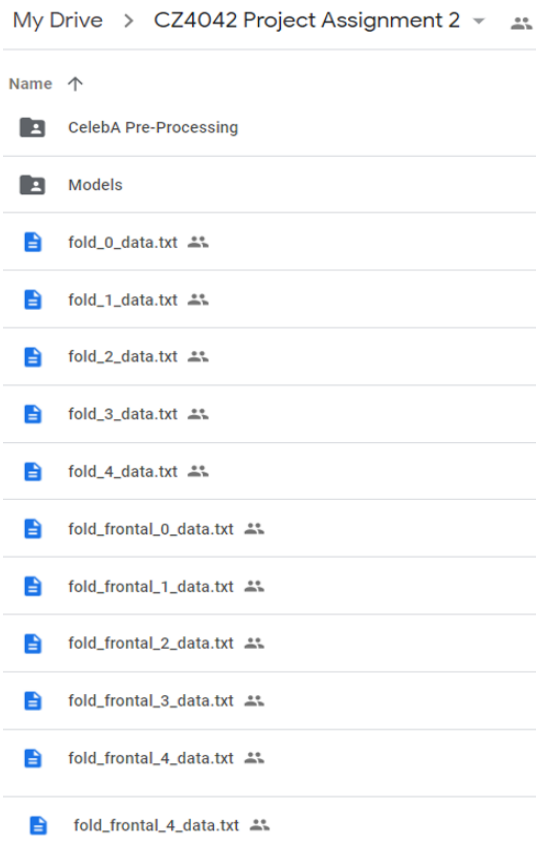
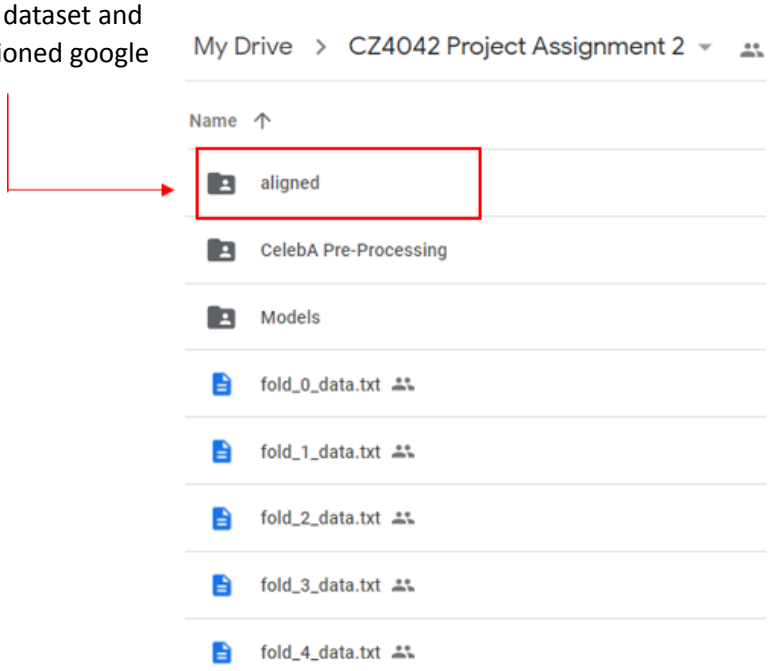
For running of our code, run in Google Colaboratory.

Steps to run our code:

1) Download the submitted files and upload them into a google drive folder (e.g. MyDrive -> CZ4042 Project Assignment 2)



2) Go to https://talhassner.github.io/home/projects/Adience/Adience-data.html#agegender to download the aligned Adience dataset and import it to the previous mentioned google drive



3) Open `Pre_processing.ipynb` by double clicking.

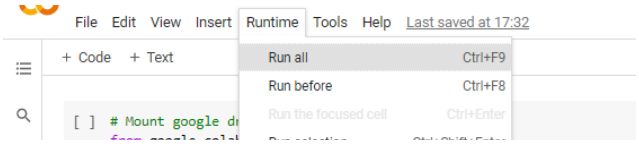
3a) Before running, following needs to be done:

In the 3rd code section, make sure that the base_path for the downloaded dataset and codes are correctly set to where the dataset was downloaded.

```
# Define the google drive path where data is stored
base_path = '/content/drive/MyDrive/CZ4042 Project Assignment 2/Models/'
```

Google drive path where initial files were imported to

3b) Select **'Runtime'** and hit **'Run All'**



In the 1st code section, authenticate to mount your drive to retrieve data.

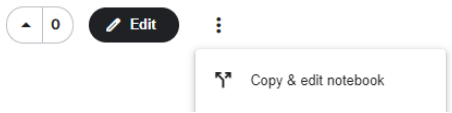
```
# Mount google drive where dataset is stored at
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

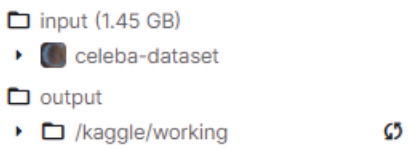
Completing this will generate the pre-processed Adience dataset.

4) Download `model_celeba_tune_resNet50V2_v3.h5` to load in the pretraining weights later. To manually generate the pretraining weights,

4a) Go to https://www.kaggle.com/kunyoungpark/celeb-a-pretrain-resnet50v2. Copy & edit notebook and run the code. The dataset required will be copied in the input folder as well.



After training is done, `model_celeba_tune_resNet50V2_v3.h5` will be generated in the output folder. Download the file and move it to the correct directory in google drive.



5) There are two versions of code, with and without pretraining with CelebA.

- `ResNet50V2_without_pretrained_celeba.ipynb`
- `ResNet50V2_with_pretrained_celeba.ipynb`

Open the desired notebook by double clicking the .ipynb file. If you are looking for a demo only, open `Demo of trained ResNet50V2 model.ipynb` instead.

5a) Before we run, we need to do a couple of things:

In the 7th code section, make sure that the base_path for the downloaded dataset and codes are correctly set to where the dataset was downloaded.

```
[ ]  # Define the google drive path where data is stored
     base_path = '/content/drive/MyDrive/CZ4042 Project Assignment 2/Models/'
```

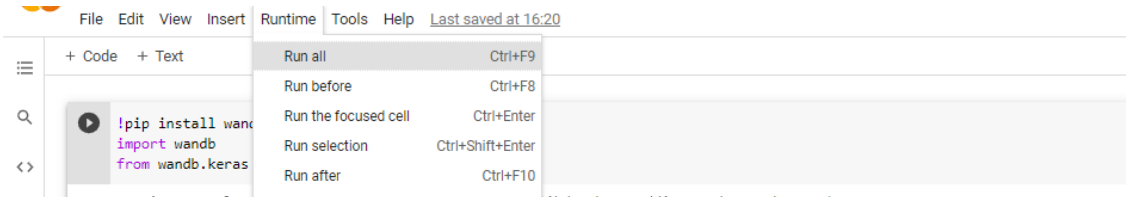
Also, in the 12th code section, make sure that the path is correctly set for the `model_celeba_tune_resNet50V2_v3.h5`.

```
# Load the pretrained celebA weights
model.load_weights('/content/drive/MyDrive/CZ4042 Project Assignment 2/Models/Resnet50V2 Experiments/model_celeba_tune_resNet50V2_v3.h5')
```

The paths should correspond to where you extracted the initial files to in your drive. Change the 6th, 7th and 8th section accordingly for the demo notebook.

Once all these have been done, we are ready to run:

6) Select **'Runtime'** and hit **'Run All'**



6a) There will be an instance where you will receive a prompt for authentication

First one being the 2nd code block of where to mount your drive to retrieve data from

```
# Mount google drive where dataset is stored at
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

Once these steps have been completed, the rest of the program should run smoothly.