

# WATSON STUDIO

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IBM-EPBL/IBM-Project-39588-10

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In [62]:

```
dir
import os, types
import pandas as pd
from botocore.client import Config
import ibm_boto3

def __iter__(self): return 0

# @hidden_cell
# The following code accesses a file in your IBM Cloud Object Storage. It includes your credentials.
# You might want to remove those credentials before you share the notebook.
cos_client = ibm_boto3.client(service_name='s3',
                             ibm_api_key_id='d8rtphs2c8ivkYvQy2Quw540Pa3DM-uBTHN6Yuhau7o',
                             ibm_auth_endpoint='https://iam.cloud.ibm.com/oidc/token',
                             config=Config(signature_version='oauth')),
                             endpoint_url='https://s3.private.us.cloud-object-storage.appdomain.cloud')

bucket = 'imageclassification-donotdelete-pr-nugvzr2i2hoaz0'
object_key = 'DigitRecog_IBM_model.zip'

streaming_body_5 = cos_client.get_object(Bucket=bucket, Key=object_key)['Body']

# Your data file was loaded into a botocore.response.StreamingBody object.
# Please read the documentation of ibm_boto3 and pandas to learn more about the possibilities to load the data.
# ibm_boto3 documentation: https://ibm.github.io/ibm-cos-sdk-python/
# pandas documentation: http://pandas.pydata.org/
```

Test Model

In [63]:

```
from tensorflow.keras.models import load_model
from keras.preprocessing import image
from PIL import Image
import numpy as np
```

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```
# You might want to remove those credentials before you share the notebook.
cos_client = ibm_boto3.client(service_name='s3',
                             ibm_api_key_id='ZjczqzeX8rXlraLm3qct3xfp-g6wqV16koueh1FLj3cqz',
                             ibm_auth_endpoint='https://iam.cloud.ibm.com/oidc/token',
                             config=Config(signature_version='oauth')),
                             endpoint_url='https://s3.private.us.cloud-object-storage.appdomain.cloud')

bucket = 'digitrecognition-donotdelete-pr-kvpefjqssoxebrc'
object_key = '4.jpg'

streaming_body_3 = cos_client.get_object(Bucket=bucket, Key=object_key)['Body']
```

In [66]:

```
img = Image.open(streaming_body_3).convert("L") # convert image to monochrome
img = img.resize( (28,28) ) # resizing of input image
```

In [67]:

```
img
```

Out[67]:



In [68]:

```
im2arr = np.array(img) #converting to image
im2arr = im2arr.reshape(1, 28, 28, 1) #reshaping according to our requirement
```

In [69]:

```
pred = model.predict(im2arr)
print(pred)
```

```
1/1 [=====] - 0s 57ms/step
[[3.7886553e-17 2.1453644e-15 3.3421919e-15 5.1213937e-15 1.0000000e+00
 1.4518618e-11 3.9875852e-16 4.9917966e-11 2.5578708e-14 5.5945412e-13]]
```

In [70]:

```
print(np.argmax(pred, axis=1)) #printing our Labels
```

```
[4]
```

In [ ]:

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```
ibm_api_key_id='deRtphs2c8ivkYwQy2Quuv54DPa3DW-uBThW6Yuhqu7o',  
  ibm_auth_endpoint="https://iam.cloud.ibm.com/oidc/token",  
  config=Config(signature_version='oauth'),  
  endpoint_url='https://s3.private.us.cloud-object-storage.appdomain.cloud')
```

```
bucket = 'imageclassification-donotdelete-pr-nugvzr2i2hoaz0'  
object_key = '0LHLZ6UYH1.jpg'
```