

ResNet50

		5 Epochs	10 Epochs	15 Epochs
Training Accuracy		93.47%	96.79%	97.39%
Testing Accuracy		92.56%	96.77%	96.53%
Macro Avg.	Precision	93.51%	97.35%	96.50%
	Recall	94.82%	97.44%	96.56%
	F1 Score	94.30%	97.34%	96.50%
BFlops		23856378		
Inference Time		0.250 Second	0.050 Second	0.046 Second
Size of Model		95.1MB		

Classification Report & Confusion Matrix

5 Epochs

For Training				
	precision	recall	f1-score	support
0	1.00	0.77	0.87	1103
1	0.88	1.00	0.93	1738
2	0.99	1.00	0.99	426
3	0.98	0.98	0.98	839
accuracy			0.93	4106
macro avg	0.96	0.94	0.94	4106
weighted avg	0.94	0.93	0.93	4106
[[853 233 2 15] [0 1736 2 0] [0 0 426 0] [0 14 2 823]]				
For Testing				
	precision	recall	f1-score	support
0	1.00	0.84	0.91	174
1	0.84	1.00	0.91	142
2	1.00	0.97	0.99	39
3	0.94	0.98	0.96	48
accuracy			0.93	403
macro avg	0.95	0.95	0.94	403
weighted avg	0.94	0.93	0.93	403
[[146 25 0 3] [0 142 0 0] [0 1 38 0] [0 1 0 47]]				

10 Epochs

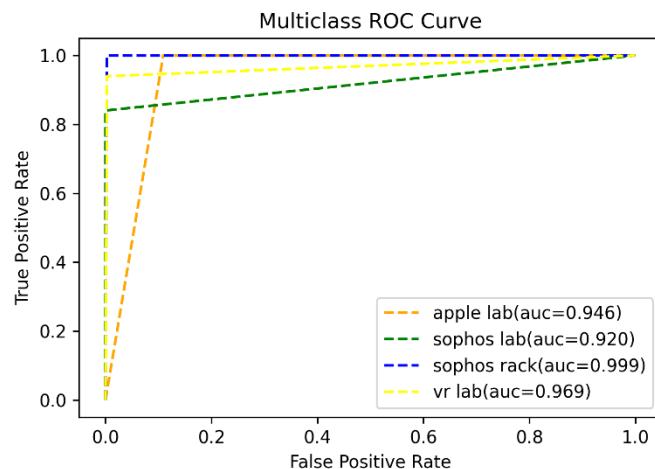
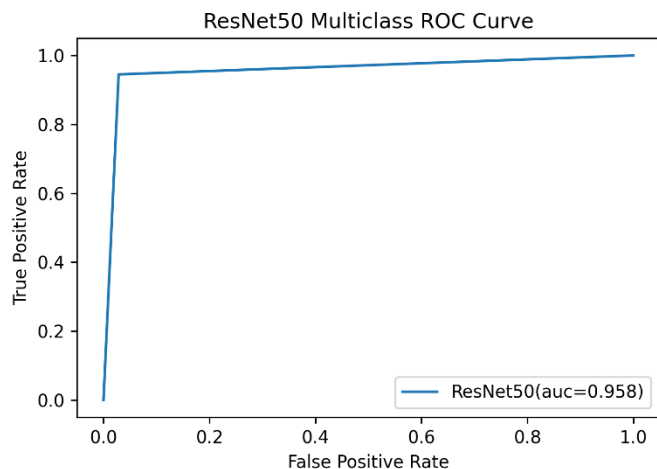
For Training				
	precision	recall	f1-score	support
0	1.00	0.88	0.93	972
1	0.94	1.00	0.97	1876
2	1.00	1.00	1.00	433
3	0.98	1.00	0.99	825
accuracy			0.97	4106
macro avg	0.98	0.97	0.97	4106
weighted avg	0.97	0.97	0.97	4106
[[852 112 0 8] [1 1868 0 7] [0 2 431 0] [0 1 1 823]]				
For Testing				
	precision	recall	f1-score	support
0	0.99	0.94	0.96	155
1	0.94	0.99	0.96	161
2	1.00	0.97	0.99	39
3	0.96	1.00	0.98	48
accuracy			0.97	403
macro avg	0.97	0.97	0.97	403
weighted avg	0.97	0.97	0.97	403
[[145 9 0 1] [1 159 0 1] [0 1 38 0] [0 0 0 48]]				

15 Epochs

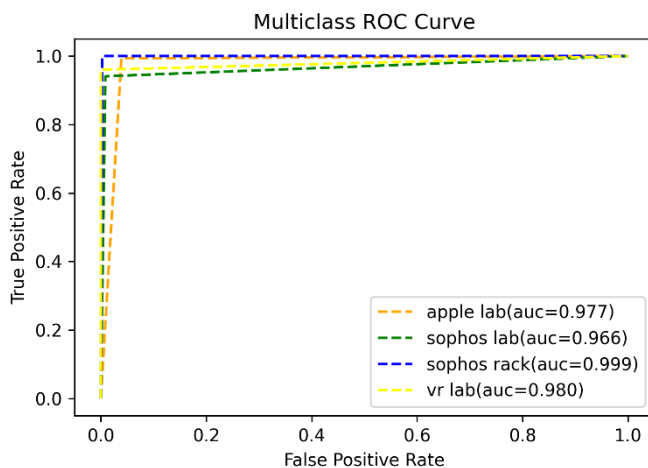
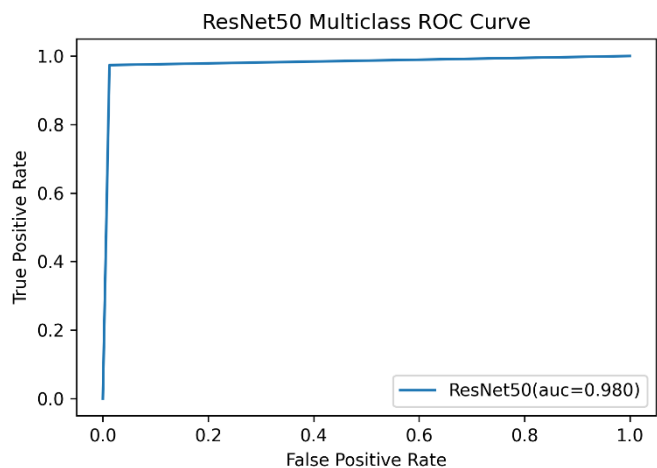
For Training				
	precision	recall	f1-score	support
0	1.00	0.93	0.96	920
1	0.97	0.99	0.98	1948
2	1.00	1.00	1.00	433
3	0.95	0.99	0.97	805
accuracy			0.97	4106
macro avg	0.98	0.97	0.98	4106
weighted avg	0.97	0.97	0.97	4106
[[853 51 0 16] [0 1920 0 28] [0 1 432 0] [0 11 0 794]]				
For Testing				
	precision	recall	f1-score	support
0	0.99	0.95	0.97	152
1	0.95	0.98	0.96	164
2	1.00	0.97	0.99	39
3	0.92	0.96	0.94	48
accuracy			0.97	403
macro avg	0.96	0.97	0.96	403
weighted avg	0.97	0.97	0.97	403
[[145 6 0 1] [1 160 0 3] [0 1 38 0] [0 2 0 46]]				

ROC Curve

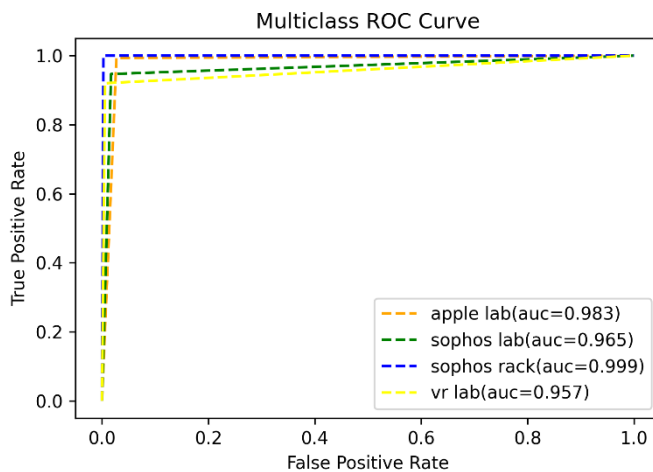
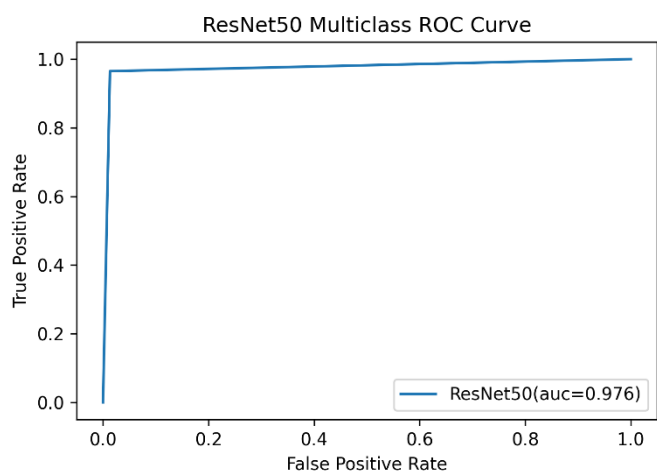
5 Epochs



10 Epochs

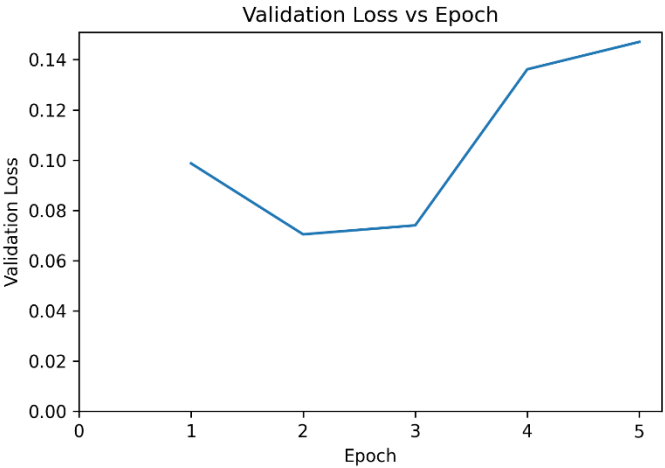
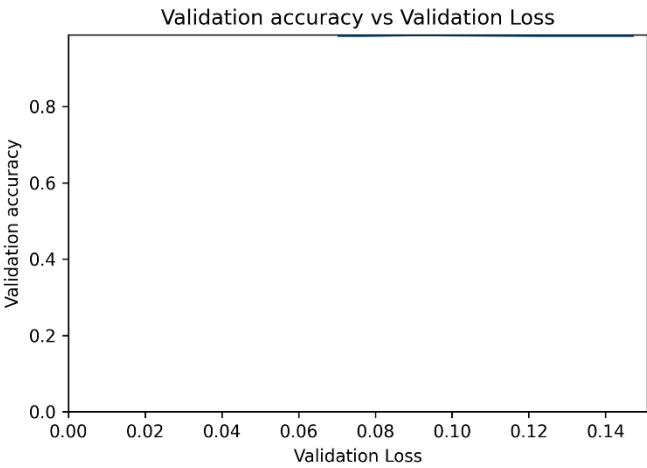
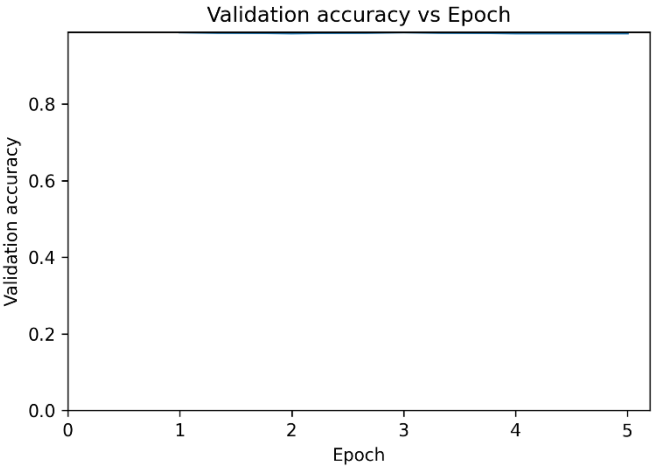
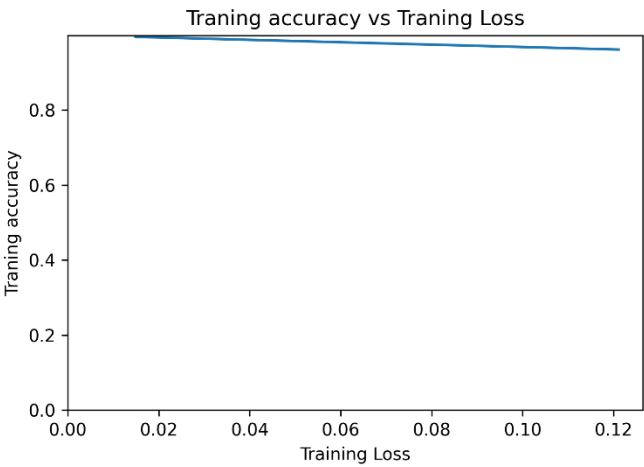
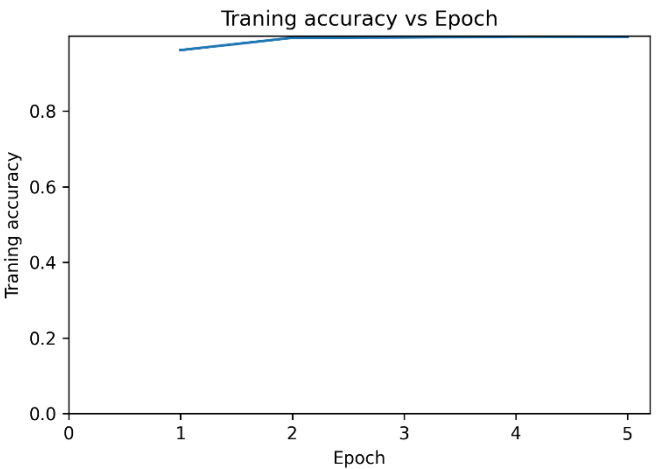
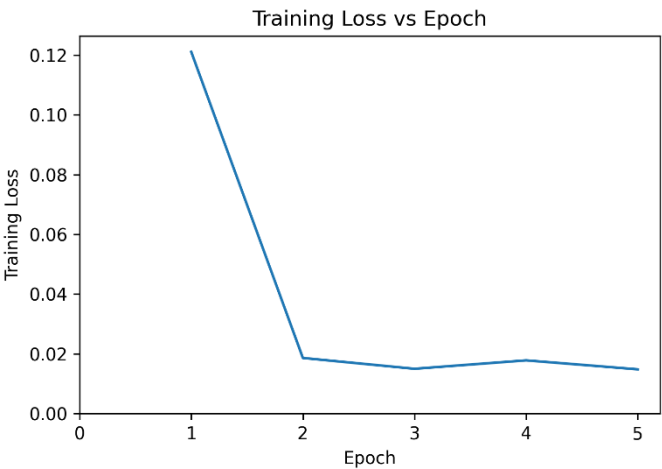


15 Epochs

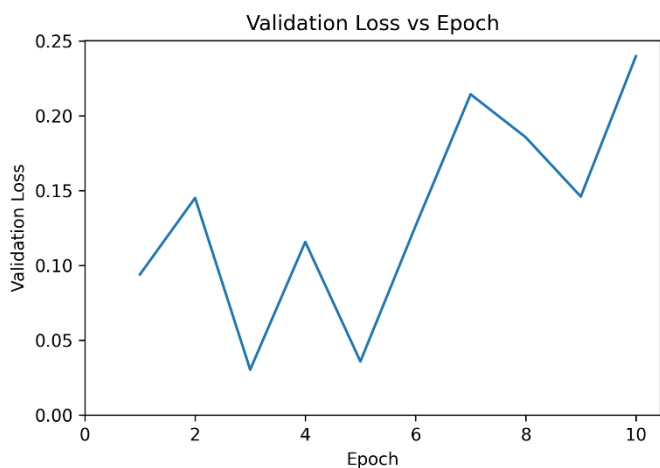
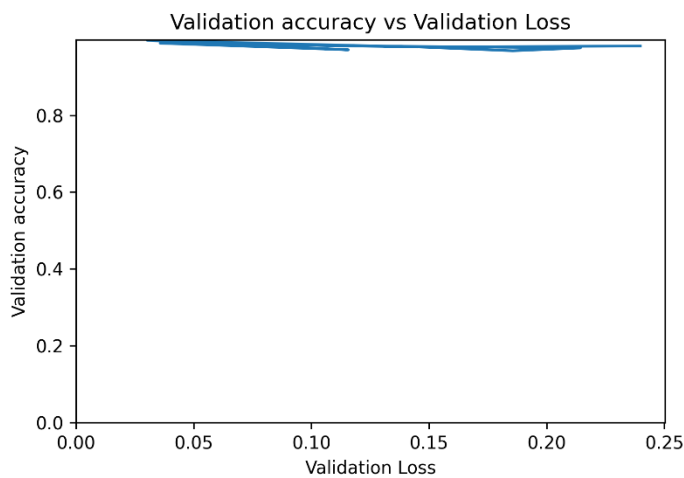
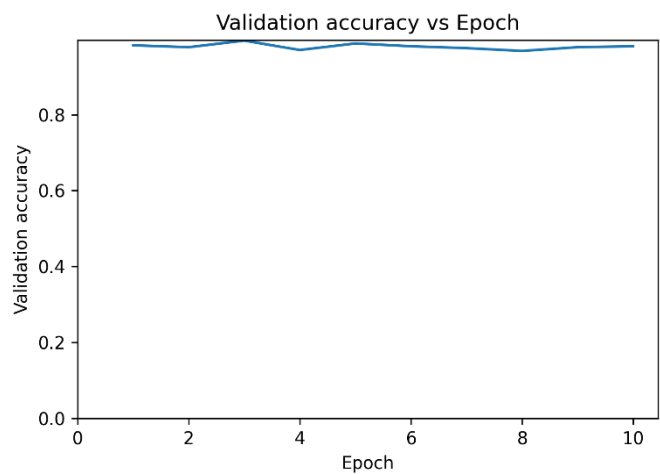
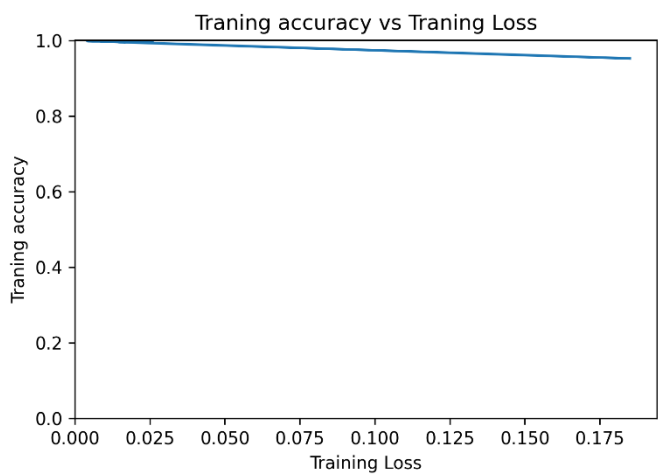
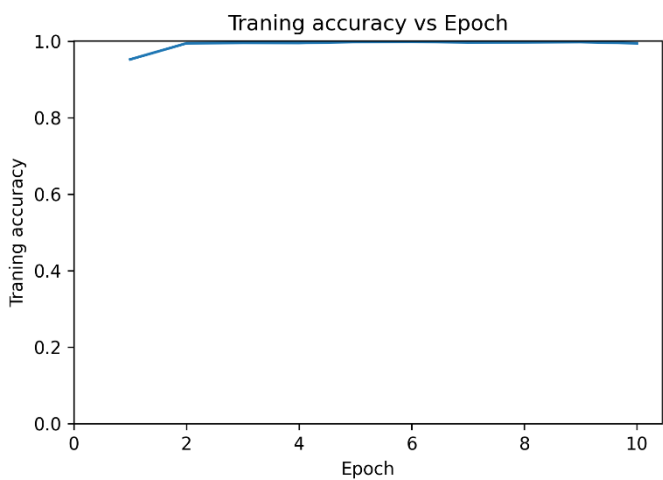
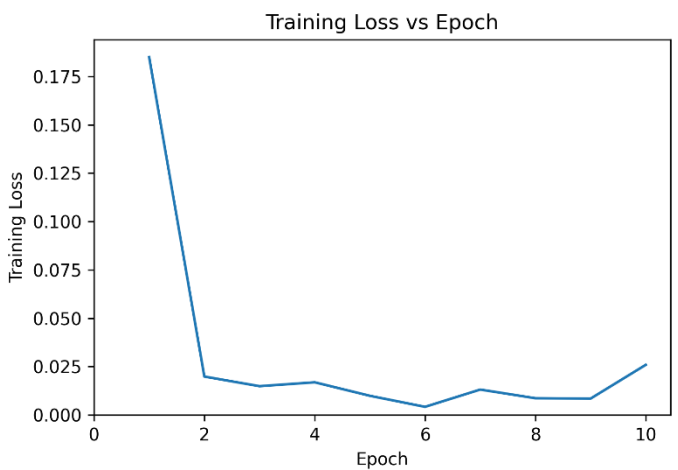


Graphs

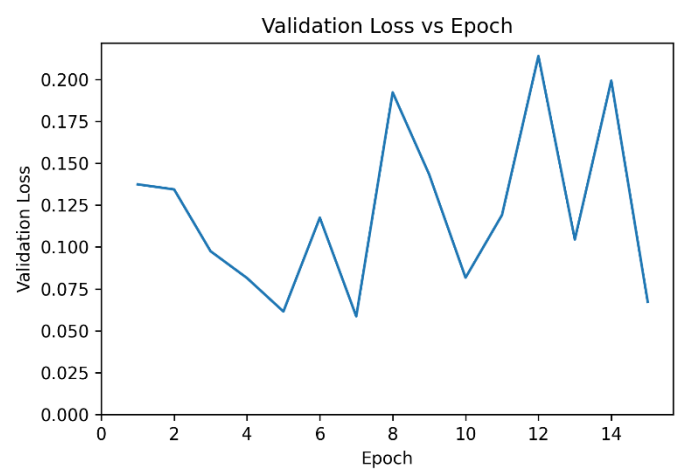
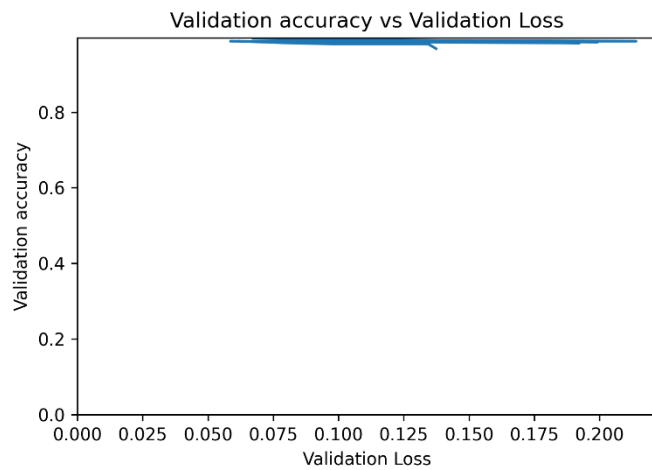
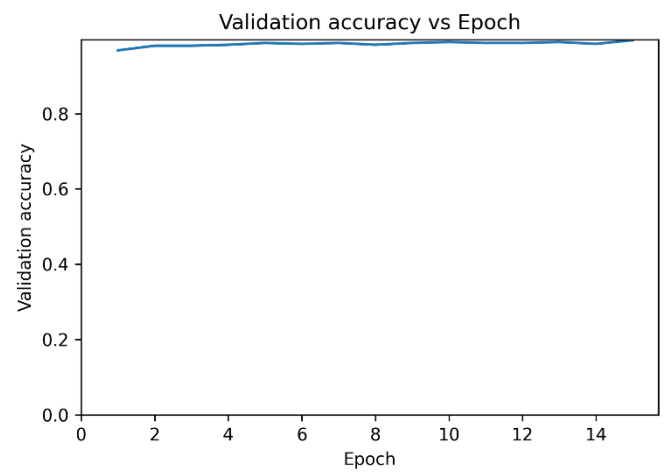
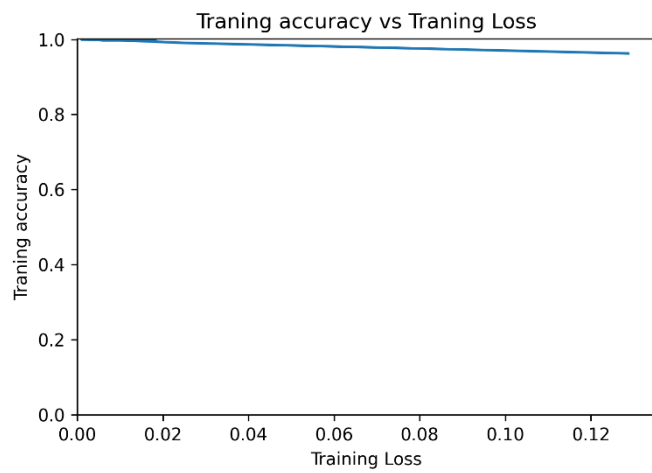
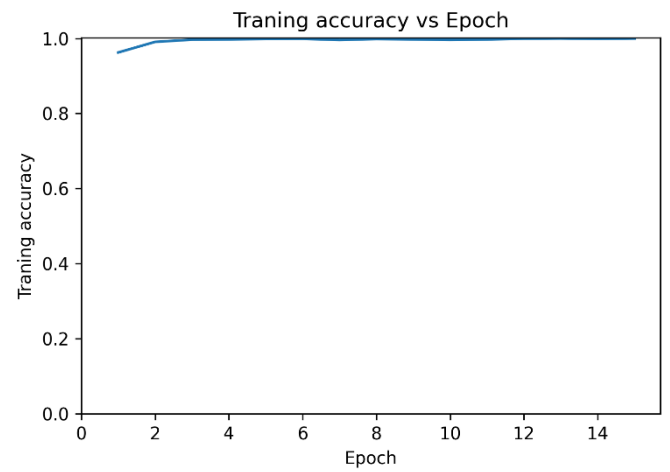
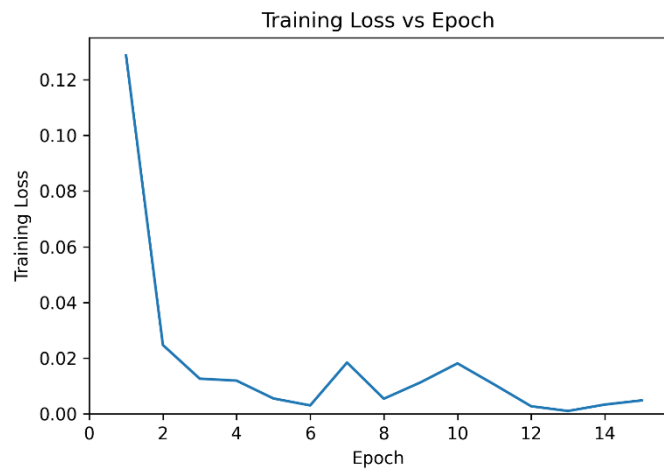
5 Epochs



10 Epochs

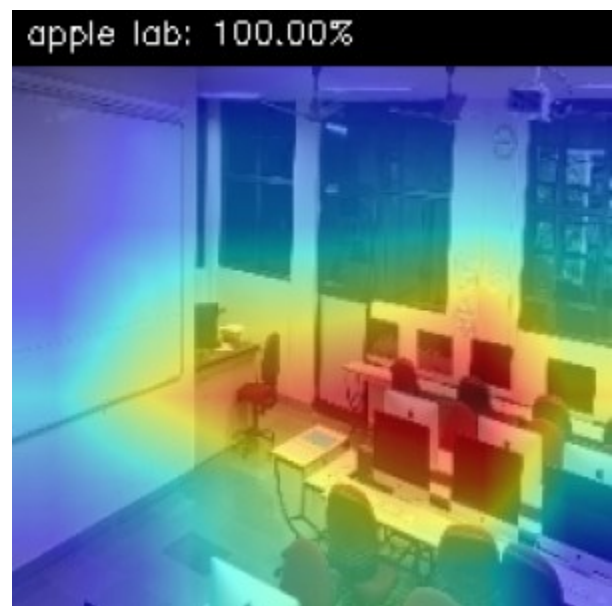
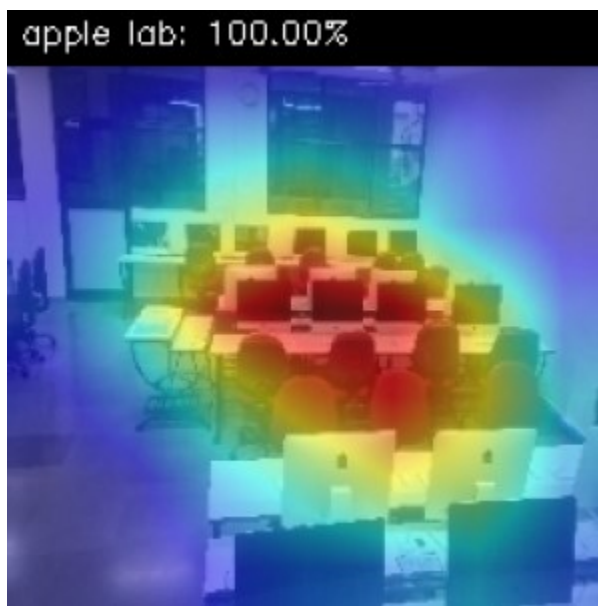
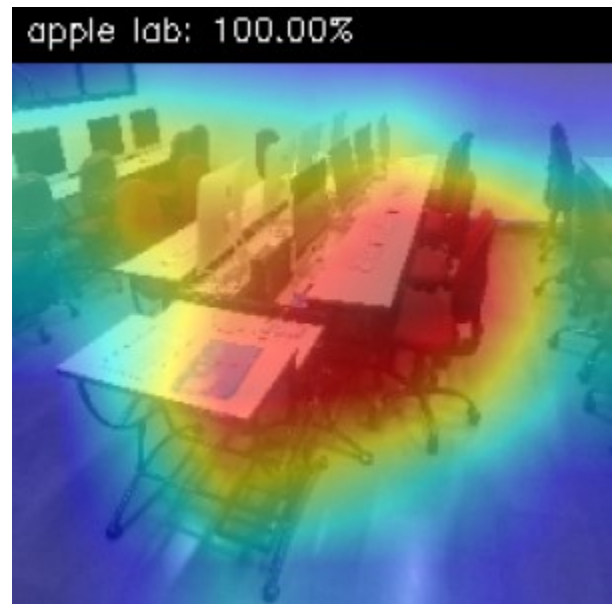
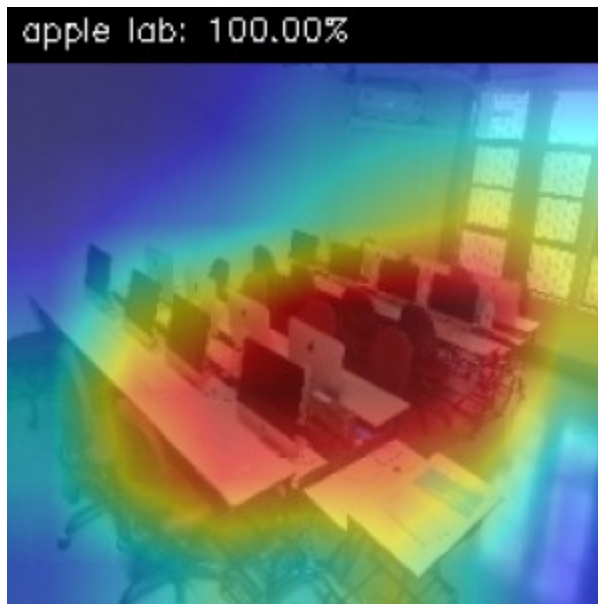


15 Epochs



Gradient Class Activation Maps (Grade-CAM) Heatmaps (10 Epochs)

Apple lab



Sophos lab

sophos lab: 55.63%



sophos lab: 100.00%



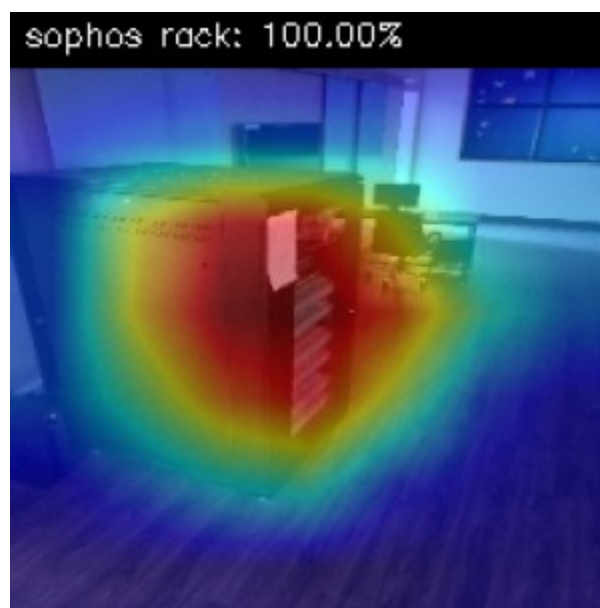
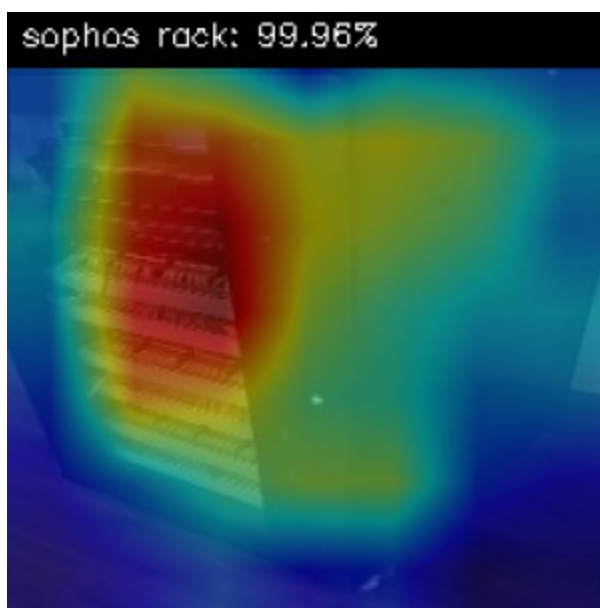
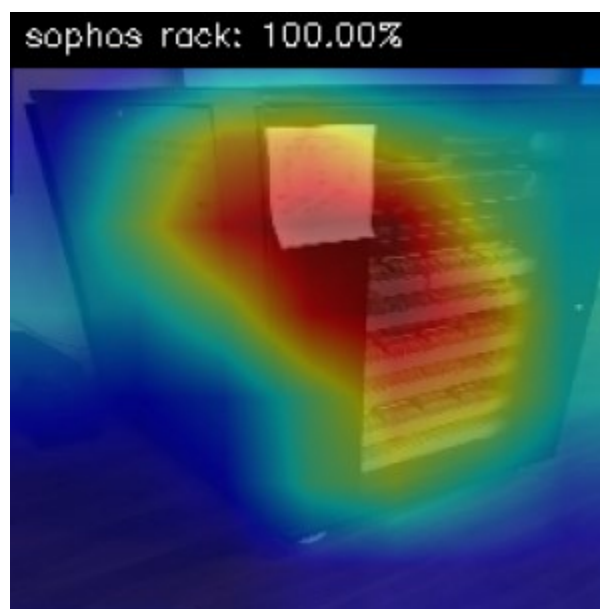
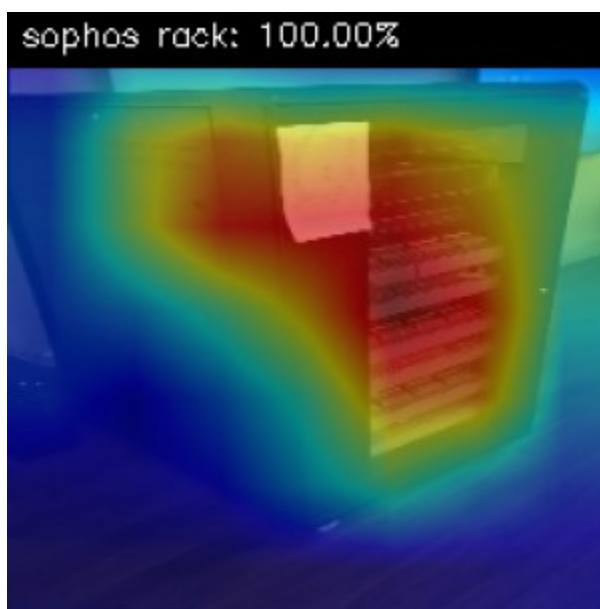
sophos lab: 99.98%



sophos lab: 100.00%



Sophos rack



VR lab

