{

"cells": [

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"cell\_type": "markdown",

"metadata": {

"id": "TTViRrFkqSxo"

},

"source": [

"# IBM Project Name: Real-Time Communication System Powered by AI for Specially Abled \n",

"# TEAM ID: PNT2022TMID36138 \n",

"# TEAM Member:Ganesh K M"

]

},

{

"cell\_type": "code",

"execution\_count": 54,

"metadata": {

"id": "5Kcm9cBhiI97"

},

"outputs": [],

"source": [

"import numpy as np\n",

"from tensorflow.keras.models import load\_model\n",

"from tensorflow.keras.preprocessing import image"

]

},

{

"cell\_type": "code",

"execution\_count": 55,

"metadata": {

"id": "JBSR1Zu4qVDh"

},

"outputs": [],

"source": [

"from keras.models import Sequential \n",

"from keras.layers import Dense\n",

"from keras.layers import Convolution2D\n",

"from keras.layers import MaxPooling2D\n",

"from keras.layers import Dropout\n",

"from keras.layers import Flatten"

]

},

{

"cell\_type": "code",

"execution\_count": 56,

"metadata": {

"id": "6wXvg7TxqaSi"

},

"outputs": [],

"source": [

"model=Sequential()"

]

},

{

"cell\_type": "code",

"execution\_count": 57,

"metadata": {

"id": "Qr3PNXTpqae-"

},

"outputs": [],

"source": [

"model.add(Convolution2D(32,(3,3),activation=\"relu\",input\_shape=(64,64,3)))"

]

},

{

"cell\_type": "code",

"execution\_count": 58,

"metadata": {

"id": "c\_WqMC7UqgGL"

},

"outputs": [],

"source": [

"model.add(MaxPooling2D(pool\_size=(2,2)))"

]

},

{

"cell\_type": "code",

"execution\_count": 59,

"metadata": {

"id": "W26V4dLVqiRF"

},

"outputs": [],

"source": [

"model.add(Flatten())"

]

},

{

"cell\_type": "code",

"execution\_count": 60,

"metadata": {

"id": "JelsoFfTqkdg"

},

"outputs": [],

"source": [

"model.add(Dense(200,activation='relu'))\n",

"model.add(Dense(9,activation=\"softmax\"))"

]

},

{

"cell\_type": "code",

"execution\_count": 61,

"metadata": {

"id": "n5s02VESqkg\_"

},

"outputs": [],

"source": [

"model.compile(loss=\"categorical\_crossentropy\",metrics=[\"accuracy\"],optimizer='adam')"

]

},

{

"cell\_type": "code",

"execution\_count": 62,

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"height": 171

},

"id": "2xNKsVVUqtqt",

"outputId": "d8a28a79-5174-4c96-b2fe-f4ebf491f32d"

},

"outputs": [

{

"ename": "NameError",

"evalue": "ignored",

"output\_type": "error",

"traceback": [

"\u001b[0;31m---------------------------------------------------------------------------\u001b[0m",

"\u001b[0;31mNameError\u001b[0m Traceback (most recent call last)",

"\u001b[0;32m<ipython-input-62-2f23af664044>\u001b[0m in \u001b[0;36m<module>\u001b[0;34m\u001b[0m\n\u001b[0;32m----> 1\u001b[0;31m \u001b[0mlen\u001b[0m\u001b[0;34m(\u001b[0m\u001b[0mx\_train\u001b[0m\u001b[0;34m)\u001b[0m\u001b[0;34m\u001b[0m\u001b[0;34m\u001b[0m\u001b[0m\n\u001b[0m",

"\u001b[0;31mNameError\u001b[0m: name 'x\_train' is not defined"

]

}

],

"source": [

"len(x\_train)"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "8nsMfrsiqtuH"

},

"outputs": [],

"source": [

"len(x\_test)"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "ko8QinAQq1Hu"

},

"outputs": [],

"source": [

"model.fit(x\_train,epochs=10,validation\_data=x\_test,steps\_per\_epoch=len(x\_train)//10,validation\_steps=len(x\_test))"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "UaDRnRpIrN3s"

},

"outputs": [],

"source": [

"model.save(\"aslpng.h5\")"

]

},

{

"cell\_type": "markdown",

"metadata": {

"id": "JMnbIba0-MxA"

},

"source": [

"Testing the model"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "RgTKAjiD-tKI"

},

"outputs": [],

"source": [

"from keras.models import load\_model\n",

"import numpy as np\n",

"import cv2"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "-URNVebP-tW6"

},

"outputs": [],

"source": [

"from tensorflow.keras.models import load\_model\n",

"from tensorflow.keras.preprocessing import image \n",

"import numpy as np"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "gDwv5tn3iOG7"

},

"outputs": [],

"source": [

"model=load\_model('asl\_model\_84\_54.h5')\n",

"img=image.load\_img(r'E:\\Projects\\SmartBridge\\ModelGen\\Dataset\\test\_set\\D\\2.png',\n",

" target\_size=(64,64))"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "\_9Qe\_iPL-yJN"

},

"outputs": [],

"source": [

"model=load\_model(\"aslpng.h5\")\n",

"img = image.load\_img(r\"/content/drive/MyDrive/IBM project/test\_set/D/10.png\",target\_size=(64,64))\n",

"img"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "XClERsGX-yS0"

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"outputs": [],

"source": [

"x = image.img\_to\_array(img)\n",

"x"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "QEgWkLqC\_Ydb"

},

"outputs": [],

"source": [

"x.shape"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "j5Z\_Ol4z\_Ylv"

},

"outputs": [],

"source": [

"x = np.expand\_dims(x,axis=0)\n",

"x.shape"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "CXPA8WrJ\_bFy"

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"outputs": [],

"source": [

"pred = model.predict(x)"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "481pBY14\_fn\_"

},

"outputs": [],

"source": [

"pred"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "l9Xlvozv\_jW2"

},

"outputs": [],

"source": [

"class\_name=[\"A\",\"B\",\"C\",\"D\",\"E\",\"F\",\"G\",\"H\",\"I\"]\n",

"pred\_id = pred.argmax(axis=1)[0]\n",

"pred\_id"

]

},

{

"cell\_type": "code",

"execution\_count": null,

"metadata": {

"id": "aF2zqZC4\_pDW"

},

"outputs": [],

"source": [

"print(\"the alphabet is \",str(class\_name[pred\_id]))"

]

}

],

"metadata": {

"colab": {

"collapsed\_sections": [],

"provenance": []

},

"kernelspec": {

"display\_name": "Python 3",

"name": "python3"

},

"language\_info": {

"name": "python"

}

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