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Minimum Viable Product (MVP)

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Gender Classification with 203K Images DB

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The Gender classification is being more attention by recognizing a person's gender based on the characteristics that differentiate masculinity and femininity. I am really interested doing such project to improve my technical skills as I work as a biometric analyst for more than 8 years. I have done a big project in biometrics as a part of my master study using Matlab. Now, I got the chance to learn and do something useful to biometrics through Python.
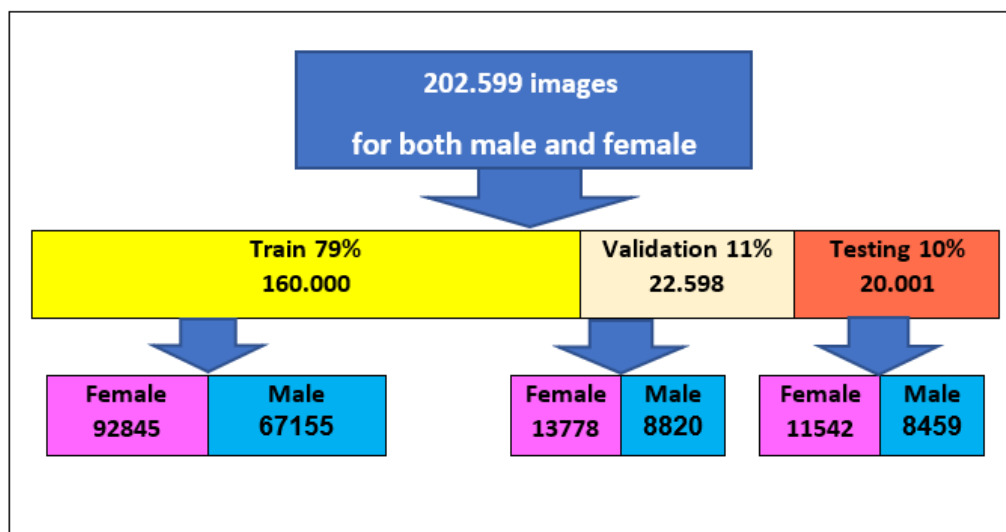
Question/need:

In the field of artificial intelligence, gender classification is a real need. In this project I aim to analyze a big data base of images to improve an auto technical way tells us if any

personal photo is for male or female?

Data Description:

I got a large Dataset. It is images database. It has 202.599 facial images for both males and females. Each image has the same pixel size which is 178x218 with JPG type. The dataset will be split into 3 parts as following:

Dataset URL: https://www.kaggle.com/ashishjangra27/gender-recognition-200k-images-celeba/download

Algorithms and Tools:

The main algorithms will be Classification. I plan to use neural network model with gender classification in Python to train the model. The main tools so far are layers and keras in tensorflow library, Pillow imaging library with Python. Also, I need to use matplotlib to show accuracy by pyplot tool. Numpy library and "if statement" are a part of my working plan.

MVP Goal:

Applying a Machine Learning project which can find Gender Classification for any personal image contains face with the minimum possible error rate. Hint: even human people cannot succeed in this task without mistakes! However, I will accept the challenge as a part of my life love which is Biometrics.

Minimum Viable Product (MVP)

- Adding keras in tensorflow libraries to Python.
- Importing the necessary Python libraries:

import os
from tensorflow.keras import layers
from tensorflow.keras import Model
from tensorflow.keras.preprocessing.image import ImageDataGenerator
import tensorflow as tf

- read and import the images dataset that we are going to use to train a neural network model:

```
In [3]: train_datagen = ImageDataGenerator(rescale = 1./255,
            rotation_range=40,
            width_shift_range=0.2,
            height_shift_range=0.2,
            shear_range=0.2,
            zoom_range=0.2,
            horizontal_flip=True,
            fill_mode='nearest')

test_datagen = ImageDataGenerator( rescale = 1.0/255)

train_generator = train_datagen.flow_from_directory('/Users/ASUSvB/Desktop/archive/Dataset/Train',
                                    batch_size =256 ,
                                    class_mode = 'binary',
                                    target_size = (64, 64))

validation_generator =  test_datagen.flow_from_directory( '/Users/ASUSvB/Desktop/archive/Dataset/Validation/',
                                    batch_size  = 256,
                                    class_mode  = 'binary',
                                    target_size = (64, 64))

Found 160000 images belonging to 2 classes.
Found 22598 images belonging to 2 classes.
```

- Now I am trying to write a code to train and compile the neural network model for the task of Gender classification with Python. It is really challenging. However, I will do my best.