



# Face-mask Detection

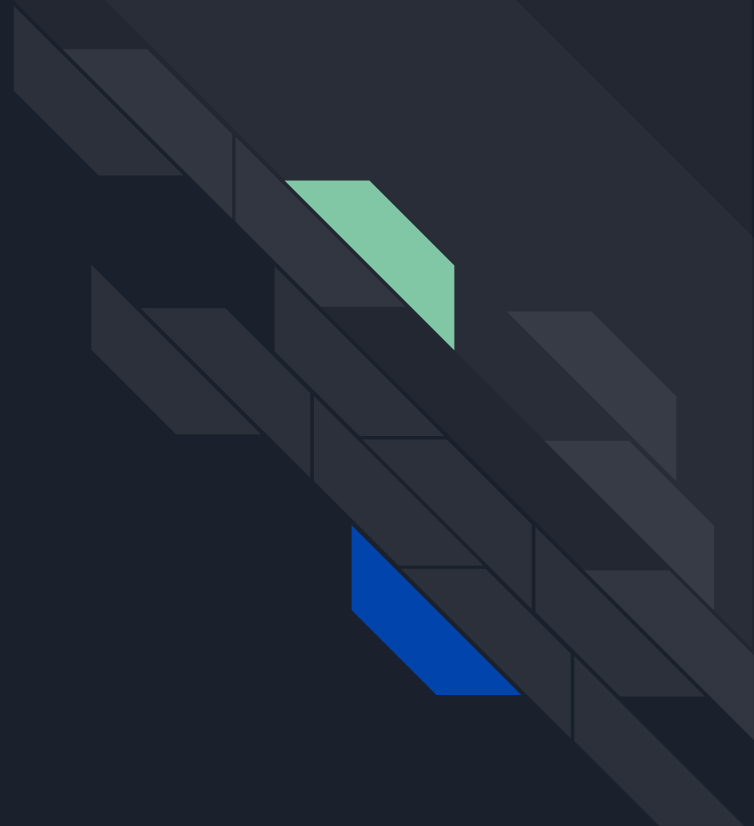
Rohit B19EE098.

# STEP

**Data preprocessing**

Apply CNN

Use Model





# Preprocessing

## Open cv

- Read the image
- Convert into gray

## Numpy

- Standardise
- Save



# CNN

Library : tensorflow Keras

CNN

First layer :

200 kernel with 3x3

Activation :relu

Second layer

100 kernel with 3x3

Activation softmax

For reduce the overfitting we add dropout layer 0.5

Loss : categorical\_crossentropy  
optimizer='adam'



# Epoch 20

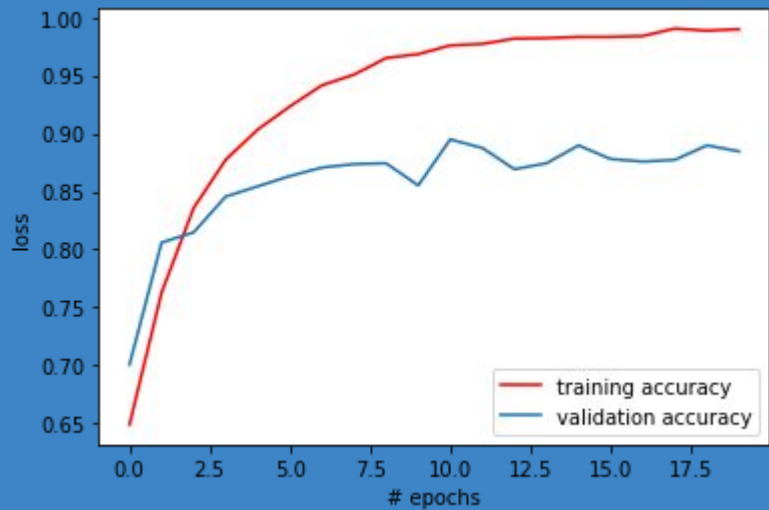
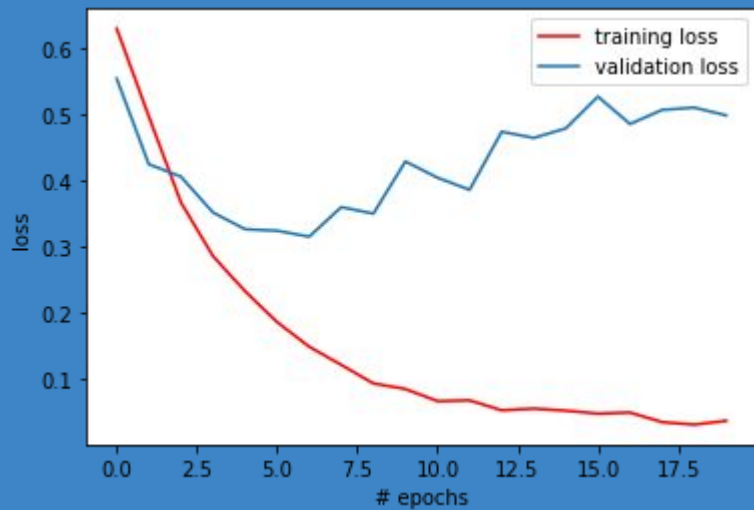
1.	loss: 0.6298 - accuracy: 0.6489 - val_loss: 0.5539 - val_accuracy: 0.7007
2.	loss: 0.4968 - accuracy: 0.7627 - val_loss: 0.4243 - val_accuracy: 0.8059
3.	loss: 0.3667 - accuracy: 0.8358 - val_loss: 0.4055 - val_accuracy: 0.8147
4.	loss: 0.2853 - accuracy: 0.8773 - val_loss: 0.3513 - val_accuracy: 0.8456
5.	loss: 0.2322 - accuracy: 0.9034 - val_loss: 0.3259 - val_accuracy: 0.8544
6.	loss: 0.1853 - accuracy: 0.9233 - val_loss: 0.3237 - val_accuracy: 0.8632
7.	loss: 0.3667 - accuracy: 0.8358 - val_loss: 0.4055 - val_accuracy: 0.8147
8.	loss: 0.1481 - accuracy: 0.9415 - val_loss: 0.3146 - val_accuracy: 0.8706
9.	loss: 0.1206 - accuracy: 0.9507 - val_loss: 0.3594 - val_accuracy: 0.8735
10.	loss: 0.0925 - accuracy: 0.9651 - val_loss: 0.3496 - val_accuracy: 0.8743
11.	loss: 0.0840 - accuracy: 0.9684 - val_loss: 0.4285 - val_accuracy: 0.855
12.	Loss: 0.0657 - accuracy: 0.9759 - val_loss: 0.4040 - val_accuracy: 0.8949
13.	loss: 0.4968 - accuracy: 0.7627 - val_loss: 0.4243 - val_accuracy: 0.8059

# Epoch 20

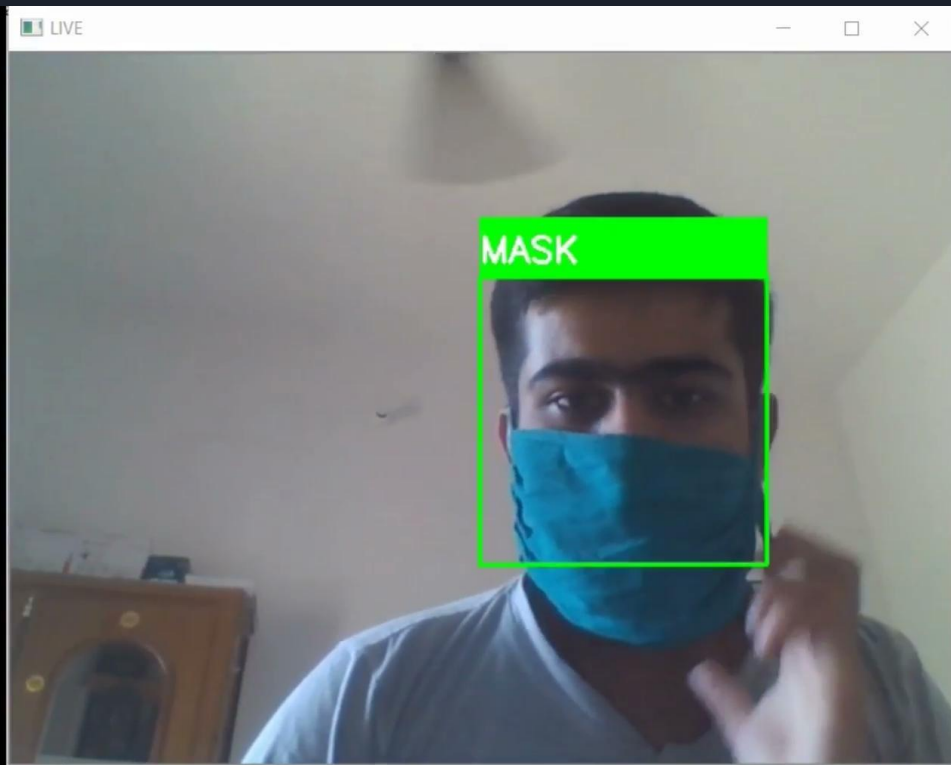
```
14. loss: 0.0543 - accuracy: 0.9822 - val_loss: 0.4642 - val_accuracy: 0.8743
Epoch 15/20
loss: 0.0512 - accuracy: 0.9833 - val_loss: 0.4786 - val_accuracy: 0.8897
Epoch 16/20
loss: 0.0468 - accuracy: 0.9833 - val_loss: 0.5268 - val_accuracy: 0.8779
Epoch 17/20
loss: 0.0484 - accuracy: 0.9840 - val_loss: 0.4852 - val_accuracy: 0.8757
Epoch 18/20
loss: 0.0339 - accuracy: 0.9904 - val_loss: 0.5065 - val_accuracy: 0.8772
Epoch 19/20
loss: 0.0301 - accuracy: 0.9886 - val_loss: 0.5101 - val_accuracy: 0.8897
Epoch 20/20
loss: 0.0358 - accuracy: 0.9899 - val_loss: 0.4983 - val_accuracy: 0.8846
```

Testing Loss ; 0.38612687587738037, accuracy 0.8941798806190491

## Loss vs epoch curve



Testing in real life







Thanks