

Model Metrics Summary (VGG16 and CNN)

VGG16 Model

Model Architecture

- **Model Type:** VGG16 (Fine-Tuned)
- **Input Shape:** (224, 224, 3)
- **Output Classes:** 24 (Fruits and Vegetables)
- **Layers:** Convolutional layers with max pooling, fully connected dense layers, dropout layers for regularization

Model Parameters

- **Total Parameters:** 15,040,000 (approx.)
- **Trainable Parameters:** 3,200,000
- **Non-Trainable Parameters:** 11,840,000

Hyperparameters

- **Learning Rate:** 0.0001
- **Batch Size:** 32
- **Optimizer:** Adam
- **Loss Function:** Categorical Crossentropy
- **Number of Epochs:** 10
- **Early Stopping:** Yes (monitoring validation loss, patience = 3)

Performance Metrics

- **Training Accuracy:** 99.97%
 - **Validation Accuracy:** 100.00%
 - **Test Accuracy:** 100.00%
 - **Test Loss:** 0.0007
 - **Precision (Macro Avg):** 1.00
 - **Recall (Macro Avg):** 1.00
 - **F1-Score (Macro Avg):** 1.00
-

CNN Model

Model Architecture

- **Model Type:** Custom CNN
- **Input Shape:** (224, 224, 3)
- **Output Classes:** 24 (Fruits and Vegetables)

- **Layers:** Convolutional layers with max pooling, fully connected dense layers, dropout layers for regularization

Model Parameters

- **Total Parameters:** 44,408,408
- **Trainable Parameters:** 44,408,408
- **Non-Trainable Parameters:** 0

Hyperparameters

- **Learning Rate:** 0.001
- **Batch Size:** 32
- **Optimizer:** Adam
- **Loss Function:** Categorical Crossentropy
- **Number of Epochs:** 10
- **Early Stopping:** Yes (monitoring validation loss, patience = 3)

Performance Metrics

- **Training Accuracy:** 95.31%
- **Validation Accuracy:** 99.74%
- **Test Accuracy:** 99.74%
- **Test Loss:** 0.0050
- **Precision (Macro Avg):** 1.00
- **Recall (Macro Avg):** 1.00
- **F1-Score (Macro Avg):** 1.00