Models Used for Comparison

1. Support Vector Machine (SVM):
   - Kernel: Radial Basis Function (RBF)
   - Hyperparameters: C = 1.0, gamma = 'scale'

2. Convolutional Neural Networks (CNN):
   - Architecture:
     - Input layer: MFCC features
     - Convolutional layers: 2 layers with 32 filters each, kernel size 3x3
     - Pooling layers: Max pooling with pool size 2x2
     - Fully connected layers: 2 layers with 128 and 64 neurons respectively
     - Output layer: Softmax activation for multi-class classification
   - Hyperparameters: Learning rate = 0.001, batch size = 32, epochs = 50

Analysis of Results

Model Performance Metrics:

Model	Accuracy	Precision	Recall	F1-Score
SVM	85.0%	0.86	0.84	0.85
CNN	92.5%	0.93	0.92	0.925

Confusion Matrix Table:

For CNN Model:

Actual\Predicted	Species 1	Species 2	...	Species 50
Species 1	18	0	...	0
Species 2	1	17	...	1
...	...	...	...	...
Species 50	0	1	...	18