

Database image preview

Try to preview a few images in the database. Examine the class label, file name and feature dimension The database has been prepared using the script script_02_extract_image_feat_from_folder.py

In [42]: `%reset`

Once deleted, variables cannot be recovered. Proceed (y/[n])? y

In [43]:

```
from PIL import Image
import matplotlib.pyplot as plt
import numpy as np
import os
import sys
from time import time
import pickle

experimentPath = r'D:\1_Code\FOE\ECE3086\lab1_cbir_student'
os.chdir(experimentPath)
# Lab related module
from ai_pytorch_module import *
from cbir_module import *
```

In [44]: `%pwd`

Out[44]: 'D:\\1_Code\\FOE\\ECE3086\\lab1_cbir_student'

In [45]:

```
### Set Path
imgpath = r'\\.images'
sys.path.append(os.getcwd())
```

In [46]:

```
### Load database
# Need this since pickle store a List of Database objects
# Pickle need to refer to this class
class Database :
    def __init__(self) :
        self.imageName = None
        self.featsCNN = None

with open("CBIR_database.pickle","rb") as f:
    dataDict = pickle.load(f)
    database = dataDict['database']
```

In [47]:

```
print(database[0].classLabel)
print(database[0].imageName)
print(database[0].featColorHist.shape)
print(database[0].featCNN.shape)
print(database[0].featColorHist)
```

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1.01725260e-05 0.00000000e+00 0.00000000e+00 2.03450521e-05]

```

In [48]:

```

#%% Check the image in database
id=200

print("Image name = " , database[id].imageName)
label = database[id].classLabel
print("Label ID = " , label)
print("Label Name = " , LabelDic[label])
feat1 = database[id].featCNN
feat2 = database[id].featColorHist
print("Feature dimension CNN = " , feat1.shape)
print("Feature dimension Colour Histogram = " , feat2.shape)
# List attributes
#print(dir(database[3]))
imFile = database[id].imageName

```

```

imFile = os.path.join(imgpath, imFile)
im = Image.open(imFile)
plt.figure(figsize=(8,6))

plt.imshow(im) , plt.axis('off')
titleStr = " Image {}.jpg label = {} Label name = {}".format(str(id), label, LabelDi
plt.title(titleStr, fontsize=20)

```

```

Image name = 200.jpg
Label ID = 3
Label Name = Building
Feature dimension CNN = (1, 4096)
Feature dimension Colour Histogram = (768,)

```

Out[48]: Text(0.5, 1.0, ' Image 200.jpg label = 3 Label name = Building')

Image 200.jpg label = 3 Label name = Building



Question 5:

Implement the following function to display the selected image and information related to the image

```

In [49]: ### Question 5:
# Implement the following function to display the selected image and information rel
# def showImageInfoFromDB(id, imgpath, database) :

def showImageInfoFromDB(id, imgpath, database):
    # your code
    plt.imshow(im) , plt.axis('off')
    titleStr = " Image {}.jpg label = {} Label name = {}".format(str(id), label, Lab
    plt.title(titleStr)

    id=900
    showImageInfoFromDB(id, imgpath, database)

```

```

Image name = 900.jpg
Label ID = 10
Label Name = Food

```

Image 900.jpg label = 10 Label name = Food



In [50]:

```
# Show distribution of image in Corel-1K dataset

numImages = len(database)
classlabels = []
for i in range(numImages):
    classlabels.append(database[i].classLabel)

uniqueLabels = list(set(classlabels))
print(" The database labels are " , uniqueLabels)

numLabel = len(uniqueLabels)
labelarr = np.zeros(numLabel+1)
for i in range(numImages):
    label = database[i].classLabel
    labelarr[label] = labelarr[label] + 1

for i in range(0,numLabel):
    print(" Label {} has {} samples ".format(uniqueLabels[i], labelarr[i+1]))
```

```
The database labels are [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
Label 1 has 100.0 samples
Label 2 has 100.0 samples
Label 3 has 100.0 samples
Label 4 has 100.0 samples
Label 5 has 100.0 samples
Label 6 has 100.0 samples
Label 7 has 100.0 samples
Label 8 has 100.0 samples
Label 9 has 100.0 samples
Label 10 has 100.0 samples
```

In []: