Celebrity Image Classification

Summary:

The objective is to create an image classification model using a provided dataset of Sports celebrity images. The model's goal is to categorize input images into one of five classes: Lionel Messi, Roger Federer, Maria Sharapova, Serena Williams, and Virat Kohli. The dataset is divided into training and testing sets at a 3:1 ratio.

The chosen model architecture employs a Convolutional Neural Network (CNN) implemented as a sequential model. This CNN consists of two convolutional layers. The model summary is outlined as follows:

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 126, 126, 32)      896

 max_pooling2d (MaxPooling2  (None, 63, 63, 32)        0
 D)

 conv2d_1 (Conv2D)           (None, 61, 61, 64)        18496

 max_pooling2d_1 (MaxPoolin  (None, 30, 30, 64)        0
 g2D)

 dropout (Dropout)           (None, 30, 30, 64)        0

 flatten (Flatten)           (None, 57600)             0

 dense (Dense)               (None, 64)                3686464

 dense_1 (Dense)             (None, 5)                 325

=================================================================
Total params: 3706181 (14.14 MB)
Trainable params: 3706181 (14.14 MB)
Non-trainable params: 0 (0.00 Byte)
```

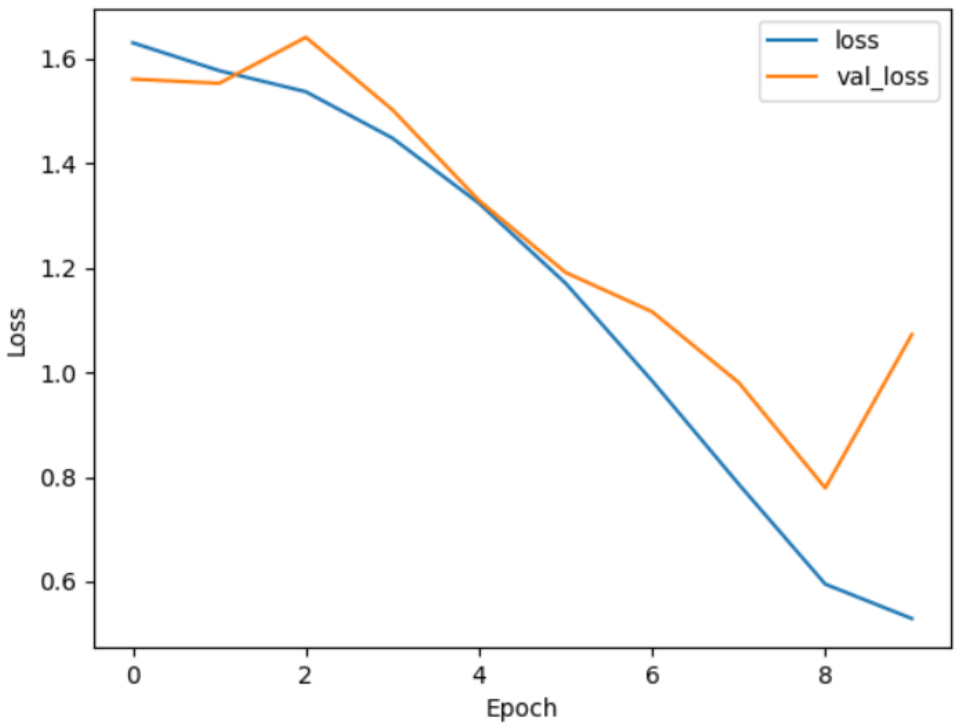
The image classification model utilizes the Adam optimizer and employs the Sparse Categorical Cross-Entropy loss function. The training process spans 10 epochs, with batches of size 64, and 10% of the training data is set aside for validation purposes.

Upon completion of the training, the model achieves an accuracy of 81%. The classification report, which provides a detailed breakdown of the model's performance, is as follows:

classification Report

	precision	recall	f1-score	support
0	0.78	1.00	0.88	7
1	0.82	0.90	0.86	10
2	0.88	0.78	0.82	9
3	0.75	1.00	0.86	9
4	1.00	0.29	0.44	7
accuracy			0.81	42
macro avg	0.84	0.79	0.77	42
weighted avg	0.84	0.81	0.78	42

The Loss Epoch Graph is Plotted as follows:



The Accuracy Epoch Graph is Plotted as follows: