

Facial Recognition And Identification: An Applied model in Unsupervised learning by PyTorch

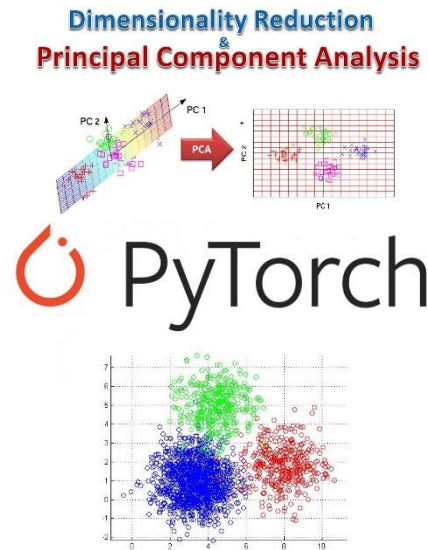
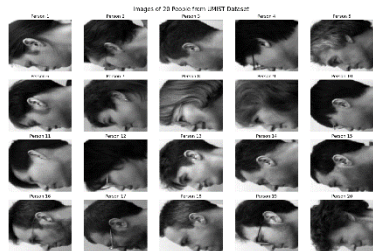
Huaye Zhan¹, Sarangam Srinivasa¹

¹ Artificial Intelligence - Software engineer technology, Centennial College

content

1. Introduction
2. EDA
3. Training
4. Model Deployment
5. Conclusion

Introduction



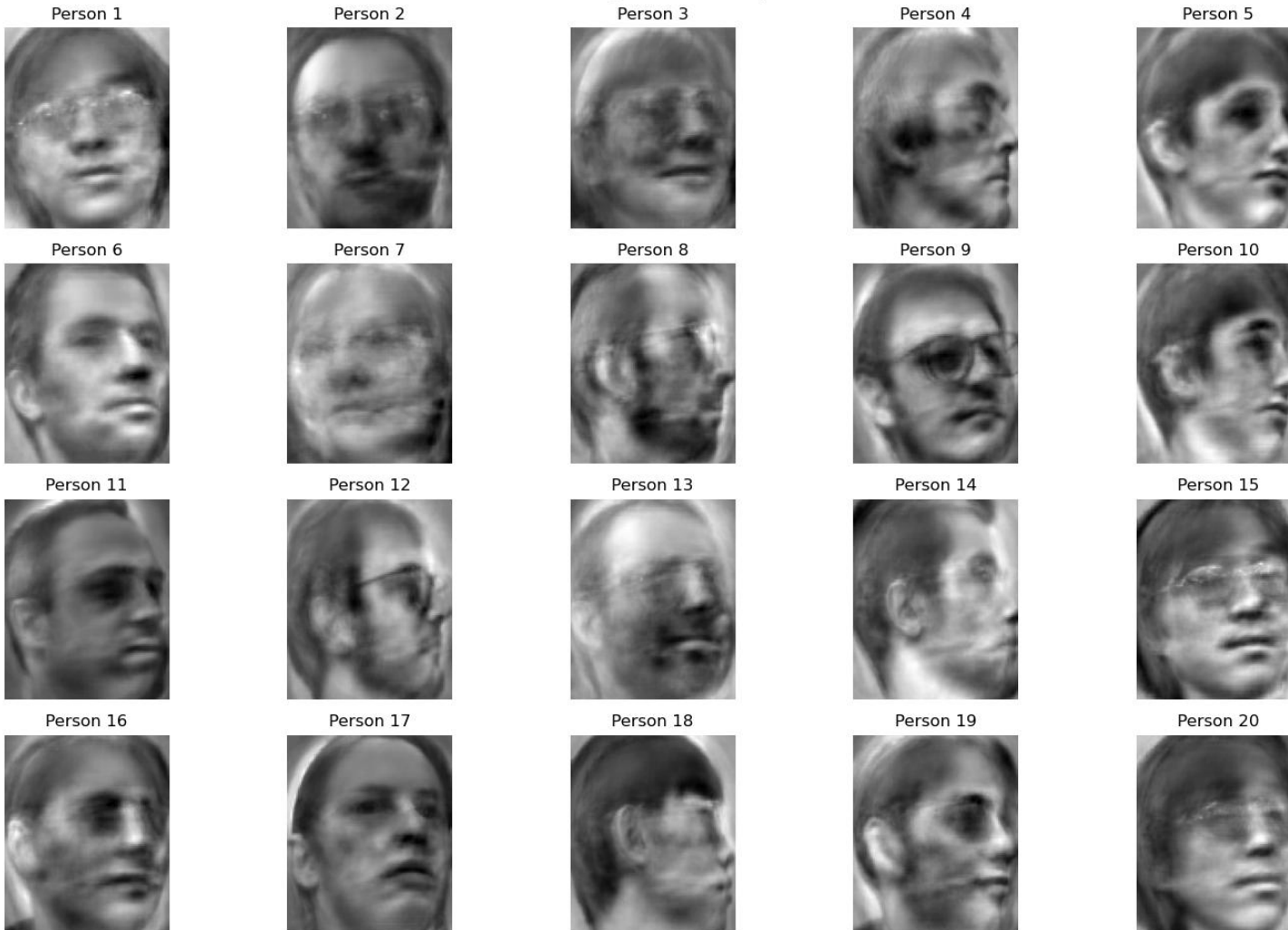
Exploratory data analysis

Images of 20 People from UMIST Dataset



Dimensionality reduction : PCA

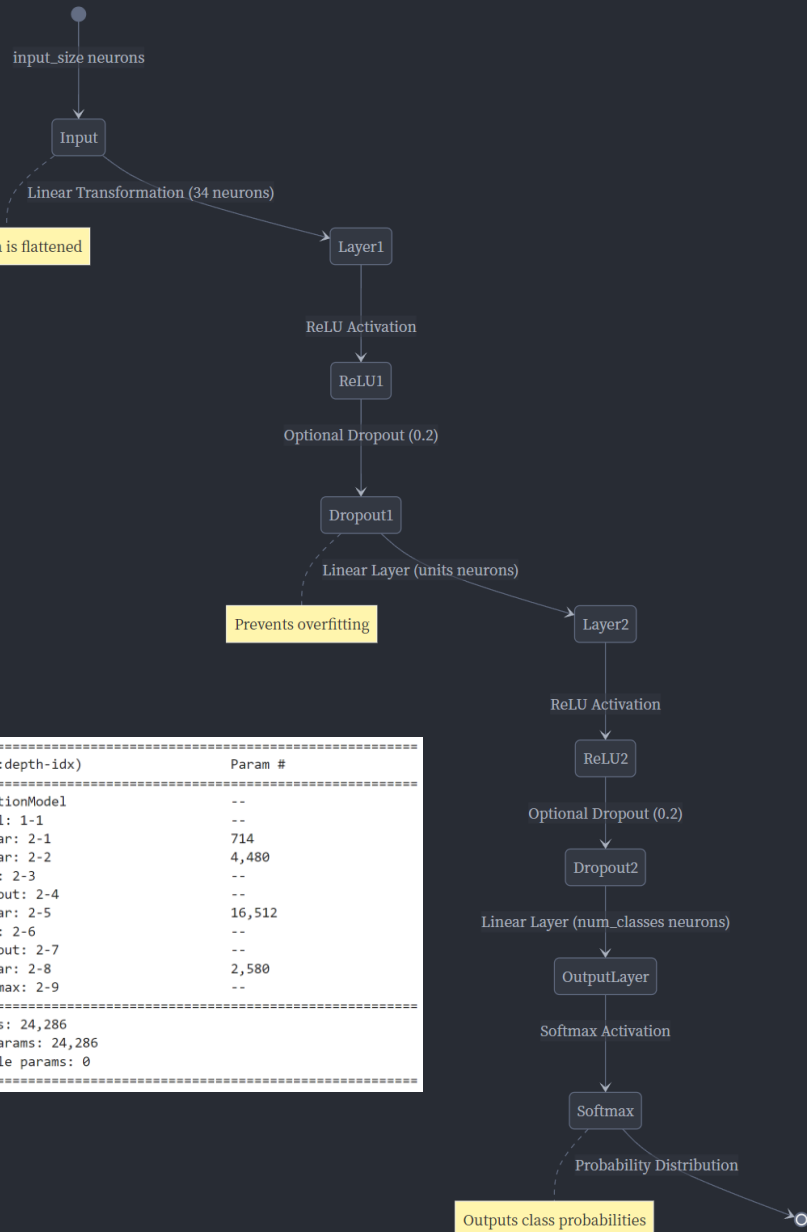
Reconstructed Images of 20 People After PCA



- Dimensionality reduction is the process of reducing the number of features in a dataset.
- This is important mainly in the case when we want to reduce variance in our model (overfitting).
- It avoids the curse of dimensionality

PCA(n_components=66)
Explained variance: 0.92

Training



Pred: 11, Actual: 11



Pred: 2, Actual: 2



Pred: 17, Actual: 17



Pred: 5, Actual: 5



Pred: 15, Actual: 15



Pred: 8, Actual: 8



Pred: 18, Actual: 18



Pred: 0, Actual: 0



Training Set Predictions

Pred: 7, Actual: 7



Pred: 15, Actual: 15



Pred: 16, Actual: 16



Pred: 9, Actual: 9



Pred: 4, Actual: 4



Pred: 18, Actual: 18



Pred: 2, Actual: 2



Pred: 5, Actual: 5



Pred: 12, Actual: 12



Pred: 12, Actual: 12



Pred: 11, Actual: 11

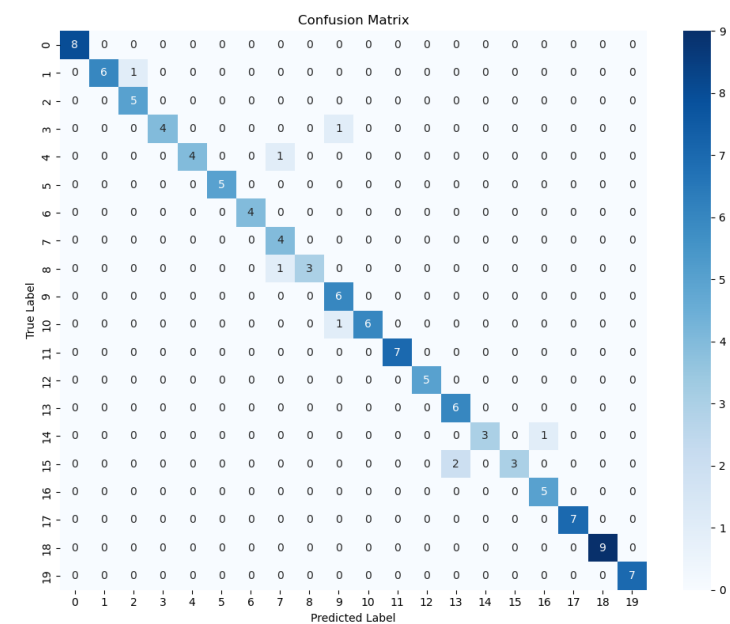
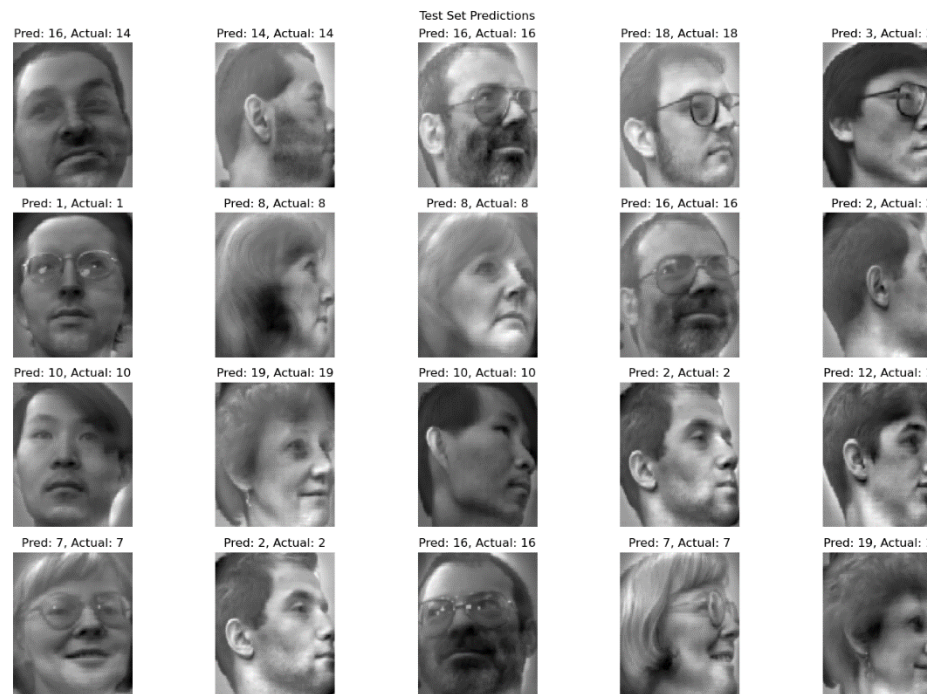


Pred: 11, Actual: 11

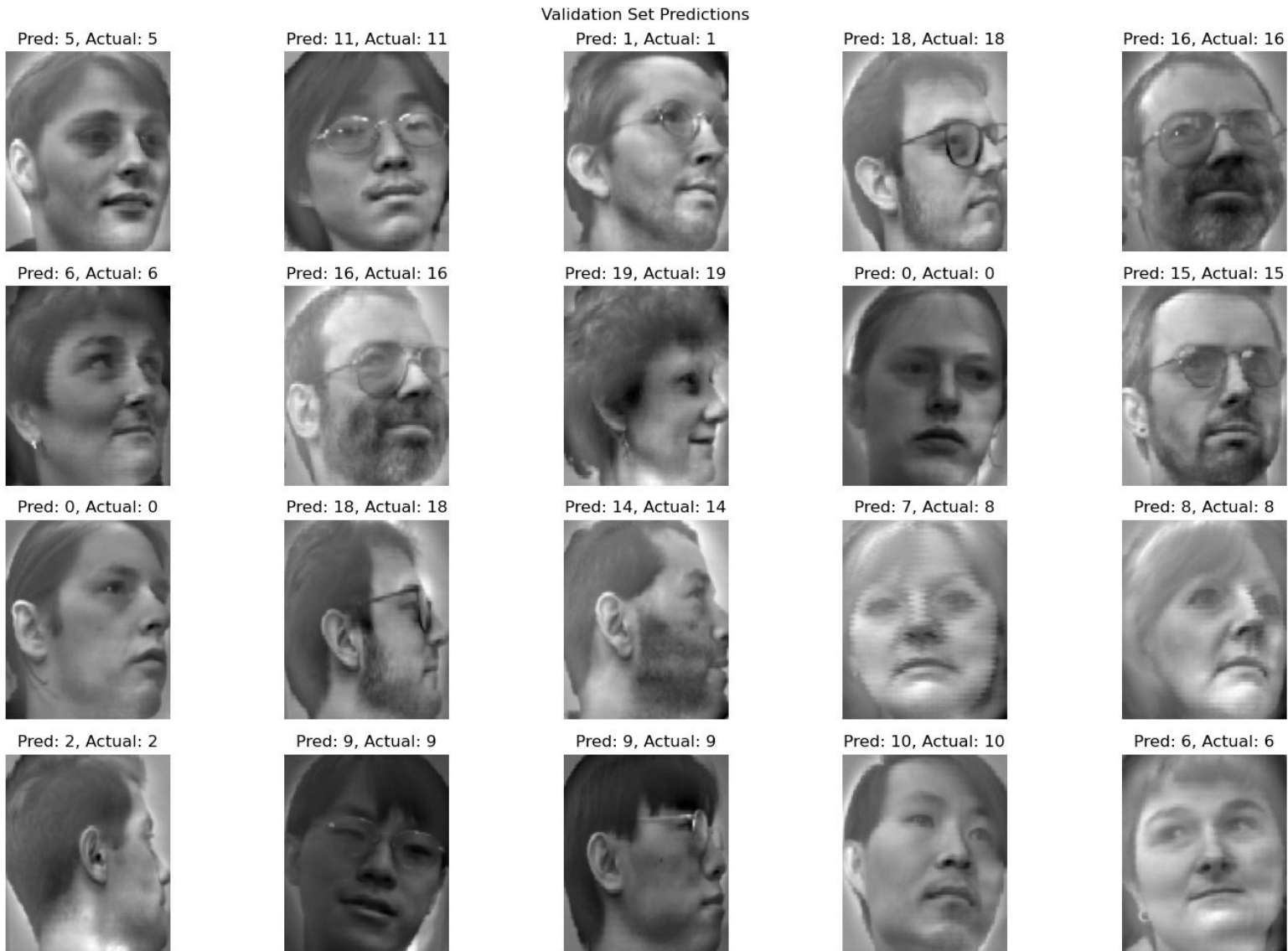


Result: testing

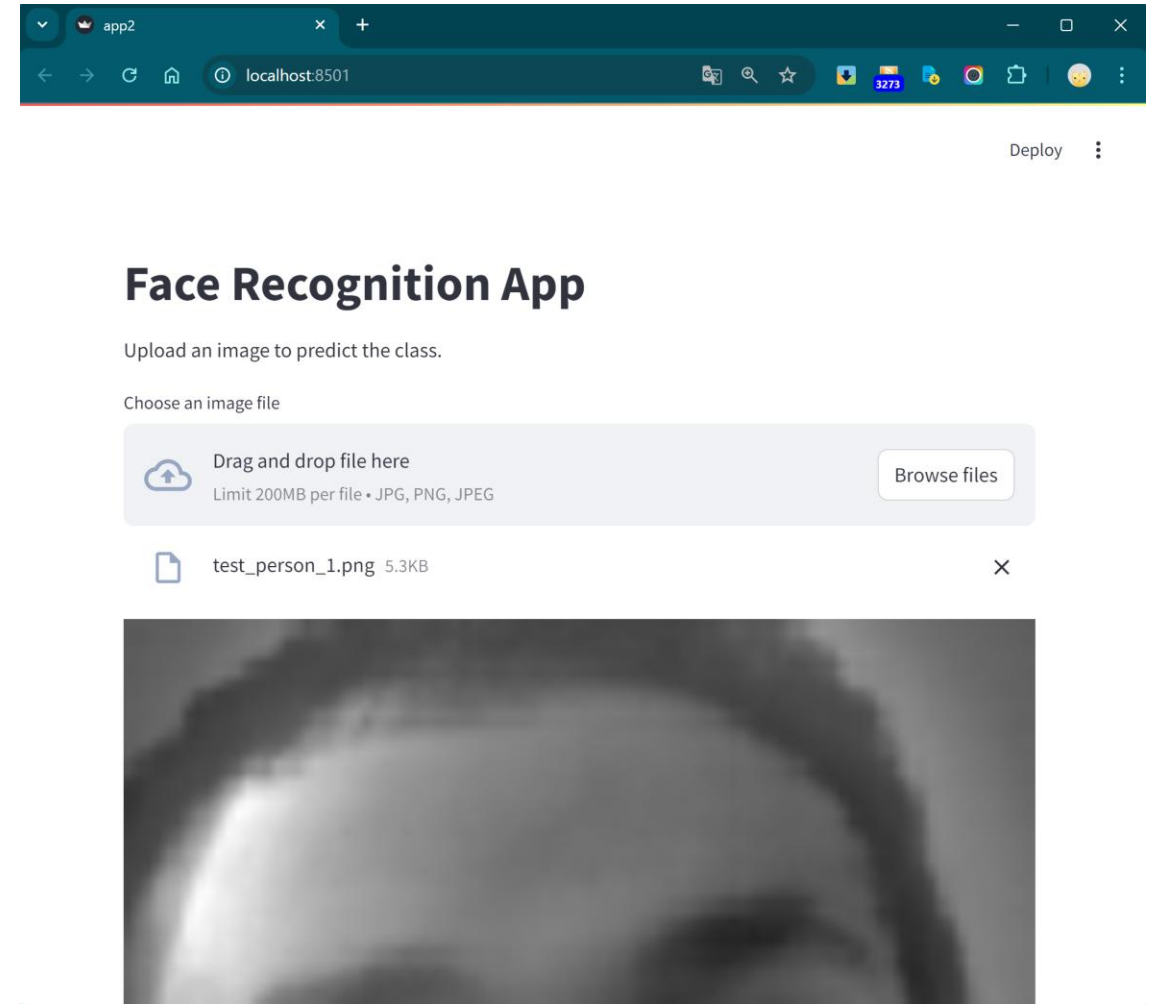
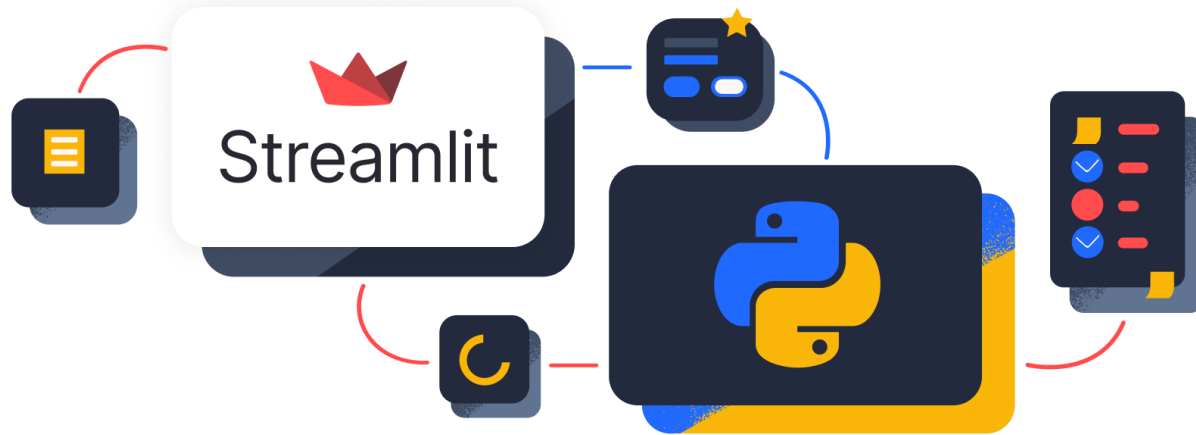
Class	Precision	Recall	F1-Score
Class 0	1	1	1
Class 1	1	0.8571	0.9231
Class 2	0.8333	1	0.9091
Class 3	1	0.8	0.8889
Class 4	1	0.8	0.8889
Class 5	1	1	1
Class 6	1	1	1
Class 7	0.6667	1	0.8
Class 8	1	0.75	0.8571
Class 9	0.75	1	0.8571
Class 10	1	0.8571	0.9231
Class 11	1	1	1
Class 12	1	1	1
Class 13	0.75	1	0.8571
Class 14	1	0.75	0.8571
Class 15	1	0.6	0.75
Class 16	0.8333	1	0.9091
Class 17	1	1	1
Class 18	1	1	1
Class 19	1	1	1
Overall Accuracy			0.9304



Result: Validation



Live Demo



Thank you!