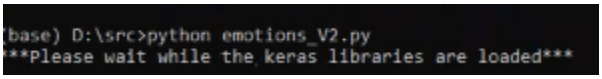
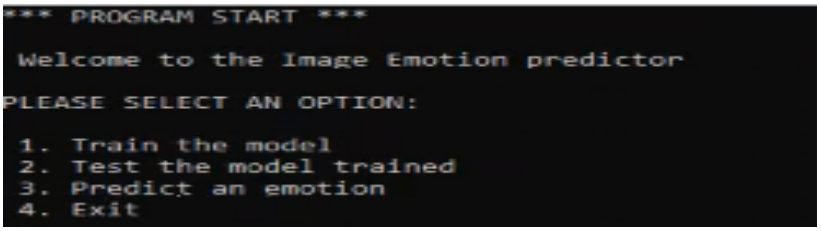
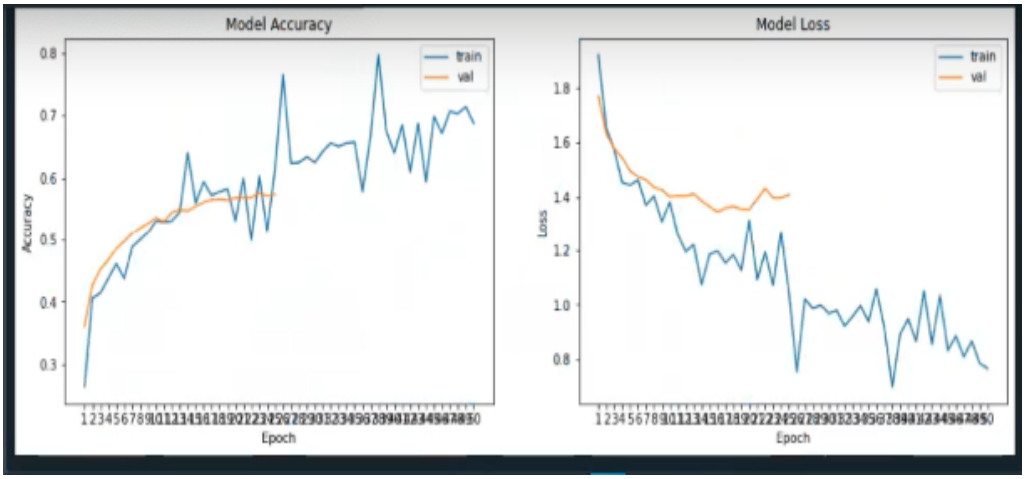
In order to run the code, please follow these steps:

1. Run `pip install -r requirements.txt` to install the necessary dependencies. The dependencies are Python 3, OpenCV, and TensorFlow. This has to be done from the main folder (`comp-vision-project`).
2. Once the dependencies are installed, you can run the code. First, switch your current directory to `src`.
    - Then, do `python emotions.py`. The Keras libraries will start loading. This takes a few seconds.
    - 

3. Once the loading is completed, you will see a menu like below.
    - 

4. To train the model, enter 1. You will then be asked to enter the number of epochs. This will retrain the model and overwrite the model.weights.h5 file.
5. To test the accuracy of the model against the images placed in the test folder, press 2. If you're in an environment like Spyder, you will see the model accuracy and loss graphs.
    - 

6. To get the emotion of an image, press option 3. You will then be asked to provide the name of that image. For this to work, the image has to be under the `src` folder.

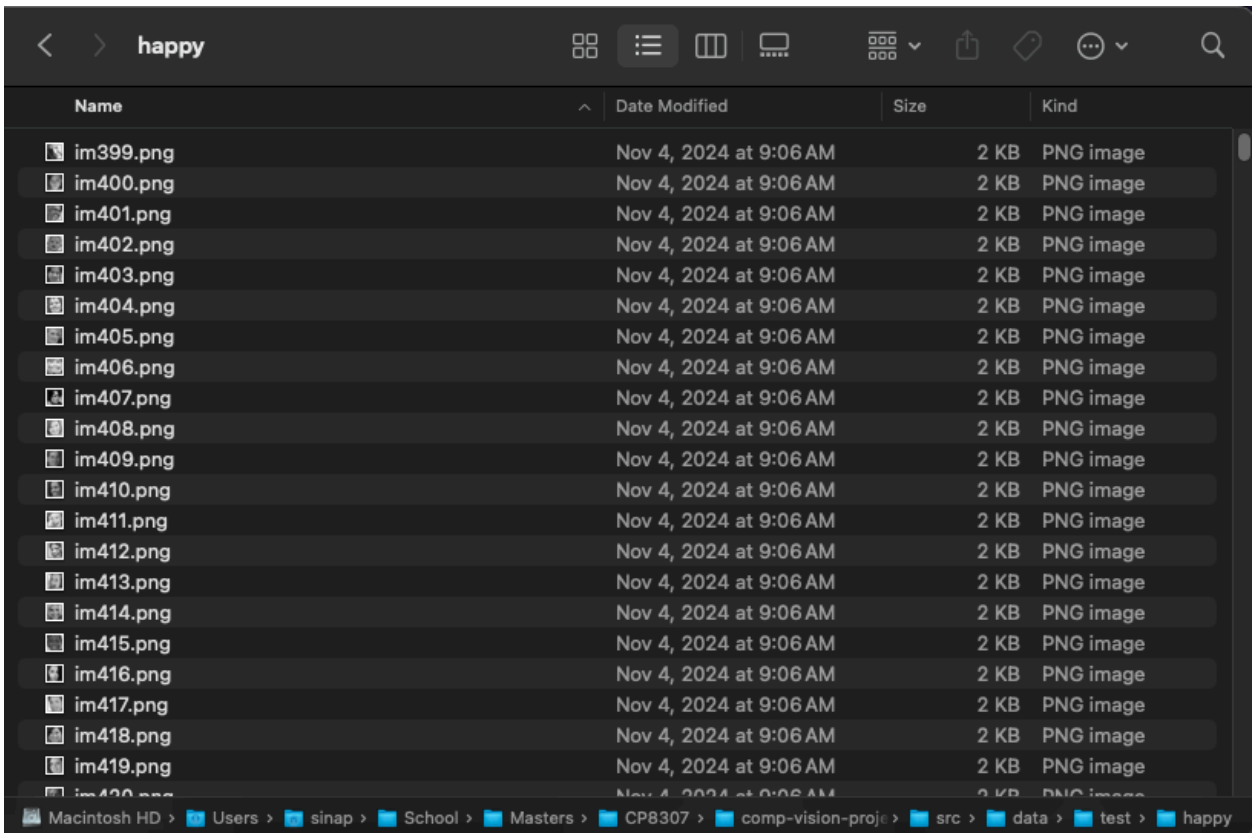
```
 Welcome to the Image Emotion predictor

PLEASE SELECT AN OPTION:

 1. Train the model
 2. Test the model trained
 3. Predict an emotion
 4. Exit

Choose an option (1-4): 3
Please enter the file path and name of the image file_
```

-

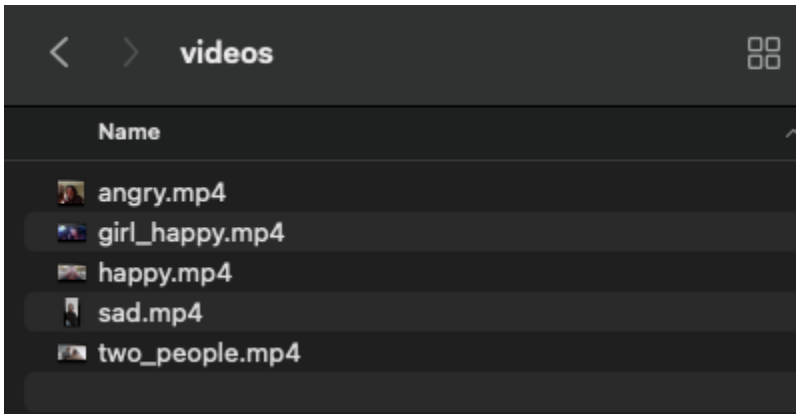
```
 2. Test the model trained
 3. Predict an emotion
 4. Exit

Choose an option (1-4): 3
Please enter the file path and name of the image file_contempti.png
Analyzing  contempti.png
WARNING:tensorflow:6 out of the last 6 calls to <function TensorFlowTrainer.make_predic
0x0000018FEA322520> triggered tf.function retracing. Tracing is expensive and the exces
@tf.function repeatedly in a loop, (2) passing tensors with different shapes, (3) passi
define your @tf.function outside of the loop. For (2), @tf.function has reduce_retracin
(3), please refer to https://www.tensorflow.org/guide/function#controlling_retracing an
for  more details.
1/1 ━━━━━━━━━━━━━━━━━━━━ 2s 2s/step
Predicted Base Emotion: contempt
*** DONE ***
*** PROGRAM START ***
```

-

7. To add new images for testing, upload your desired image to the test folder under the right emotions. There are 8 folders under the test directory, one for each emotion. For example, to add an image under the happy emotion, copy and paste it in the folder data/test/happy, as shown below.



8. To add new videos for testing, you can add your video under the videos folder. This folder can be found under `src`.



9. To test a video, select option 4, and enter the name of the video. This is similar to step 6. The bar graph shows the distribution of emotions per person in the video. There can be a maximum of three people in a video. The process takes a few seconds to complete.