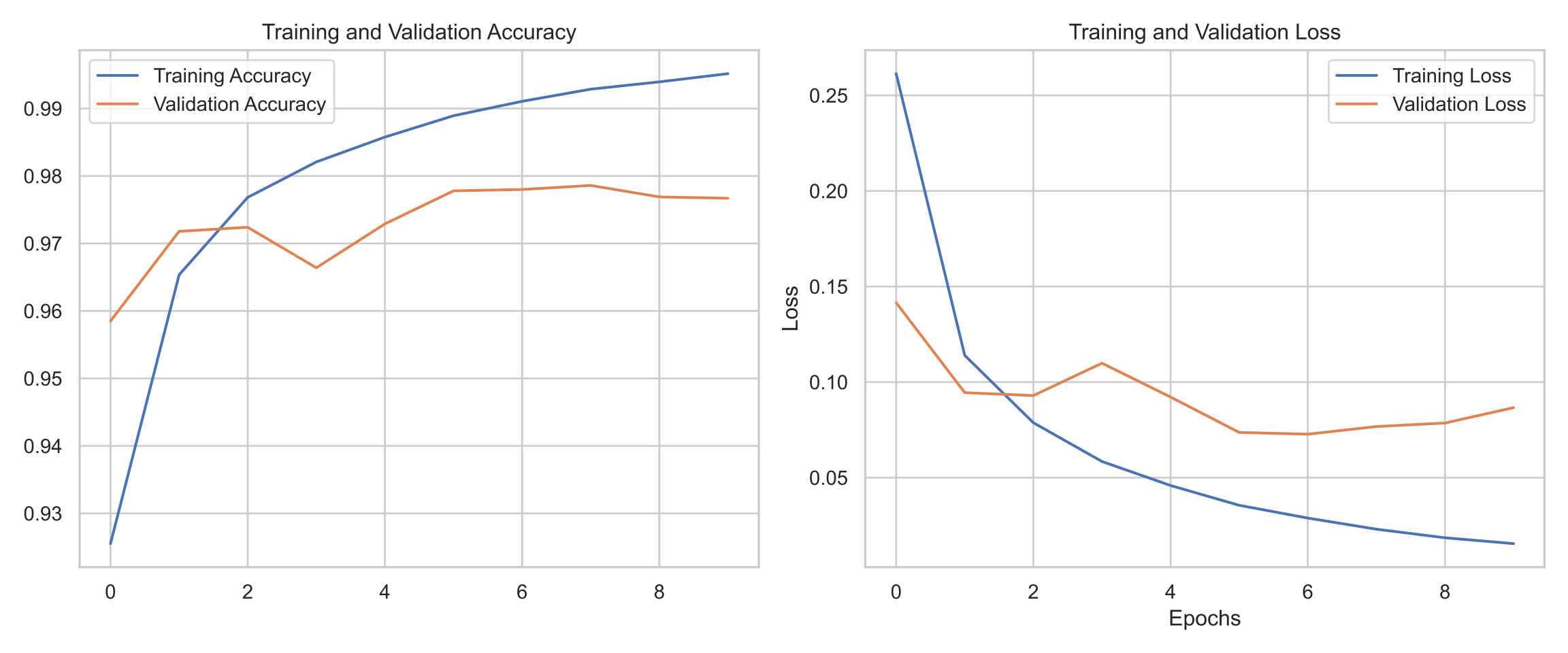

Accuracy Over Epochs
Train Accuracy
Validation Accuracy
Accuracy
Epochs
0.91
0.90
0.89
0.88
0.87
0.86
0.85
0.84
0
2
4
6
8

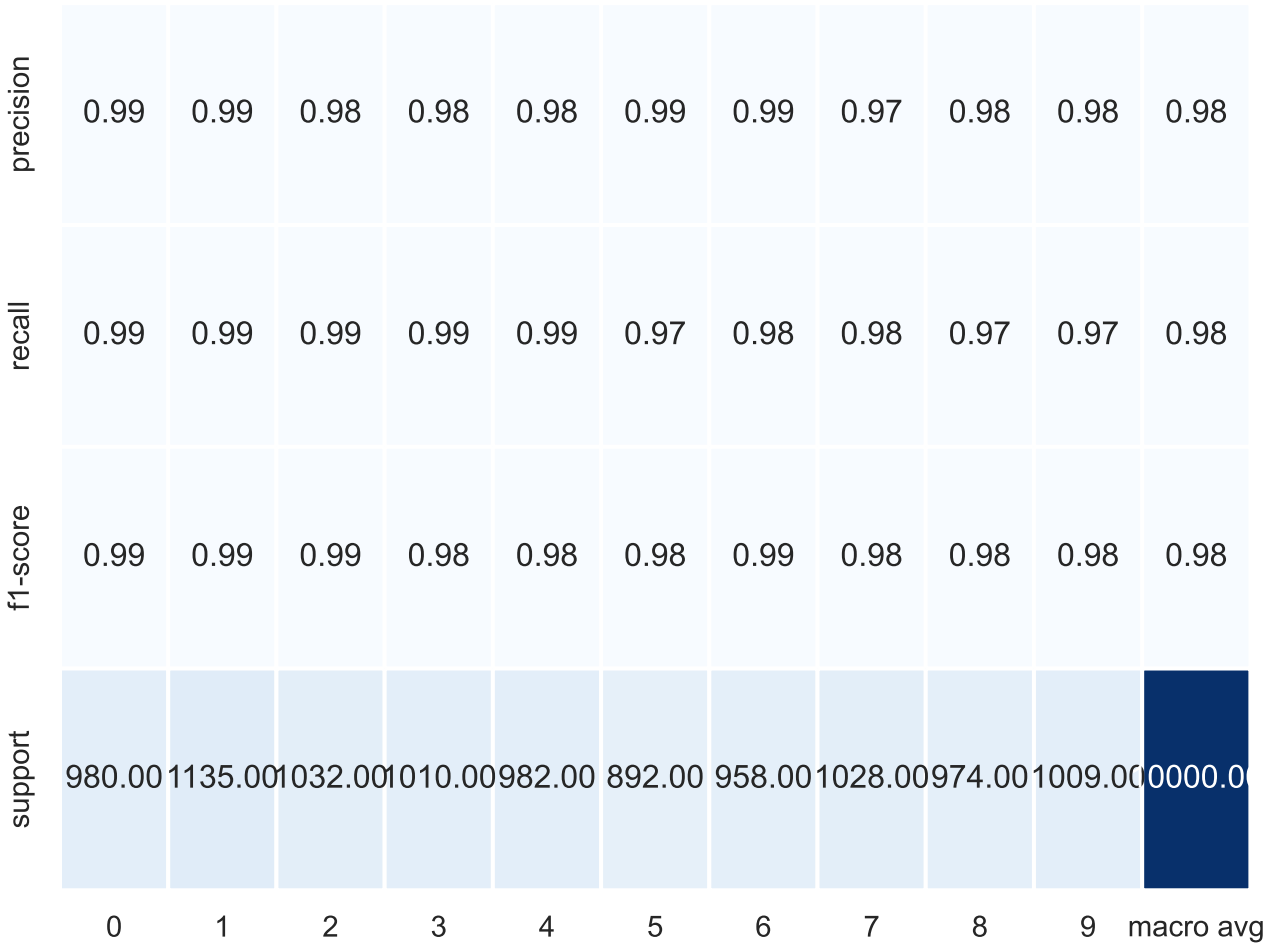

Loss Over Epochs
Train Loss
Validation Loss
Loss
Epochs
0.525
0.500
0.475
0.450
0.425
0.400
0.375
0.350
0.325
0
2
4
6
8

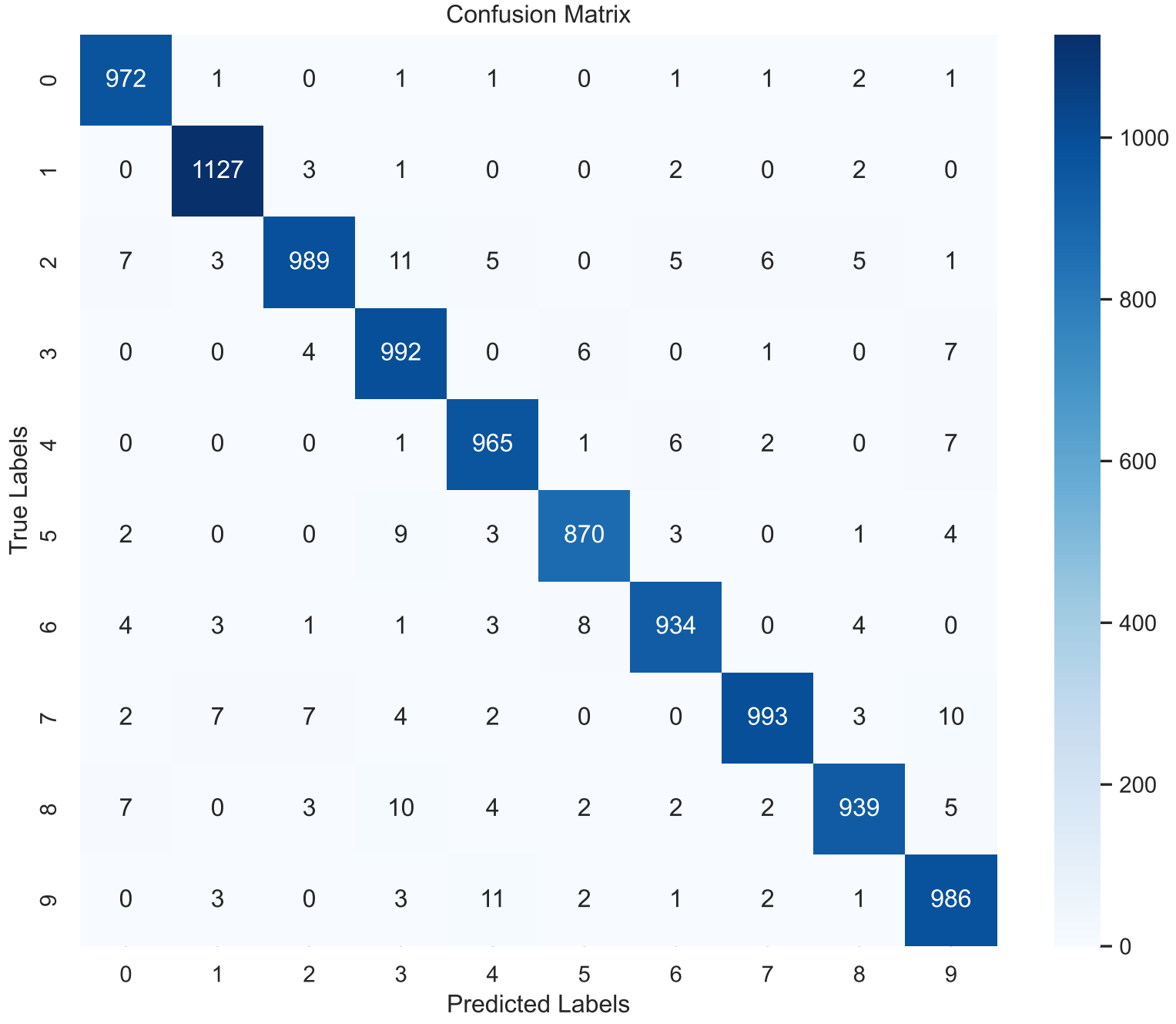

precision
recall
f1-score
support
0.99 0.99 0.98 0.98 0.98 0.99 0.99 0.97 0.98 0.98 0.98
0.99 0.99 0.99 0.99 0.99 0.97 0.98 0.98 0.97 0.97 0.98
0.99 0.99 0.99 0.98 0.98 0.98 0.99 0.98 0.98 0.98 0.98
980.00 1135.00 1032.00 1010.00 982.00 892.00 958.00 1028.00 974.00 1009.00 0000.0
0 1 2 3 4 5 6 7 8 9 macro avg

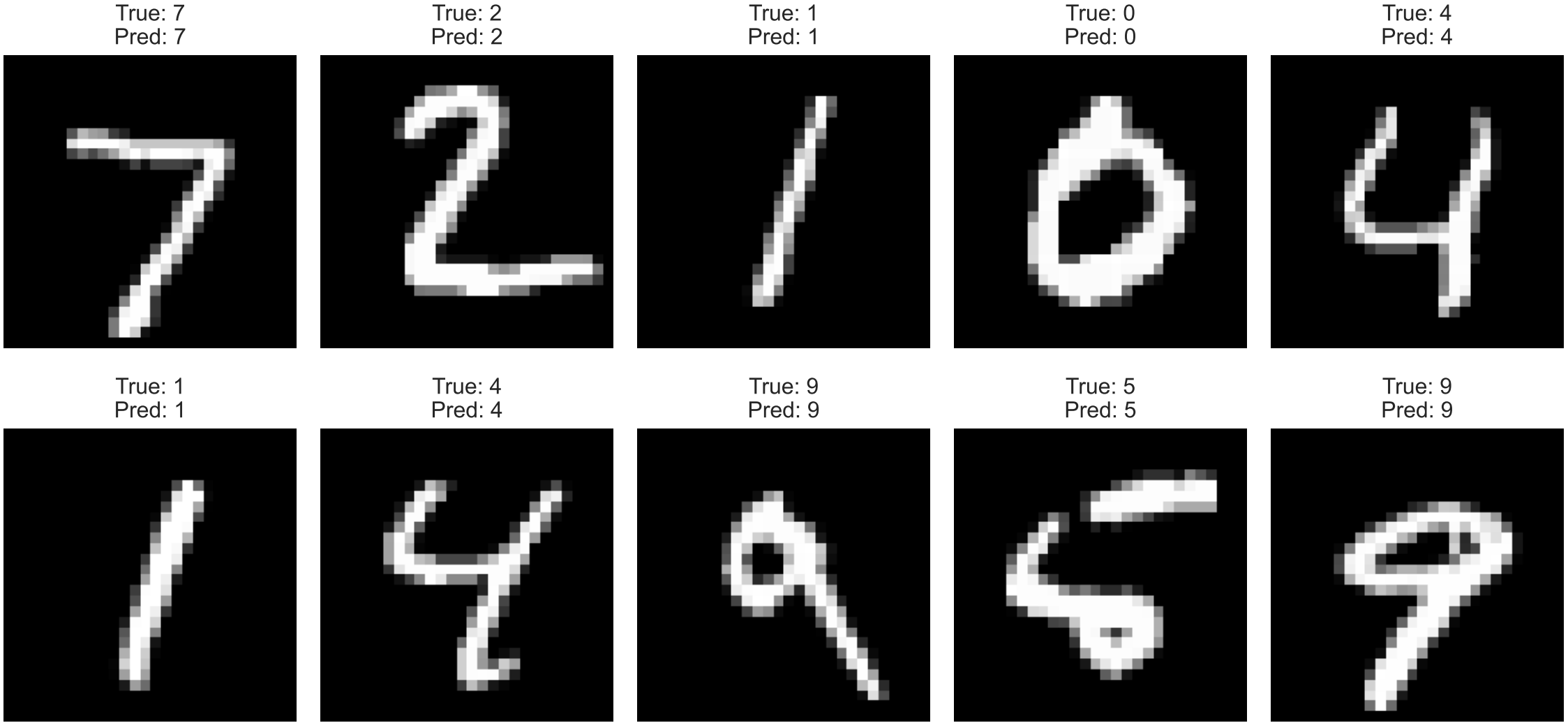

Confusion Matrix
True Labels
Predicted Labels
0 948 0 3 3 0 9 9 7 1 0
1 0 1108 8 5 0 1 3 0 9 1
2 16 10 953 7 4 3 10 8 17 4
3 1 1 58 839 0 61 2 14 24 10
4 2 6 8 1 858 2 8 1 4 92
5 7 4 6 75 4 756 7 7 22 4
6 27 5 8 1 22 34 854 1 6 0
7 5 7 35 6 0 2 0 921 6 46
8 18 16 15 7 10 47 14 7 811 29
9 13 3 0 2 16 13 0 16 4 942
0 1 2 3 4 5 6 7 8 9
1000
800
600
400
200
0

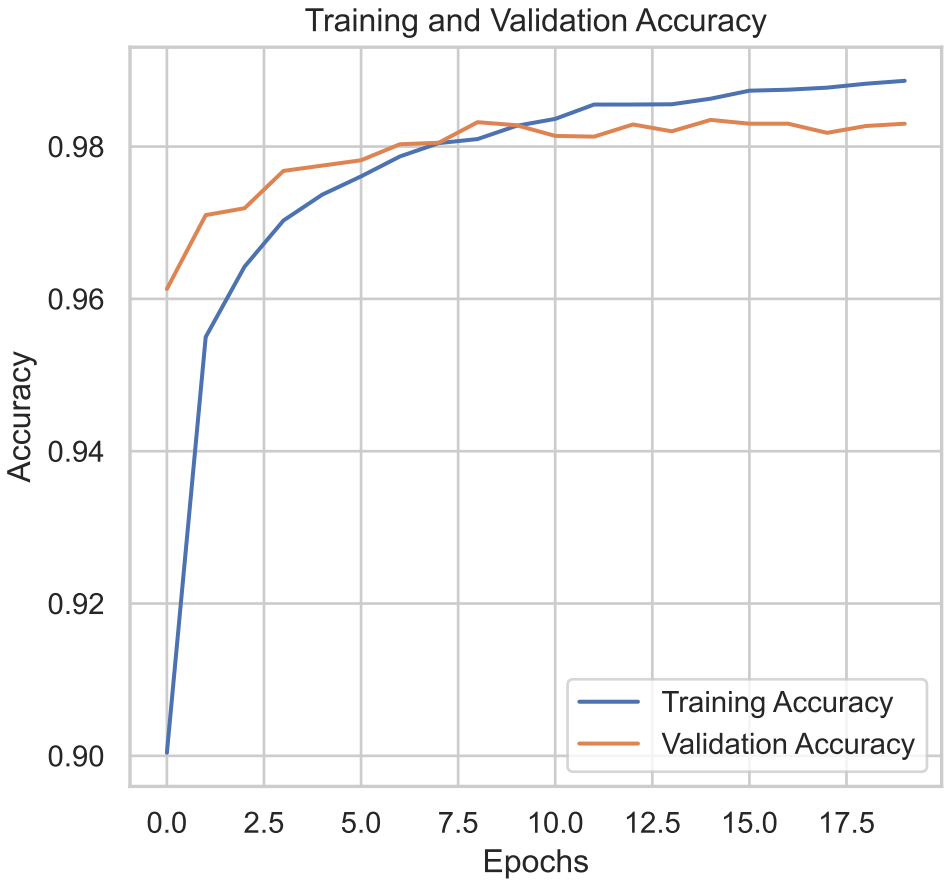

True: 7
Pred: 7
True: 2
Pred: 2
True: 1
Pred: 1
True: 0
Pred: 0
True: 4
Pred: 4
True: 1
Pred: 1
True: 4
Pred: 4
True: 9
Pred: 9
True: 5
Pred: 6
True: 9
Pred: 9

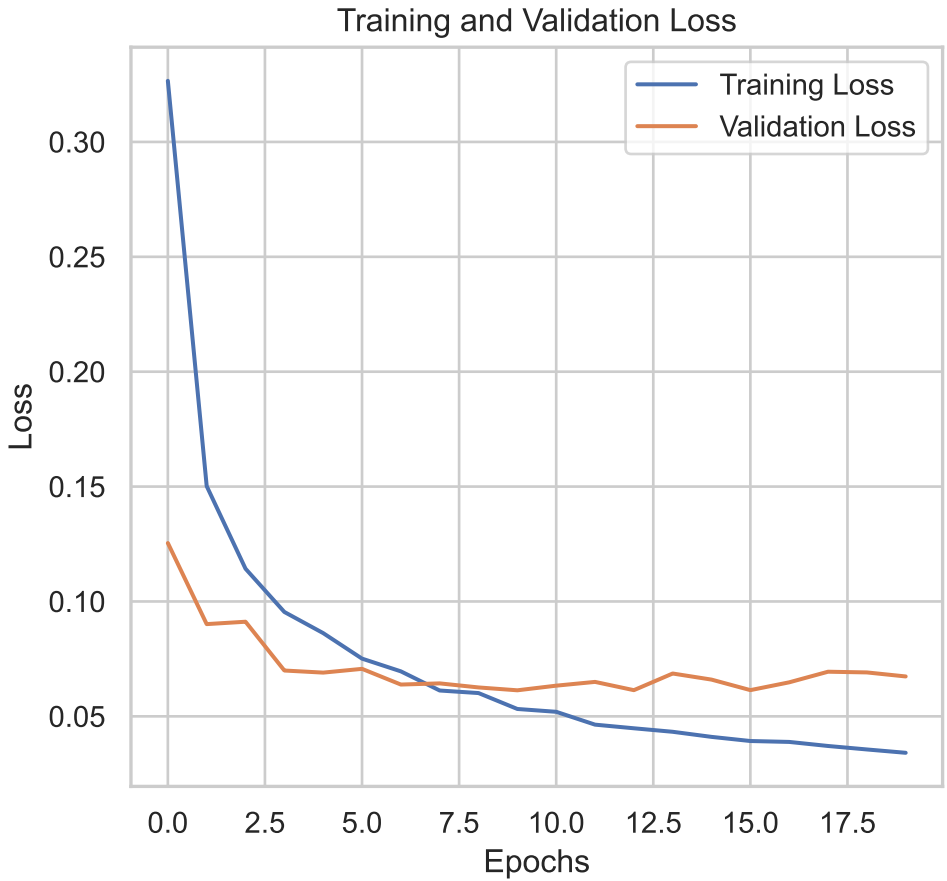

Training and Validation Accuracy
Training Accuracy
Validation Accuracy
0.99
0.98
0.97
0.96
0.95
0.94
0.93
0
2
4
6
8
Training and Validation Loss
Training Loss
Validation Loss
Loss
0.25
0.20
0.15
0.10
0.05
0
2
4
6
8
Epochs

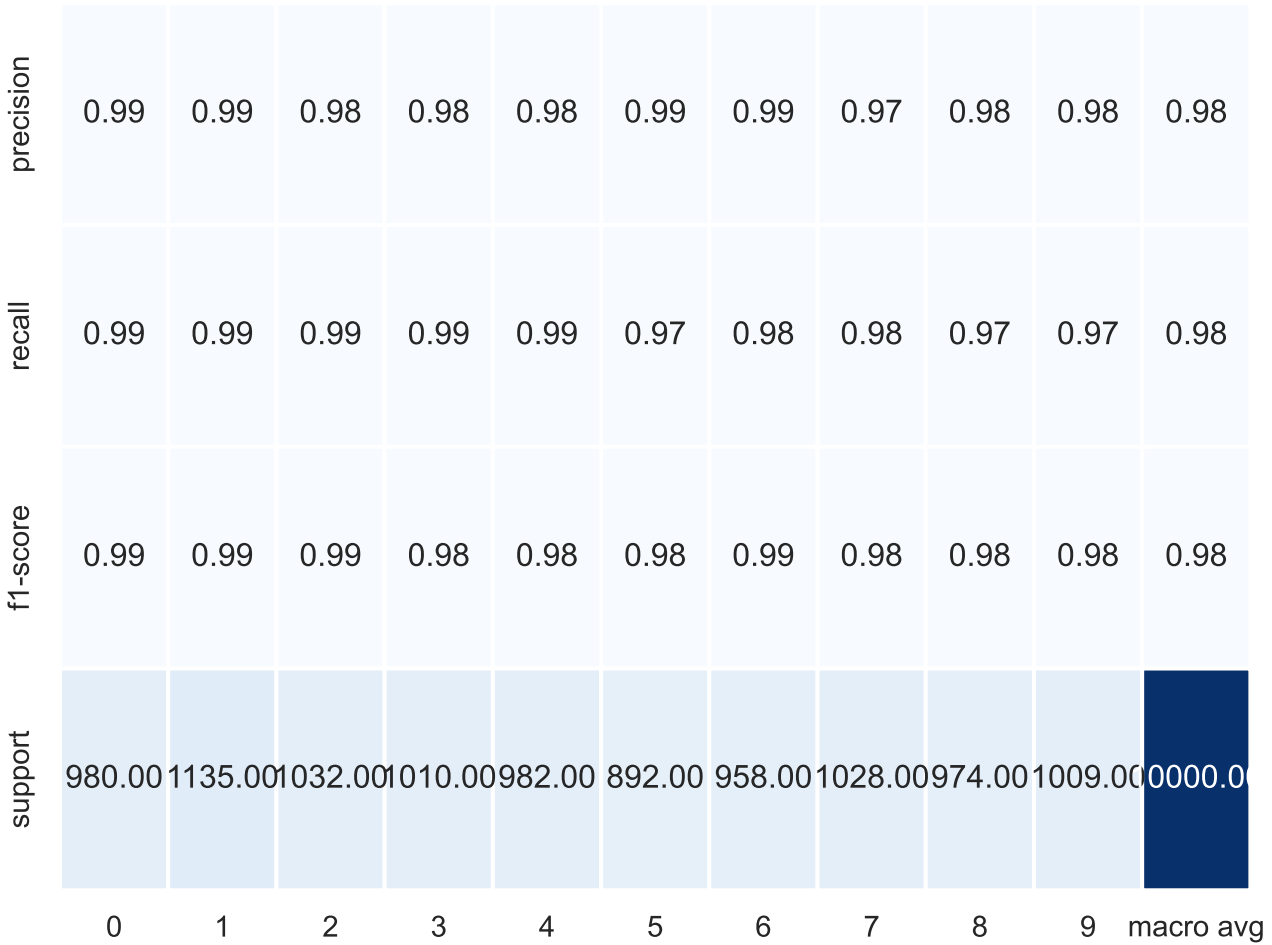

precision
recall
f1-score
support
0.99 0.99 0.98 0.98 0.98 0.99 0.99 0.97 0.98 0.98 0.98
0.99 0.99 0.99 0.99 0.99 0.97 0.98 0.98 0.97 0.97 0.98
0.99 0.99 0.99 0.98 0.98 0.98 0.99 0.98 0.98 0.98 0.98
980.00 1135.00 1032.00 1010.00 982.00 892.00 958.00 1028.00 974.00 1009.00 0000.0
0 1 2 3 4 5 6 7 8 9 macro avg

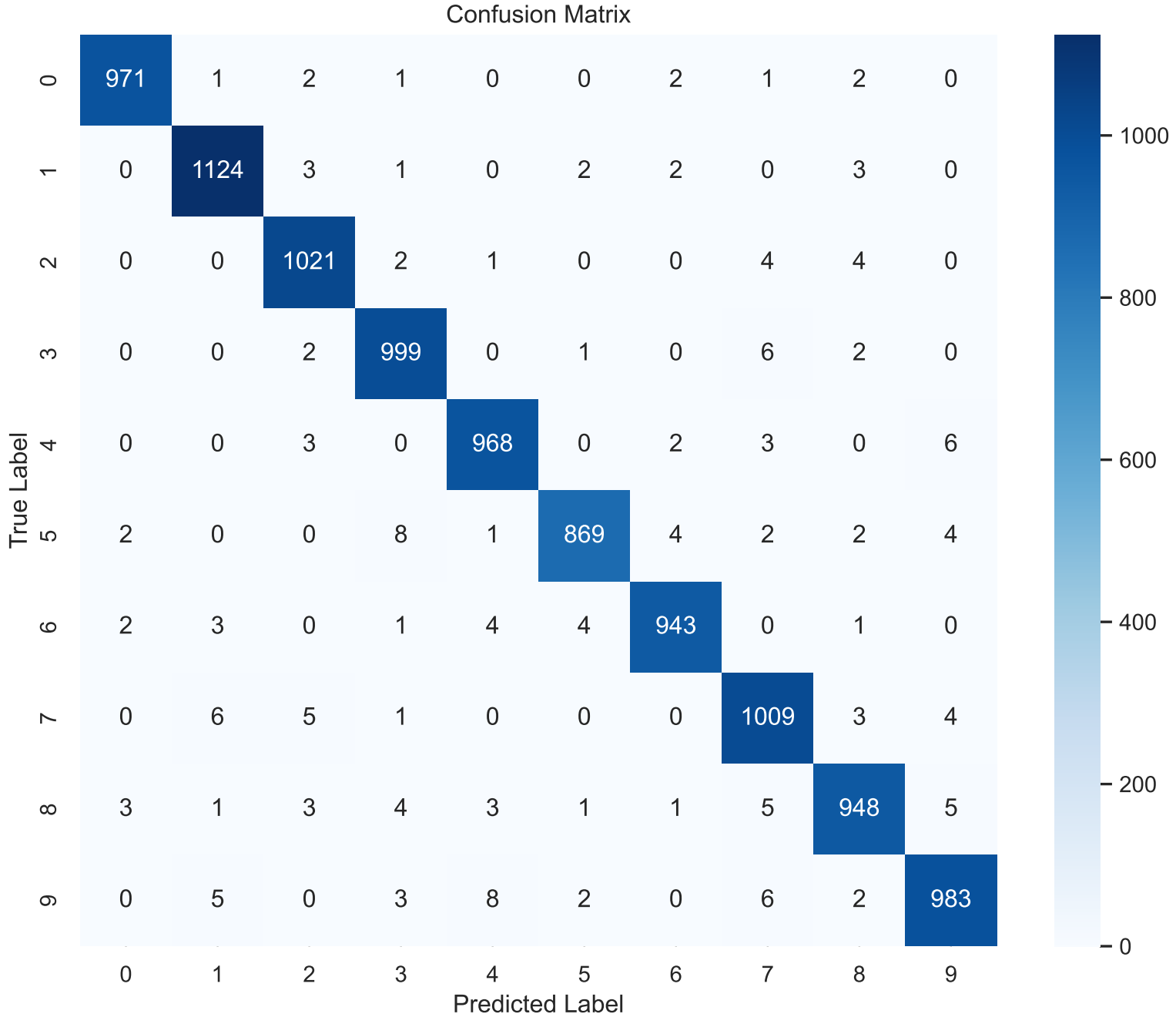

Confusion Matrix
True Labels
Predicted Labels
0 1 2 3 4 5 6 7 8 9
0 972 1 0 1 1 0 1 1 2 1
1 0 1127 3 1 0 0 2 0 2 0
2 7 3 989 11 5 0 5 6 5 1
3 0 0 4 992 0 6 0 1 0 7
4 0 0 0 1 965 1 6 2 0 7
5 2 0 0 9 3 870 3 0 1 4
6 4 3 1 1 3 8 934 0 4 0
7 2 7 7 4 2 0 0 993 3 10
8 7 0 3 10 4 2 2 2 939 5
9 0 3 0 3 11 2 1 2 1 986
1000
800
600
400
200
0


True: 7
Pred: 7
True: 2
Pred: 2
True: 1
Pred: 1
True: 0
Pred: 0
True: 4
Pred: 4
True: 1
Pred: 1
True: 4
Pred: 4
True: 9
Pred: 9
True: 5
Pred: 5
True: 9
Pred: 9


Training and Validation Accuracy
Accuracy
0.98
0.96
0.94
0.92
0.90
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Epochs
Training Accuracy
Validation Accuracy


Training and Validation Loss
Loss
0.30
0.25
0.20
0.15
0.10
0.05
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Epochs
Training Loss
Validation Loss


precision
recall
f1-score
support
0.99 0.99 0.98 0.98 0.98 0.99 0.99 0.97 0.98 0.98 0.98
0.99 0.99 0.99 0.99 0.99 0.97 0.98 0.98 0.97 0.97 0.98
0.99 0.99 0.99 0.98 0.98 0.98 0.99 0.98 0.98 0.98 0.98
980.00 1135.00 1032.00 1010.00 982.00 892.00 958.00 1028.00 974.00 1009.00 0000.0
0 1 2 3 4 5 6 7 8 9 macro avg


Confusion Matrix
True Label
Predicted Label
0 971 1 2 1 0 0 2 1 2 0
1 0 1124 3 1 0 2 2 0 3 0
2 0 0 1021 2 1 0 0 4 4 0
3 0 0 2 999 0 1 0 6 2 0
4 0 0 3 0 968 0 2 3 0 6
5 2 0 0 8 1 869 4 2 2 4
6 2 3 0 1 4 4 943 0 1 0
7 0 6 5 1 0 0 0 1009 3 4
8 3 1 3 4 3 1 1 5 948 5
9 0 5 0 3 8 2 0 6 2 983
0 1 2 3 4 5 6 7 8 9
1000
800
600
400
200
0

Discussion Questions

Generated Report

1. Epochs: An epoch refers to one complete pass through the dataset. Increasing epochs allows the model to refine parameters but may overfit if excessive.
2. Batch Size: Batch size is the number of samples processed before updating the model. Smaller batches generalize better; larger ones train faster but may overfit.
3. Dropout: Dropout randomly disables neurons during training to prevent overfitting. This ensures the model learns robust and distributed representations.