# 1. 중간고사 과제용 HEIC 확장자 변환기

참고자료

- https://pypi.org/project/pyheif/
- https://www.tensorflow.org/api_docs/python/tf/keras/

In [ ]:
```
import pandas as pd
import numpy as np
import os
import tensorflow as tf
import glob
```

In [ ]:
```
# 구글 드라이브 마운트
from google.colab import drive
drive.mount("/content/gdrive/")
```

```
Mounted at /content/gdrive/
```

In [ ]:
```
tf.keras.utils.get_file(fname = '/content/gdrive/MyDrive/dataset/train.zip', origin = 'https://dl.dropboxuserco
tf.keras.utils.get_file(fname = '/content/gdrive/MyDrive/dataset/test.zip', origin = 'https://dl.dropboxusercon
```

```
Downloading data from https://dl.dropboxusercontent.com/sh/3hm2fry82py06j6/AAAPGjb9jmuhyFcWu9XDMYVSa/train.zip
1589995868/1589995868 [==============================] - 53s 0us/step
Downloading data from https://dl.dropboxusercontent.com/sh/3hm2fry82py06j6/AAC2TsoVWDfQ2Ll_Ai8fCLE4a/test.zip
642827750/642827750 [==============================] - 21s 0us/step
```

Out[ ]:
```
'/content/gdrive/MyDrive/dataset/test.zip'
```

In [ ]:
```
def cp_unzip(path, fn):
  # path로 이동
  %cd $path

  # 커맨드 작성
  unzip_cmd=" -qq "+ fn

  # 언집 실행
  !unzip $unzip_cmd
```

In [ ]:
```
cp_unzip("/content/gdrive/MyDrive/dataset/train", "train.zip")
```

```
/content/gdrive/MyDrive/dataset/train
```

In [ ]:
```
cp_unzip("/content/gdrive/MyDrive/dataset/test", "test.zip")
```

```
/content/gdrive/MyDrive/dataset/test
```

## 파일 및 폴더 정리 셀프로 할 것(10-1, 10-2)

In [ ]:
```
!pip install pyheif
!pip install pillow_heif
```

```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting pyheif
  Downloading pyheif-0.7.1-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (9.8 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 9.8/9.8 MB 49.7 MB/s eta 0:00:00
Requirement already satisfied: cffi>=1.0.0 in /usr/local/lib/python3.9/dist-packages (from pyheif) (1.15.1)
Requirement already satisfied: pycparser in /usr/local/lib/python3.9/dist-packages (from cffi>=1.0.0->pyheif) (
2.21)
Installing collected packages: pyheif
Successfully installed pyheif-0.7.1
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting pillow_heif
  Downloading pillow_heif-0.10.1-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (7.3 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 7.3/7.3 MB 44.8 MB/s eta 0:00:00
Requirement already satisfied: pillow>=8.4.0 in /usr/local/lib/python3.9/dist-packages (from pillow_heif) (8.4.
0)
Installing collected packages: pillow_heif
Successfully installed pillow_heif-0.10.1
```

In [ ]:
```
# 이미지 처리
from PIL import Image
import pyheif
from pillow_heif import register_heif_opener
register_heif_opener()
```

In [ ]:
```
PATH = '/content/gdrive/MyDrive/dataset/'
```

In [ ]:
```
# 경로 생성 및 확인
train_dir = os.path.join(PATH, 'train')
test_dir = os.path.join(PATH, 'test')
train_dir, test_dir
```

Out[ ]:
```
('/content/gdrive/MyDrive/dataset/train',
 '/content/gdrive/MyDrive/dataset/test')
```

# 폴더명 변경

- 10-1 >>>> 0
- 10-2 >>>> 10

In [ ]:
```
categories = list(os.walk(PATH +'train'))[0][1]
categories
```

Out[ ]:
```
['1', '0', '10', '2', '3', '4', '5', '6', '7', '8', '9']
```

In [ ]:
```
# train set 이미지 변환
for category in categories:
  train_path = train_dir + '/' + category
  files = glob.glob(train_path + '/*')
  for j in files:
    if (j[-4::] == "HEIC") :
      heif_file = pyheif.read(j)
      print(j)
      image = Image.frombytes(
          heif_file.mode,
          heif_file.size,
          heif_file.data,
          "raw",
          heif_file.mode,
          heif_file.stride,
          )

      image.save(f"{train_path}/abc{j[-8:-5:]}.jpg", "JPEG")

      os.remove(j)

    else :
      pass

  print()
  print('label', category, 'done')
  print()
```

In [ ]:
```
# test set 이미지 변환
for category in categories:
  test_path = test_dir + '/' + category
  files = glob.glob(test_path + '/*')
  for j in files:
    if (j[-4::] == "HEIC") :
      heif_file = pyheif.read(j)
      print(j)
      image = Image.frombytes(
          heif_file.mode,
          heif_file.size,
          heif_file.data,
          "raw",
          heif_file.mode,
          heif_file.stride,
          )

      image.save(f"{test_path}/azx{j[-8:-5:]}.jpg", "JPEG")

      os.remove(j)

    else :
      pass

  print()
  print('label', category, 'done')
  print()
```

In [ ]:
```

```