

SMART ATTENDENCE SYSTEM



Face Recognition

 python



Generate dataset

- **Cascading classifier:** While collecting open cv python our classifier is automatically installed, so use that in this project.

Path in face-classifier:

- **grey scale image:** black and white image
- *0 means going to the use the camera from laptop webcam.*
- *Id=1 means id of 1st authorized person*



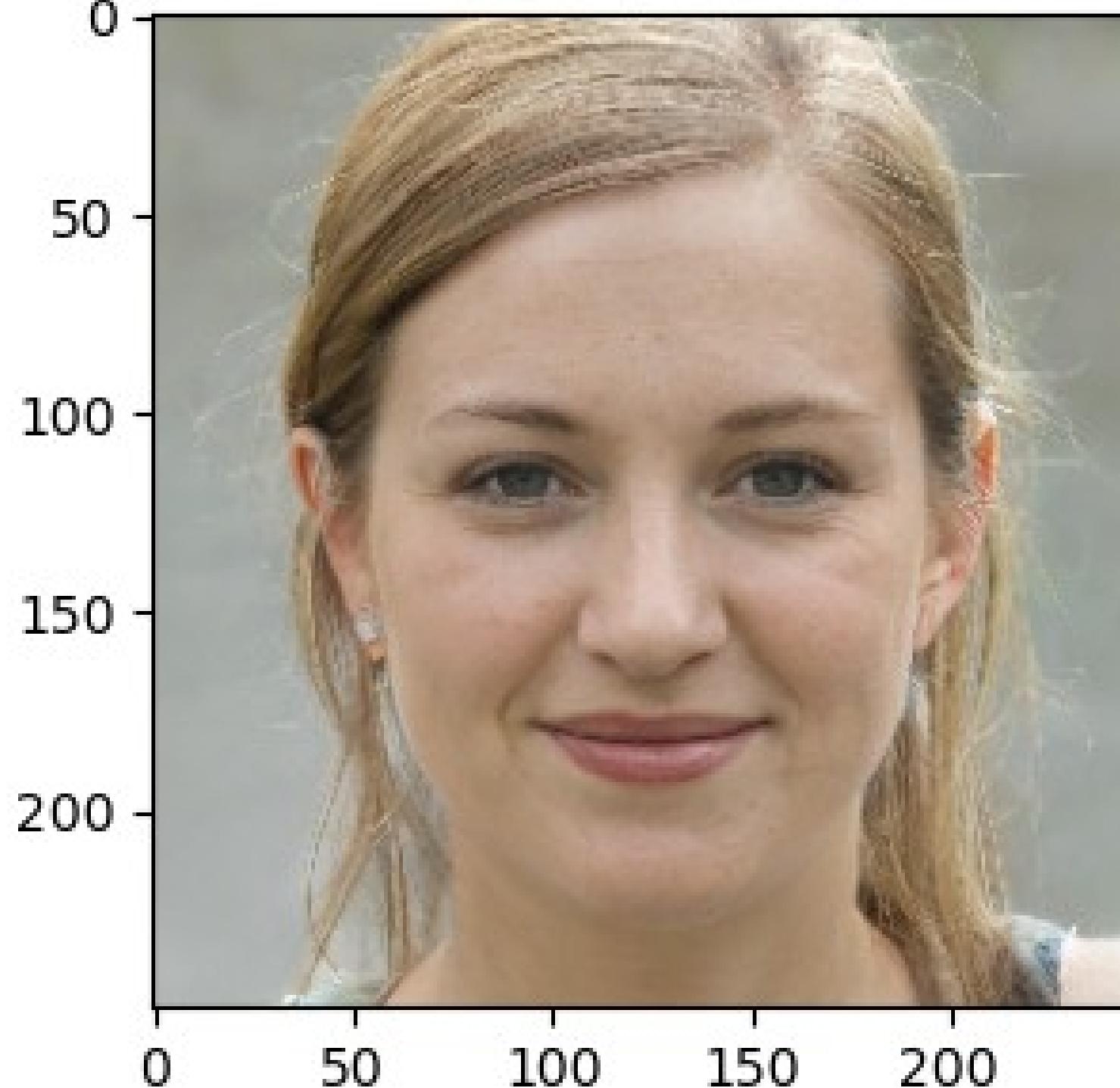
- 13 means ascii value of Enter key-> It will go outside of loop [ESC]
CV- used for solve computer vision problems
- CV2 module is used to build applications that involve image, object detection, recognition and tracking.

- In this project using haarcascade_frontalface_default.
- Xml to get the coordinate of face so that it can crop and use it to make a dataset and for future prediction.
- Use gray_scale image means RGB image has 3 channels where as grey scale image has only 1 channel. It reduces a lot of complexity if we convert to.
- Use face classifier and using detect multi scale method, to get the coordinates (x,y).

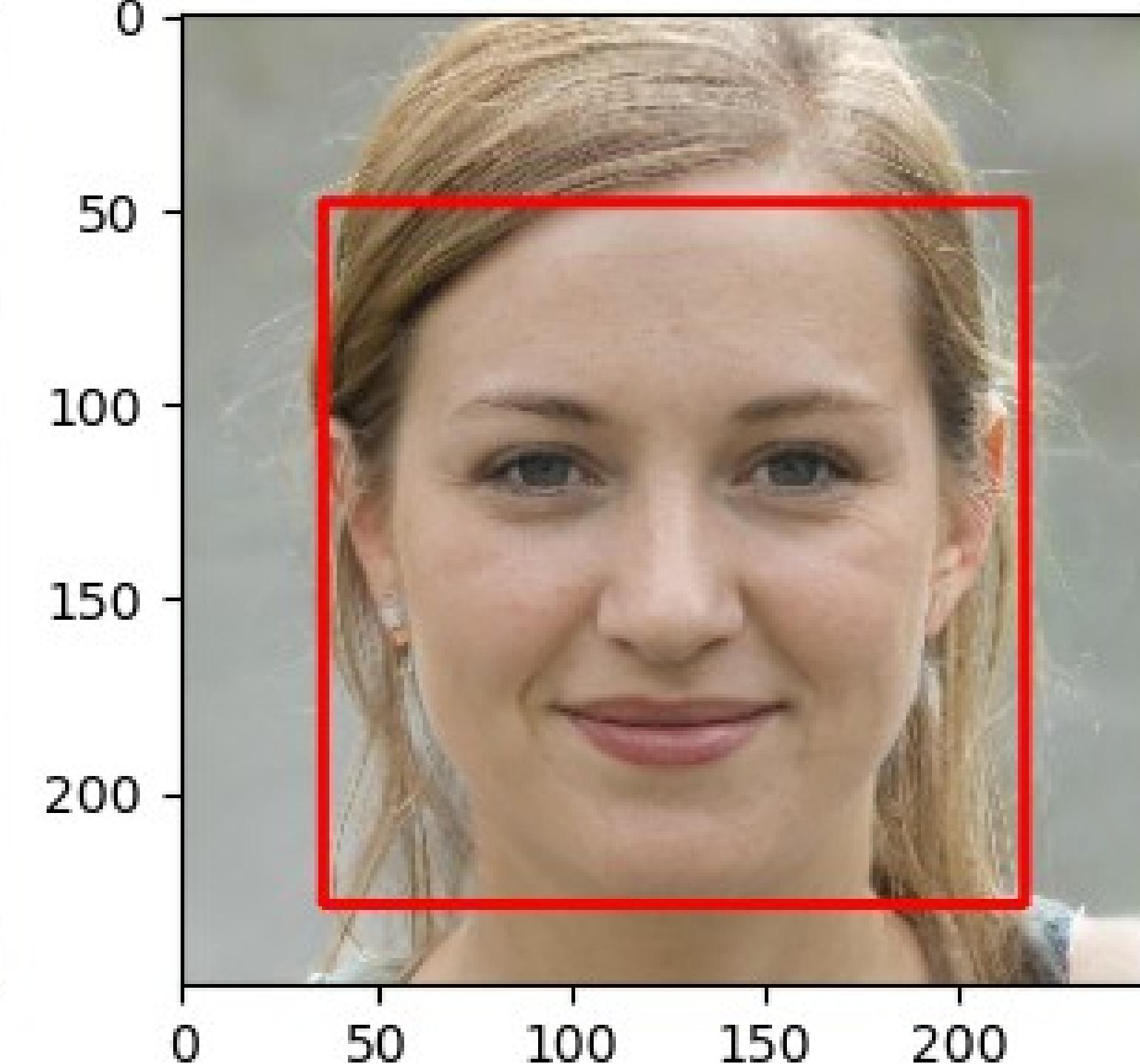
Train the classifier and save it:

- *In this project use classifier.xml because our system doesn't understand images. It needs to be converted into a Numpy array format.*
- *So that it can make certain decisions based on this data.*
- *Classifier.xml includes certain information(data) about our faces.*

Original



Faces



Detect the face and named it if it is already stored in our dataset.

- *Here in this project use draw _boundary function, which draw a boundary around the face and also displays the name at the top of the face.*
- *In this module import image from PIL (python imaging library). Instead of PILLOW module use PIL.*
- *This module is used to adds support for opening, manipulating and saving many different image file formats.*



Haar Cascade:

- *That can detect objects in images, irrespective of their scale in image and location. This algorithm is not so complex and can run in real-time.*
- *It can train a harr-cascade detector to detect various faces.*

LBPH algorithm:

- *In this use LBPH (Local Binary Pattern Histograms). Algorithm to detect faces.*
- *It labels the pixels of an image by thresholding the neighborhood of each pixel and considers the results as a binary number.*

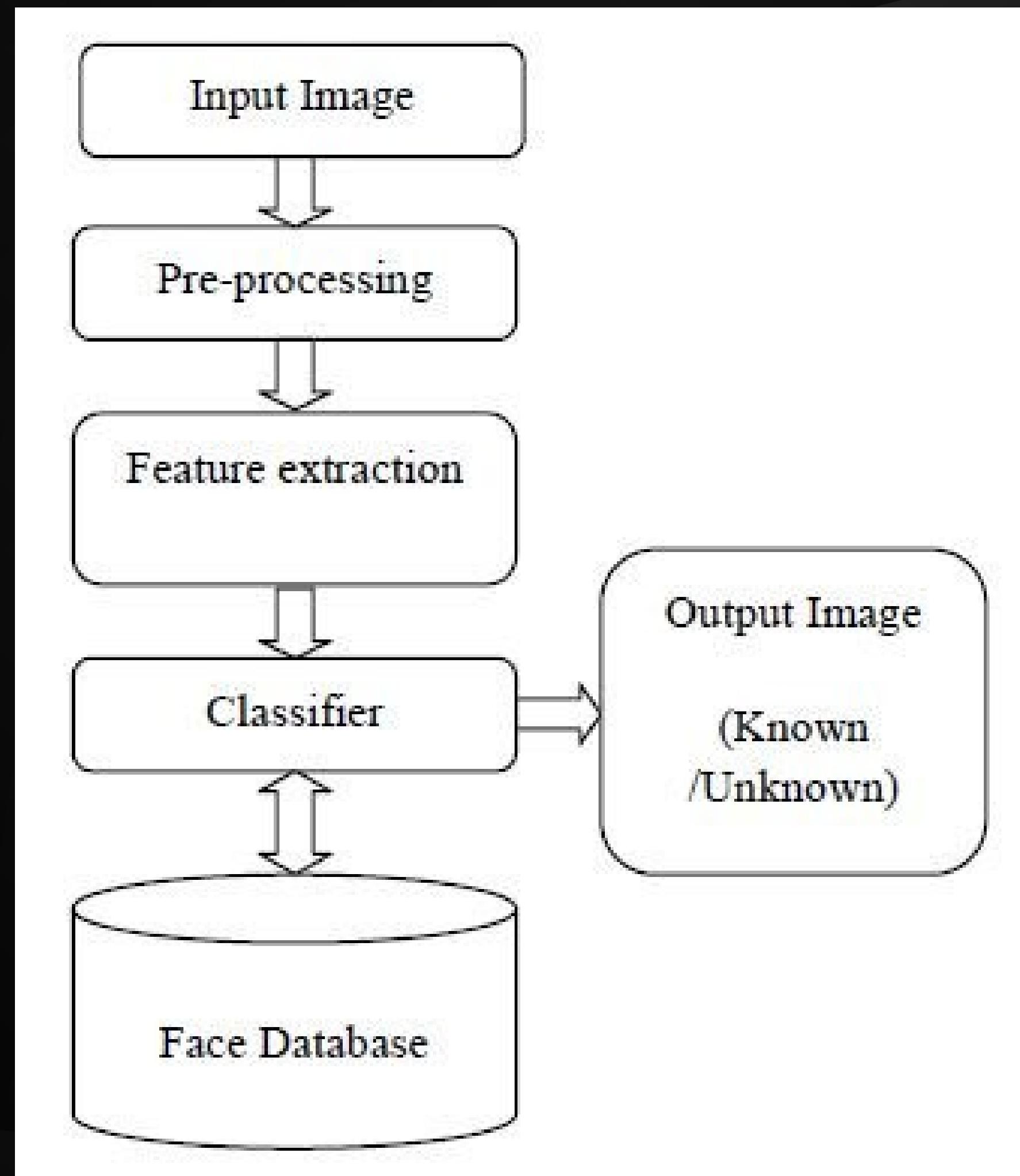


Converting the project into GUI:

- Convert the project into GUI means it is very important to convert any of our python projects in GUI because if we want to submit our project to our college or any other places it is very good to have our project in the GUI application.
- It is because, we can perform every operation within the same window.
- Don't need to execute each cell of code again and again.

- tkinter is a module used to display the window.
- From tkinter we import message box.
- tk.button() function is used to create the button.
- tk.label() function is used to create a label.

- `window.geometry()` function is used to represent the size of the window.
- `window.title()` function is used to represent the title.
- `tk.Entry()` function is used to create the text area to enter details.
- `Window.mainloop()` function tells python to run the tkinter event loop.



Connect to database:

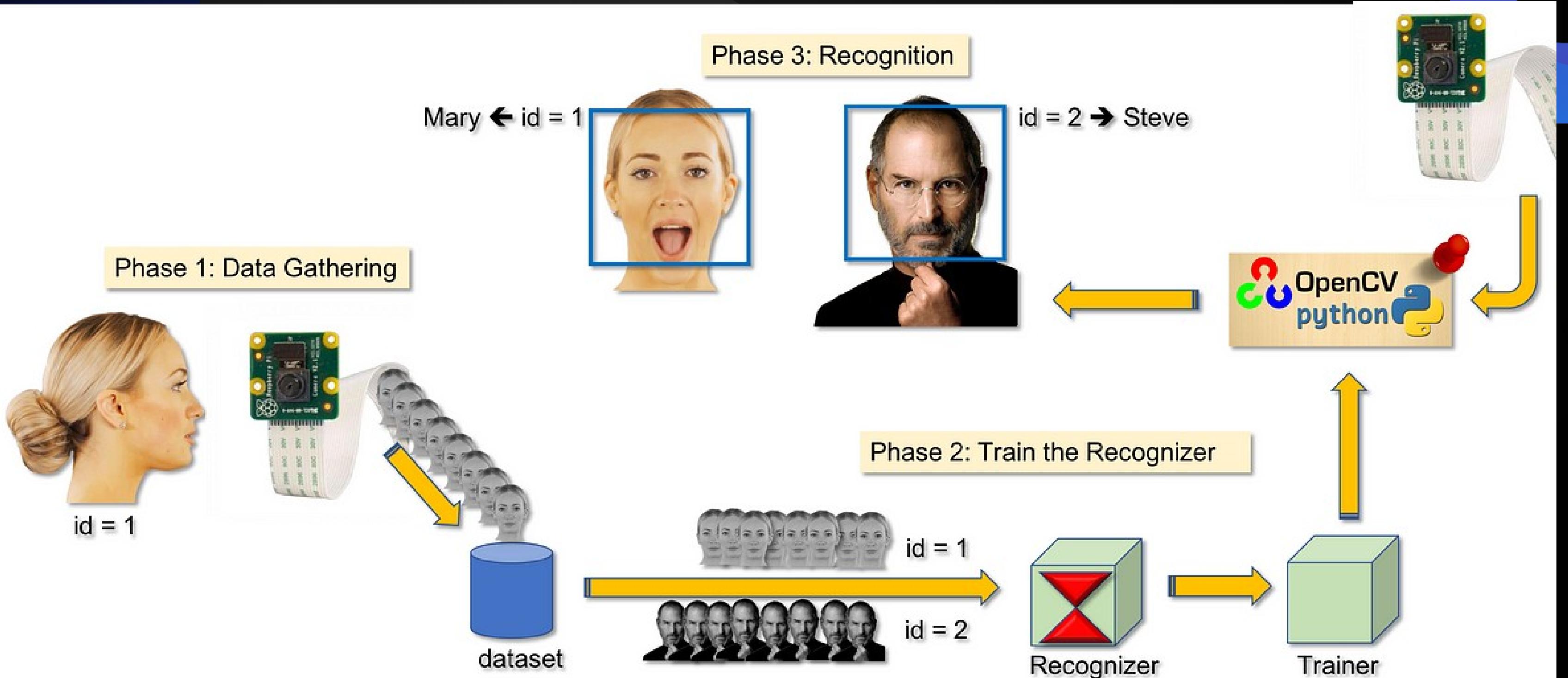
- Here store the details of the persons by using the database.
- For this we import the module MYSQL.CONNECTOR by using this we connect to database.
- The name of the database is Authorized_user.

- The table name used in this database is my_table.
- By using the cursor() function to allow python code to execute sql commands in a database session.
- By using Fetchall() method to retrieves all the rows in the result set of a query returns them list of tuples.



Converting the project into .exe file (app):

- First install pyinstaller.
- Next run the command “ pyinstaller –onefile –w GUI_Face_Recognition.py ”
- By this command convert GUI_Face_Recognition.py into .exe file (app).



Conclusion

Finally create the face recognition app which is used to generate dataset, train classifier and detect the faces. It is used to recognize the faces of the people which are trained in the dataset



THANK YOU