**Import Libraries**

**import** requests

**import** numpy **as** np

**from** PIL **import** Image, ImageOps

**import** matplotlib.pyplot **as** plt

**Input Pre-processing**

img **=** Image**.**open(f"sample/sample 1.png")**.**convert("L")

img **=** ImageOps**.**invert(img)

img **=** img**.**resize((28, 28))

img\_arr **=** np**.**array(img)

img\_arr **=** img\_arr **/** 255.0

img\_arr **=** img\_arr**.**reshape(28, 28, 1)

img2 **=** Image**.**open(f"sample/sample 2.png")**.**convert("L")

img2 **=** ImageOps**.**invert(img2)

img2 **=** img2**.**resize((28, 28))

img2\_arr **=** np**.**array(img2)

img2\_arr **=** img2\_arr **/** 255.0

img2\_arr **=** img2\_arr**.**reshape(28, 28, 1)

img3 **=** Image**.**open(f"sample/sample 3.png")**.**convert("L")

img3 **=** ImageOps**.**invert(img3)

img3 **=** img3**.**resize((28, 28))

img3\_arr **=** np**.**array(img3)

img3\_arr **=** img3\_arr **/** 255.0

img3\_arr **=** img3\_arr**.**reshape(28, 28, 1)

**Get results from deployed model**

**import** requests

API\_KEY **=** "hXFJaBL1u3AzIC6m6xVnnXWh3Bx\_9is80s39JaByOKfY"

token\_response **=** requests**.**post('https://iam.cloud.ibm.com/identity/token', data**=**{"apikey":

API\_KEY, "grant\_type": 'urn:ibm:params:oauth:grant-type:apikey'})

mltoken **=** token\_response**.**json()["access\_token"]

header **=** {'Content-Type': 'application/json', 'Authorization': 'Bearer ' **+** mltoken}

*# NOTE: manually define and pass the array(s) of values to be scored in the next line*

payload\_scoring **=** {"input\_data": [{"fields": [], "values": [img\_arr**.**tolist(), img2\_arr**.**tolist(), img3\_arr**.**tolist()]}]}

response\_scoring **=** requests**.**post('https://us-south.ml.cloud.ibm.com/ml/v4/deployments/8c54e659-5b13-406f-8e9f-2e240c2d5012/predictions?version=2022-11-16', json**=**payload\_scoring,

headers**=**{'Authorization': 'Bearer ' **+** mltoken})

print("Scoring response")

print(response\_scoring**.**json())

Scoring response

{'predictions': [{'id': 'dense\_1', 'fields': ['prediction', 'prediction\_classes', 'probability'], 'values': [[[1.9807320228437675e-09, 5.488261081154633e-07, 0.9999916553497314, 2.4803330944678237e-08, 7.750519670501888e-10, 1.4670548109663173e-10, 9.881327700522746e-11, 7.824923159205355e-06, 3.828001471362086e-09, 6.413526654203139e-11], 2, [1.9807320228437675e-09, 5.488261081154633e-07, 0.9999916553497314, 2.4803330944678237e-08, 7.750519670501888e-10, 1.4670548109663173e-10, 9.881327700522746e-11, 7.824923159205355e-06, 3.828001471362086e-09, 6.413526654203139e-11]], [[1.1611423644808383e-07, 3.2054499570222106e-06, 0.0002688071981538087, 9.318210504716262e-05, 2.1655355286753775e-09, 2.05039825118547e-08, 7.067622875833734e-11, 0.9996047616004944, 2.703320660657482e-07, 2.9663708119187504e-05], 7, [1.1611423644808383e-07, 3.2054499570222106e-06, 0.0002688071981538087, 9.318210504716262e-05, 2.1655355286753775e-09, 2.05039825118547e-08, 7.067622875833734e-11, 0.9996047616004944, 2.703320660657482e-07, 2.9663708119187504e-05]], [[5.0797520856349365e-08, 4.462049396636303e-09, 0.0006250494043342769, 3.2606001809654117e-07, 1.1626272680587135e-05, 8.228857950598467e-06, 1.1280261560386862e-06, 8.570811615982166e-08, 0.9991530179977417, 0.00020047719590365887], 8, [5.0797520856349365e-08, 4.462049396636303e-09, 0.0006250494043342769, 3.2606001809654117e-07, 1.1626272680587135e-05, 8.228857950598467e-06, 1.1280261560386862e-06, 8.570811615982166e-08, 0.9991530179977417, 0.00020047719590365887]]]}]}

**Display results**

plt**.**imshow(plt**.**imread("sample/sample 1.png"))

plt**.**axis('off')

plt**.**show()

print("Result: ", response\_scoring**.**json()['predictions'][0]['values'][0][1])

Result: 2

plt**.**imshow(plt**.**imread("sample/sample 2.png"))

plt**.**axis('off')

plt**.**show()

print("Result: ", response\_scoring**.**json()['predictions'][0]['values'][1][1])

Result: 7

plt**.**imshow(plt**.**imread("sample/sample 3.png"))

plt**.**axis('off')

plt**.**show()

print("Result: ", response\_scoring**.**json()['predictions'][0]['values'][2][1])

Result: 8