**ResNet50 Transfer Learning**

Train accuracy: 0.9275 - precision: 0.9273 - recall: 0.9544

Validation accuracy: 0.9400 - precision: 0.9715 - recall: 0.9338

Test accuracy: 0.9533 - precision: 0.9317 - recall: 0.9900

### Fine Tunned Inception Based Model

Training accuracy: 0.9658 - precision: 0.9488 - recall: 1.0000

Validation accuracy: 0.9667 - precision: 0.9727 - recall: 0.9832

Test accuracy: 0.9800 - precision: 0.9628 - recall: 1.0000

## **Intermediate layer Trained ( XCEPTION Model)**

Training accuracy: 0.9583 - precision: 0.9379 - recall: 1.0000

Validation accuracy: 0.9800 - precision: 0.9734 - recall: 1.0000

Test accuracy: 0.9800 - precision: 0.9628 - recall: 1.0000

**MODEL 1(Separable Conv Based Model)**

Training accuracy: 0.9591 - precision: 0.9426 - recall: 0.9960

Validation accuracy: 0.9800 - precision: 0.9818 - recall: 0.9923

Test accuracy: 0.9533 - precision: 0.9222 - recall: 1.0000

**MODEL 2(Res2Net Based Model)**

Training accuracy: 0.9817 - precision: 0.9738 - recall: 0.9989

Validation accuracy: 0.9800 - precision: 0.9895 - recall: 0.9780

Test accuracy: 0.9667 - precision: 0.9539 - recall: 0.9895

**MODEL 3(Res2Net with Separable Conv Based Model) SVM as Last Layer:**

Training accuracy: 0.9992 - precision: 0.9986 - recall: 1.0000

Validation accuracy: 0.9867 - precision: 0.9821 - recall: 1.0000

Test accuracy: 0.9800 - precision: 0.9761 - recall: 0.9895

**(Features Extracted from Fine Tuned VGGNet Model**

**Applied PCA to reduce Featrues**

**Then feed the features to SVM , XGBoost and Random Forest:**

**XGBoost on Reduced Features :**

Test Accuracy = 0.98

**Random Forest on Reduced Features :**

Test Accuracy = 0.98

**SVM on Reduced Features :**

Test Accuracy = 0.9533333333333334 (Linear)

Test Accuracy = 0.98 (rbf kernel)

**SVM on All Features Extracted:**

Test Accuracy = 0.8866666666666667

**XGBoost on All Features Extracted:**

Test Accuracy = 0.96

**Random Forest on All Features Extracted:**

Test Accuracy = 0.9733333333333334