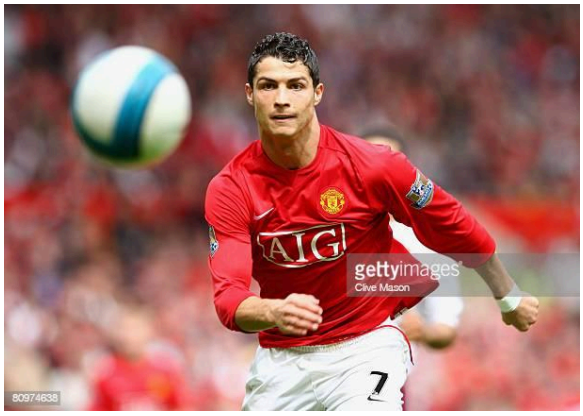
SPORTS CELEBRITY IMAGE CLASSIFICATION

Abstract — This document focuses on the classification of sports celebrities based on their images. It primarily features four sports celebrities: Kane Williamson, Kobe Bryant, Maria Sharapova, and Ronaldo. Each celebrity represents a different sport. By analyzing their images, we can accurately predict both the sport and the specific celebrity.

1.Introduction —

Nowadays, sports are increasingly popular, and everyone enjoys them. One significant advancement is the use of image classification to identify and categorize sports celebrities based on photographs. Sports personality recognition is an important issue with practical applications in marketing, media, and security.

Cricket, football, tennis, and basketball are some of the famous sports. Sports celebrities become famous due to their playing styles. In India, cricket is particularly popular and widely admired. People are familiar with cricket celebrities from various teams. Although they also recognize some celebrities from tennis, basketball, and football, identification often relies on their images.



2. Related Work in Sports Celebrity Image Classification:-

We have used the modilenetV2 model for our project.

Because while using resnet50 the accuracy is fluctuating. And the mobilenetv2 gives more accuracy then the resnet50.

MobilenetV2 gives the best result.

We have experimented nearly over 30 times with different hyperparameters by performing hyperparameter tuning and noted the best accuracy result in the hyperparameter tuning spreadsheet.

Out of 30 experiments the hyper parameter which was set to

Epoch == 20

Learning rate == 0.001
Optimizer == optimizer adam
there gives the best result in the mobilenetV2.
I take the images from the kaggle dataset. Those images are in the form of jpg or introverted_png forms. Those images help to identify the name of a character.
This is the references link of sports celebrity image classifier
Link :
https://www.kaggle.com/datasets/yaswanthgali/sport-celebrity-image-classification
We used the mobilenetV2 and resnet50.

3. Approach :- Here's a more grammatically improved version of the content:

"I selected this dataset from Kaggle and extracted it. After extraction, I renamed the dataset file. The first step I followed was running the initial code for validation split. I successfully mounted the drive.

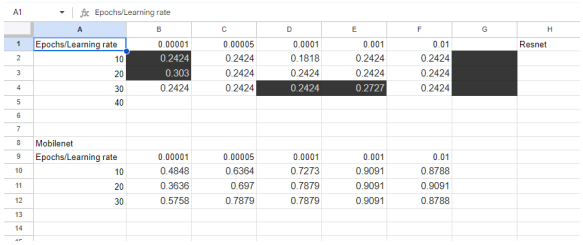
The second step involved defining paths to the source and destination folders, listing the subfolders, and creating duplicate folders. I then moved x% of the files and printed the subfolders. The first code completed the test and validation processes.

The second code saved the best model. A common step in every code was mounting the drive. Afterwards, I specified paths for test and validation files.

Next, I set hyperparameters; initially, I selected ResNet and used the Adam optimizer, specifying parameters such as epochs and learning rate. However, the accuracy levels were low, with the highest reaching

only 30%. I then switched to MobileNet, which achieved 90% accuracy.

Following this, I provided the model path and name, and generated graphs and a confusion matrix. MobileNet consistently achieved high accuracy."



	A	B	C	D	E	F	G	H
1	Epochs/Learning rate	0.00001	0.00005	0.0001	0.001	0.01		Resnet
2	10	0.2424	0.2424	0.1818	0.2424	0.2424		
3	20	0.303	0.2424	0.2424	0.2424	0.2424		
4	30	0.2424	0.2424	0.2424	0.2727	0.2424		
5	40							
6								
7								
8	Mobilenet							
9	Epochs/Learning rate	0.00001	0.00005	0.0001	0.001	0.01		
10	10	0.4848	0.6364	0.7273	0.9091	0.8788		
11	20	0.3636	0.697	0.7879	0.9091	0.9091		
12	30	0.5758	0.7879	0.7879	0.9091	0.8788		
13								
14								

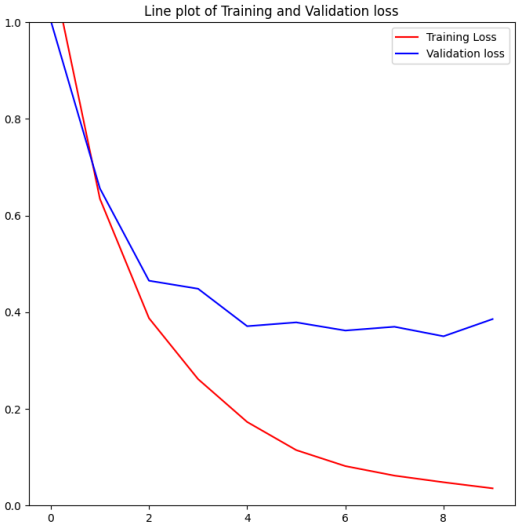


Figure-1

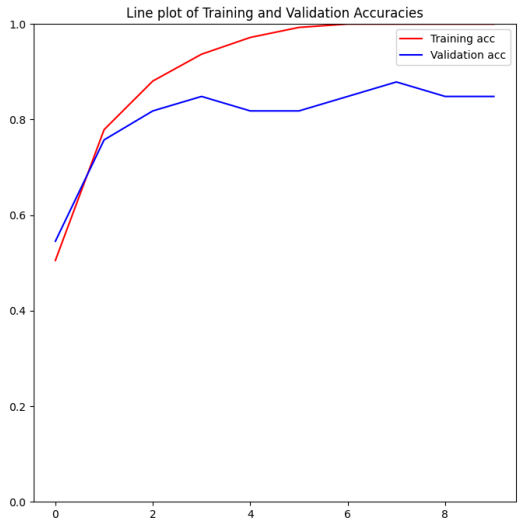
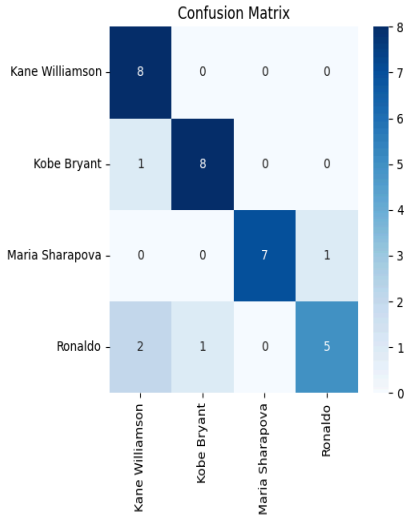
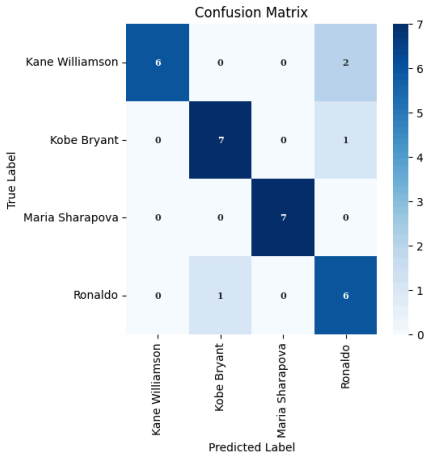


Figure-2



In this confusion matrix gives good accuracy.

In the third code tests the image path and it gives the prediction list and confusion matrix and classification report.



4.Result and Discussion

In the above figures we observe that accuracy is given in the graphs . it giving line plot of training and validation accuracies because using the hyper parameters like Resnet and Mobilenet . we trained the model for 10,20,30 epochs and learning rate values 0.00001,0.00005,0.0001,0.001,0.01

It was observed that during the training process the training accuracy and validation accuracy were high at the start and after also become stable increased the epochs

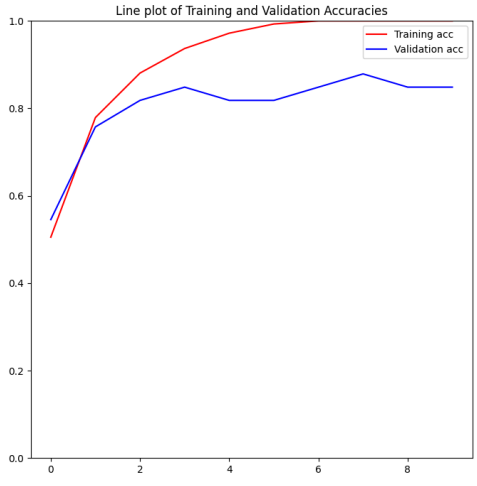


Fig:-1

We have the line plot of training and validation loss.here in the training process the training loss is almost 0% loss and validation loss were giving 40% loss

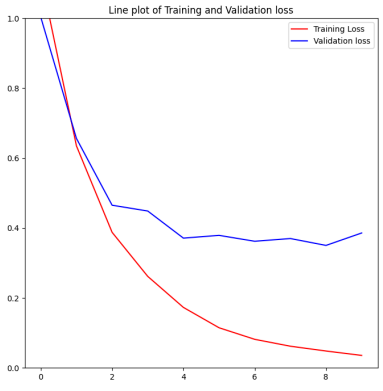
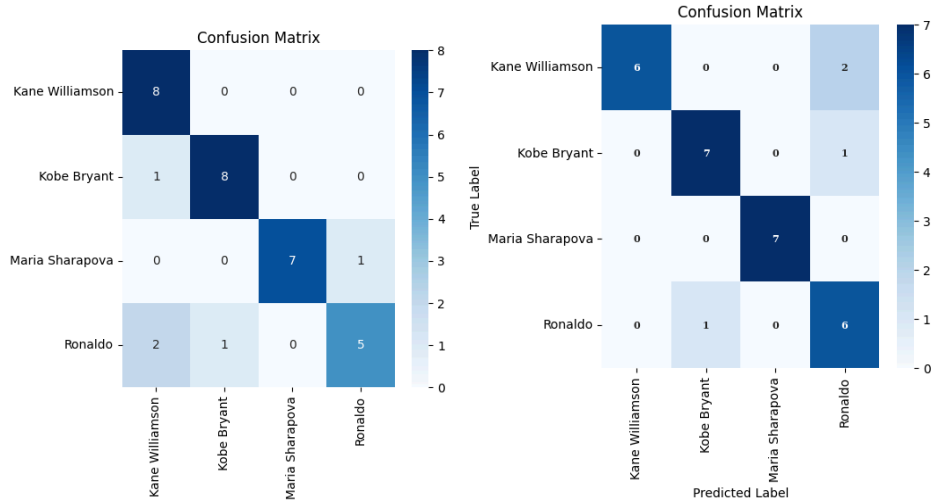


Fig:- 2



In the two confusion matrix also we observed that model has a good performances in terms of accuracy ,sensitivity,specificity

```
#classification reports
from sklearn.metrics import classification_report
print(classification_report(label,predictions))
```

	precision	recall	f1-score	support
0	1.00	0.75	0.86	8
1	0.88	0.88	0.88	8
2	1.00	1.00	1.00	7
3	0.67	0.86	0.75	7
accuracy			0.87	30
macro avg	0.89	0.87	0.87	30
weighted avg	0.89	0.87	0.87	30

```
print(classification_report(y_validation, predictions))
```

	precision	recall	f1-score	support
0	0.88	0.88	0.88	8
1	0.88	0.78	0.82	9
2	1.00	0.88	0.93	8
3	0.70	0.88	0.78	8
accuracy			0.85	33
macro avg	0.86	0.85	0.85	33
weighted avg	0.86	0.85	0.85	33

The predictions are also good . they are images of predictions

5.Conclusion

In conclusion, the Celebrity Face Recognition project demonstrates the potential of machine learning techniques in recognizing faces of celebrities. There are still several areas for improvement, and future enhancements can expand the system's functionality and accuracy.The Sports Celebrity

Image Classifier represents a significant advancement in sports technology, offering practical applications in fan engagement, marketing, media, and more. By leveraging machine learning and computer vision, this tool not only enhances efficiency but also enriches user experience across various sports-related platforms. As technology continues to evolve, further refinements and applications of such classifiers promise even greater utility and accuracy in the future.

6.References

Link :-
https://www.kaggle.com/datasets/yaswanthgali/sport-celebrity-image-classification
Link:-https://www.studocu.com/in/document/srm-institute-of-science-and-technology/artificial-intelligenceexpert-systems-in-design-and-manufacturing/report/92199132