LAB 1: STUDENT WORKSHEET

Working with Pre-trained Models

Name: _____

Student ID: _____

Date: _____

PART 1: MODEL PARAMETERS AND PERFORMANCE

Complete the table below with the numerical values from your experiments:

1.1 Basic Performance Metrics

Model	Trainable Parameters	Total Parameters	Test Accuracy (%)	Training Time (s)	Inference Time (ms)
MobileNetV2					
ResNet50					
VGG16					

1.2 Efficiency Metrics

Model	Parameters/Second (training)	Accuracy/Million Parameters	Inference Time/Batch (ms)
MobileNetV2			
ResNet50			
VGG16			

PART 2: MODEL COMPARISON

2.1 Most Confused Digit Pairs

Model	Most Confused Digit Pair	Number of Misclassifications
MobileNetV2	and	
ResNet50	and	
VGG16	and	

2.2 Per-Class Precision for Best Model

Record the precision values for each digit class from your best performing model:

Digit	Precision
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	

PART 3: ANALYSIS QUESTIONS

1. Which model provides the best balance between accuracy and computational efficiency? Explain your reasoning with specific metrics from your experiments.

2. How does model size affect training time versus inference time? Explain the differences you observed.

3. Why might you choose MobileNetV2 over ResNet50 or VGG16 for a mobile application? Cite specific metrics from your results.

4. What hardware factors significantly impact the performance of these pre-trained models? How might this influence model selection for different deployment scenarios?

PART 4: REFLECTION (100 words)

Write a short reflection on model selection criteria for different applications based on your experiment results.

INSTRUCTOR COMMENTS

Grade: _____ / _____