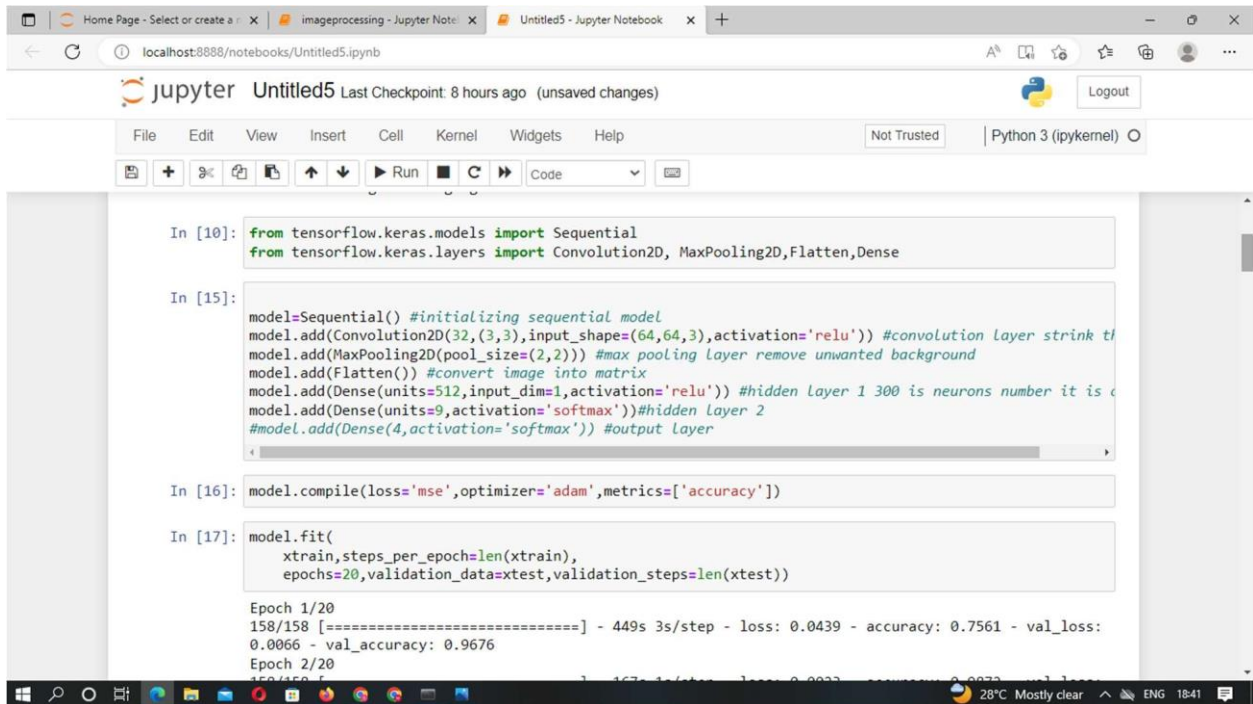


Team id	PNT2022TMID51236
Project Name	REAL TIME COMMUNICATION SYSTEM FOR SPECIALLY AIDED PEOPLES
Date and sprint no	3-11-2022 AND 2

## MODEL BUILDING

### 1)Adding layers



```

In [10]: from tensorflow.keras.models import Sequential
         from tensorflow.keras.layers import Convolution2D, MaxPooling2D, Flatten, Dense

In [15]: model=Sequential() #initializing sequential model
         model.add(Convolution2D(32,(3,3),input_shape=(64,64,3),activation='relu')) #convolution layer strink t
         model.add(MaxPooling2D(pool_size=(2,2))) #max pooling layer remove unwanted background
         model.add(Flatten()) #convert image into matrix
         model.add(Dense(units=512,input_dim=1,activation='relu')) #hidden Layer 1 300 is neurons number it is c
         model.add(Dense(units=9,activation='softmax'))#hidden Layer 2
         #model.add(Dense(4,activation='softmax')) #output layer

In [16]: model.compile(loss='mse',optimizer='adam',metrics=['accuracy'])

In [17]: model.fit(
         xtrain,steps_per_epoch=len(xtrain),
         epochs=20,validation_data=xtest,validation_steps=len(xtest))

Epoch 1/20
158/158 [=====] - 449s 3s/step - loss: 0.0439 - accuracy: 0.7561 - val_loss:
0.0066 - val_accuracy: 0.9676
Epoch 2/20
158/158 [=====] - 167s 1s/step - loss: 0.0022 - accuracy: 0.9975 - val_loss:

```

### 2)Compile and fit the model

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In [10]: `from tensorflow.keras.models import Sequential  
from tensorflow.keras.layers import Convolution2D, MaxPooling2D, Flatten, Dense`

In [15]: `model=Sequential() #initializing sequential model  
model.add(Convolution2D(32,(3,3),input_shape=(64,64,3),activation='relu')) #convolution layer shrink the  
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158/158 [=====] - 224s 1s/step - loss: 2.0397e-04 - accuracy: 0.9990 - val\_l  
oss: 0.0064 - val\_accuracy: 0.9689  
Epoch 14/20  
158/158 [=====] - 222s 1s/step - loss: 1.5883e-04 - accuracy: 0.9991 - val\_l  
oss: 0.0050 - val\_accuracy: 0.9769  
Epoch 15/20  
158/158 [=====] - 217s 1s/step - loss: 2.2415e-04 - accuracy: 0.9988 - val\_l  
oss: 0.0050 - val\_accuracy: 0.9773  
Epoch 16/20  
158/158 [=====] - 262s 2s/step - loss: 1.7302e-04 - accuracy: 0.9989 - val\_l  
oss: 0.0050 - val\_accuracy: 0.9769  
Epoch 17/20  
158/158 [=====] - 230s 1s/step - loss: 2.5752e-04 - accuracy: 0.9984 - val\_l  
oss: 0.0050 - val\_accuracy: 0.9773  
Epoch 18/20  
158/158 [=====] - 176s 1s/step - loss: 1.5972e-04 - accuracy: 0.9990 - val\_l  
oss: 0.0050 - val\_accuracy: 0.9764  
Epoch 19/20  
158/158 [=====] - 172s 1s/step - loss: 2.2151e-04 - accuracy: 0.9987 - val\_l  
oss: 0.0050 - val\_accuracy: 0.9773  
Epoch 20/20  
158/158 [=====] - 167s 1s/step - loss: 1.2325e-04 - accuracy: 0.9992 - val\_l  
oss: 0.0049 - val\_accuracy: 0.9778  
  
Out[17]: <keras.callbacks.History at 0x1f743a90280>

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Out[17]: <keras.callbacks.History at 0x1f743a90280>

In [18]: `model.save('as1png1.h5')`

In [3]: `from keras.models import load_model  
import numpy as np  
import cv2`

In [4]: `model=load_model('as1png1.h5')`

In [5]: `img1 = np.array([np.array([200, 200]), np.array([200, 200])])  
img2 = np.array([np.array([200, 200]), np.array([0, 0])])  
img3 = np.array([np.array([200, 0]), np.array([200, 0])])  
  
kernel_horizontal = np.array([np.array([2, 2]), np.array([-2, -2])])  
print(kernel_horizontal, 'is a kernel for detecting horizontal edges')  
  
kernel_vertical = np.array([np.array([2, -2]), np.array([2, -2])])  
print(kernel_vertical, 'is a kernel for detecting vertical edges')`

`[[ 2 2]  
[-2 -2]] is a kernel for detecting horizontal edges  
[[ 2 -2]  
[ 2 -2]] is a kernel for detecting vertical edges`

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