DigitRecognitionAmano

July 23, 2022

[1]:
```
#Importando librerias
from PIL import Image
import numpy as np
import matplotlib.pyplot as plt
from collections import Counter
```

[2]:
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from matplotlib import style
style.use("ggplot")
```

[7]:
```
def createExamples():
    numberArrayExamples = open('numArEx.txt','a')
    numbersWeHave = range(0,10)
    for eachNum in numbersWeHave:
        for furtherNum in range(1,10):
            imgFilePath = 'images/numbers/'+str(eachNum)+'.'+str(furtherNum)+'.
↪png'
            ei = Image.open(imgFilePath)
            eiar = np.array(ei)
            eiarl = str(eiar.tolist())

            lineToWrite = str(eachNum)+'::'+eiarl+'\n'
            numberArrayExamples.write(lineToWrite)
```

[8]:
```
createExamples()
```

[9]:
```
def whatNumIsThis(filePath):

    matchedAr = []
    loadExamps = open('numArEx.txt','r').read()
    loadExamps = loadExamps.split('\n')
    i = Image.open(filePath)
    iar = np.array(i)
    iarl = iar.tolist()
    inQuestion = str(iarl)
    for eachExample in loadExamps:
        try:
            splitEx = eachExample.split('::')
```

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            currentNum = splitEx[0]
            currentAr = splitEx[1]
            eachPixEx = currentAr.split('],')
            eachPixInQ = inQuestion.split('],')
            x = 0
            while x < len(eachPixEx):
                if eachPixEx[x] == eachPixInQ[x]:
                    matchedAr.append(int(currentNum))

                x+=1
        except Exception as e:
            print(str(e))

    x = Counter(matchedAr)
    print(x)
    graphX = []
    graphY = []

    ylimi = 0

    for eachThing in x:
        graphX.append(eachThing)
        graphY.append(x[eachThing])
        ylimi = x[eachThing]



    fig = plt.figure()
    ax1 = plt.subplot2grid((4,4),(0,0), rowspan=1, colspan=4)
    ax2 = plt.subplot2grid((4,4),(1,0), rowspan=3,colspan=4)

    ax1.imshow(iar)
    ax2.bar(graphX,graphY,align='center')
    plt.ylim(100)

    xloc = plt.MaxNLocator(12)
    ax2.xaxis.set_major_locator(xloc)

    plt.show()
```
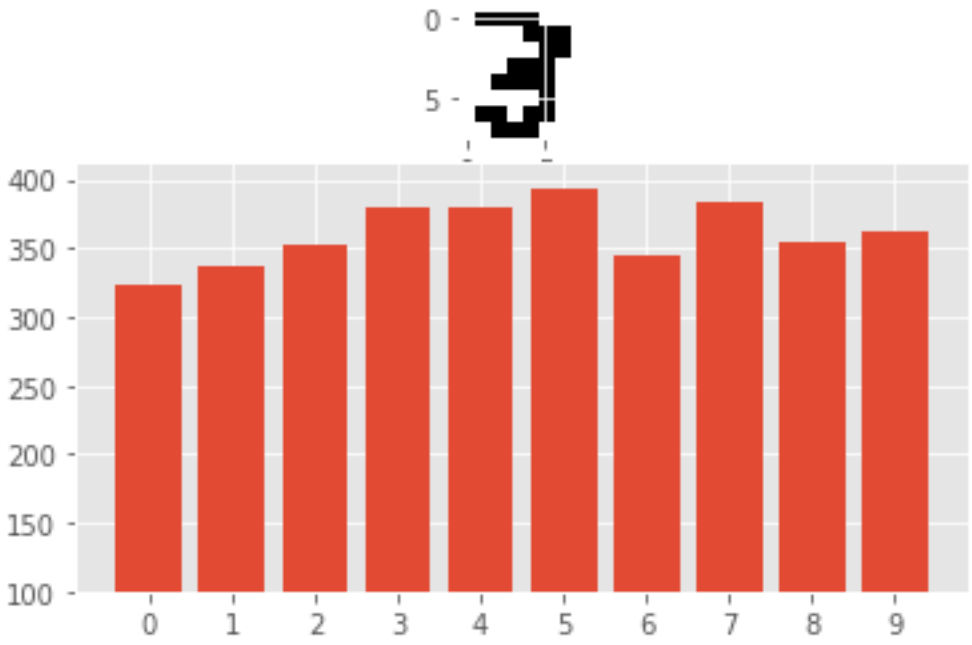
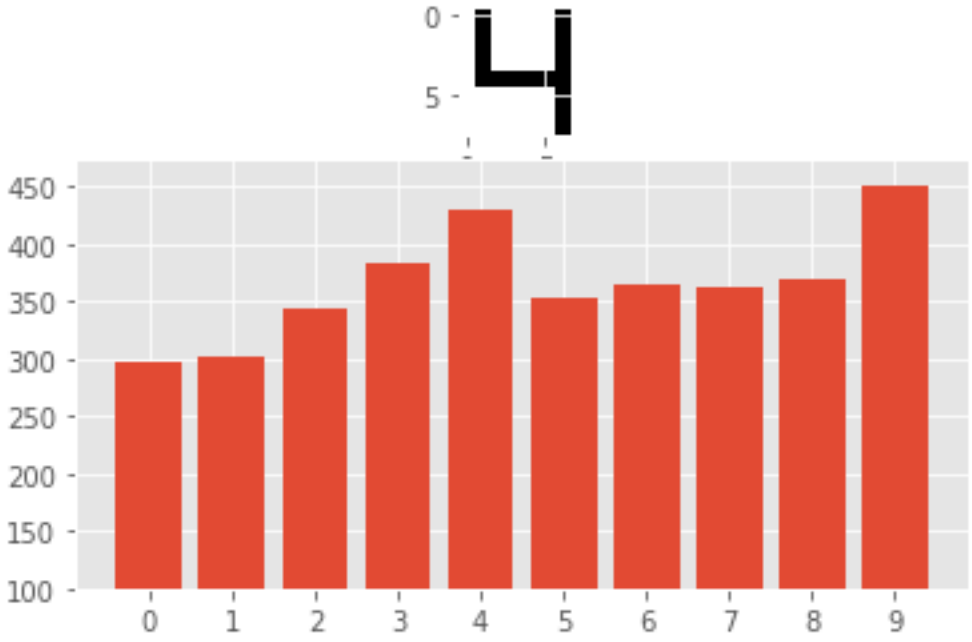

[10]:
```
whatNumIsThis('images/testtres.png')
```

```
list index out of range
Counter({5: 393, 7: 384, 3: 379, 4: 379, 9: 362, 8: 355, 2: 353, 6: 344, 1: 337,
0: 323})
```



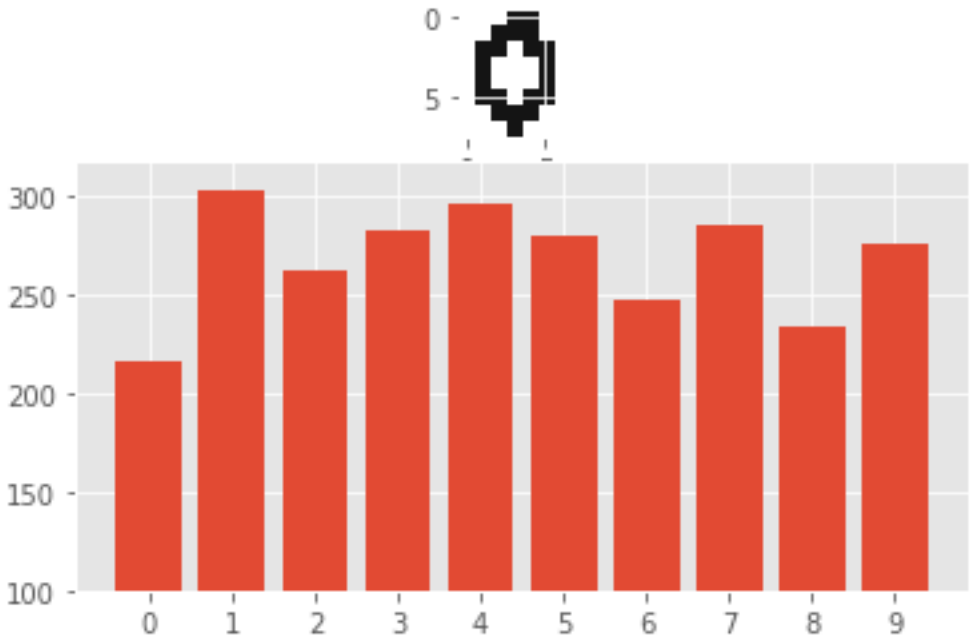
[11]:
```
whatNumIsThis('images/test.png')
```

```
list index out of range
Counter({9: 451, 4: 430, 3: 384, 8: 370, 6: 365, 7: 363, 5: 354, 2: 344, 1: 301,
0: 296})
```



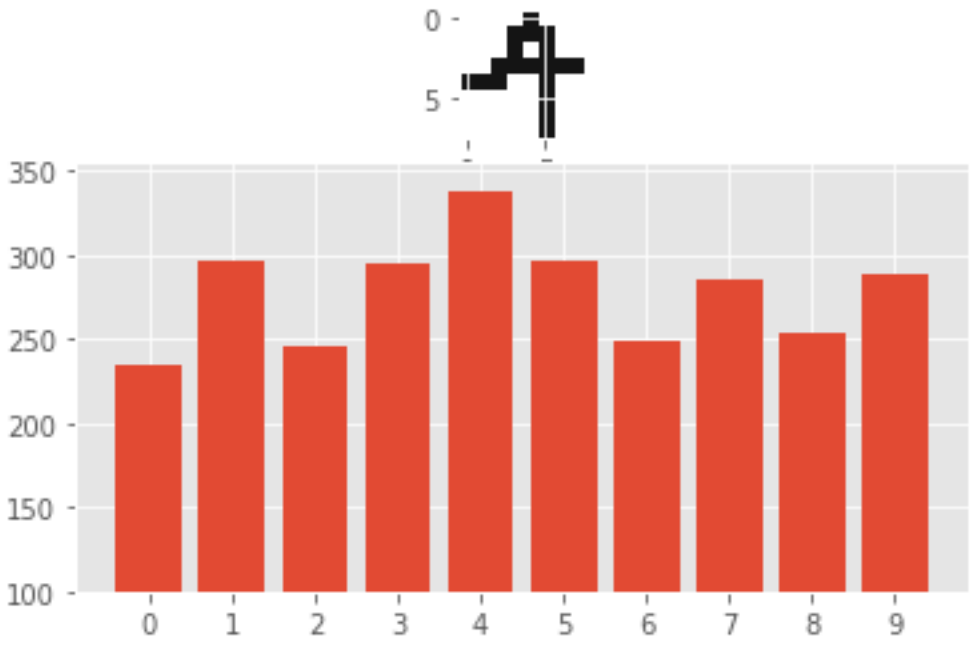
[12]:
```
whatNumIsThis('images/test2.png')
```

```
list index out of range
Counter({1: 302, 4: 296, 7: 285, 3: 282, 5: 279, 9: 276, 2: 262, 6: 247, 8: 233,
0: 216})
```



[13]:
```
whatNumIsThis('images/test3.png')
```

```
list index out of range
Counter({4: 338, 1: 297, 5: 297, 3: 295, 9: 289, 7: 286, 8: 253, 6: 248, 2: 245,
0: 234})
```


0
5
350
300
250
200
150
100
0
1
2
3
4
5
6
7
8
9

[ ]: