



## What is Face Recognition :

Face Recognition is a technology in computer vision. In Face recognition / detection we locate and visualize the human faces in any digital image. It is a subdomain of Object Detection, where we try to observe the instance of semantic objects.

Facial recognition is a category of biometric security. Other forms of biometric software include voice recognition, fingerprint recognition, and eye retina or iris recognition. The technology is mostly used for security and law enforcement, though there is increasing interest in other areas of use.

## Process of Making Face Recognition System :

First we need **SIX(6)** modules installed to get started

- 1.) **CV2** : It captures the video feed from the webcam and performs image processing.
- 2.) **Face\_Recognition** : It is the showstopper module in this project. It extracts the data of facial complexities and performs several complicated processing to take unique data of the video feed face and pre trained faces.
- 3.) **NumPy** : It performs complicated Mathematical calculation to find the best possible match of the pre trained images and the images taken from video feed.
- 4.) **OS** : It helps the program to find the proper directory to run a loop through that directory to access the trained images.
- 5.) **CSV** : It helps the program to create an Excel file and perform all the file handling related tasks to register the data from the program output.
- 6.) **datetime** : It captures the exact date time to give the Excel file a name based on (Date-Month-Year) and also captures the exact time of check in in terms of (Hour : Minute : Seconds)



Face Recognition system.py X

Face Recognition system.py > ...

```
1  import face_recognition
2  import cv2
3  import numpy as np
4  import csv
5  import os
6  from datetime import datetime
7
8  video_capture = cv2.VideoCapture(0)
9  |
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.scandir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.replace("\\", "/"))
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file(known_faces_name)
20     generated_encoding = face_recognition.face_encodings(loaded_image)[0]
21     known_face_encoding.append(generated_encoding)
22
23 students = known_faces_names.copy()
24
25 face_locations = []
26 face_encodings = []
27 face_names = []
28 s = True
29
30 now = datetime.now()
31 current_date = now.strftime("%d-%m-%Y")
32
33 f = open(current_date+'.csv', 'w+', newline = '')
```

```
34 lnwriter = csv.writer(f)
35
36 while True:
37     _,frame = video_capture.read()
38     small_frame = cv2.resize(frame,(0,0),fx = 0.25,fy = 0.25)
39     rgb_small_frame = small_frame[:,::-1]
40     if s:
41         face_locations = face_recognition.face_locations(rgb_small_frame)
42         face_encodings = face_recognition.face_encodings(rgb_small_frame, face_locations)
43         face_names = []
44         for face_encoding in face_encodings:
45             matches = face_recognition.compare_faces(known_face_encoding, face_encoding)
46             name = ""
47             face_distance = face_recognition.face_distance(known_face_encoding, face_encoding)
48             best_match_index = np.argmin(face_distance)
49             if matches[best_match_index]:
50                 name = known_faces_names[best_match_index]
51
52             face_names.append(name)
53             if name in known_faces_names:
54                 if name in students:
55                     students.remove(name)
56                     student_name = name.replace(directory+"/","").replace(".jpg","")
57                     now_new = datetime.now()
58                     current_time = now_new.strftime("%H:%M:%S")
59                     print("'' + student_name + '' + "Checked in at : " + current_time)
60                     lnwriter.writerow([student_name,current_time])
61 cv2.imshow("Attendance System", frame)
62 if cv2.waitKey(1) & 0xFF == ord('q'):
63     print("Attendance Taken Successfully")
64     break
65
66 video_capture.release()
```



```
67 cv2.destroyAllWindows()  
68 f.close()
```

## Trained Images List :



# **OUTPUTS OF THE PROGRAM**

Visual Studio Code interface showing a Python project titled "Face Recognition system.py".

**EXPLORER**

- PYTHON PROJECT
  - code image
    - Trained\_images
      - Arnab Das.jpg
      - Ayan Mukherjee....
      - Bill Gates.jpg
      - Elon Musk.jpg
      - Jake Gyllenhaal.j...
      - Ratan Tata.jpg
      - Ryan Gosling.jpg
      - Sayan Mukherje...
      - Souvik Saha.jpg
      - SRC sir.jpg
      - Virat Kohli.jpg
      - 11-11-2022.csv
      - Face Recognition ...
      - Face\_detection.py
      - tempCodeRunner...
      - test.py

**Face Recognition system.py**

```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.listdir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.rep
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file
```

**ATTENDANCE SYSTEM**

Video feed showing a person's face being captured by a camera.

**TERMINAL**

```
Microsoft Windows [Version 10.0.19044.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"
```

Ln 33, Col 48 Spaces: 4 UTF-8 CRLF Python 3.10.6 64-bit Go Live



Visual Studio Code interface showing a Python project titled "Face Recognition system.py".

**EXPLORER:**

- PYTHON PROJECT
  - code image
    - Trained\_images
      - Arnab Das.jpg
      - Ayan Mukherjee....
      - Bill Gates.jpg
      - Elon Musk.jpg
      - Jake Gyllenhaal.j...
      - Ratan Tata.jpg
      - Ryan Gosling.jpg
      - Sayan Mukherje...
      - Souvik Saha.jpg
      - SRC sir.jpg
      - Virat Kohli.jpg
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**Face Recognition system.py**


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7
8 video_capture = cv2.VideoCapture(0)
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10 directory = 'Trained_images'
11 known_faces_names = []
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14 for filename in os.scandir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.rep
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file
```

**TERMINAL:**

```
Microsoft Windows [Version 10.0.19044.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"
'Bill Gates'Checked in at : 00:26:37
```

**Attendance System:**





Visual Studio Code interface showing a Python project titled "Face Recognition system.py". The Explorer pane on the left lists files in the "PYTHON PROJECT" folder, including "code image", "Trained\_images", and various image files (e.g., "Arnab Das.jpg", "Ayan Mukherjee.jpg", "Bill Gates.jpg", "Elon Musk.jpg", "Jake Gyllenhaal.jpg", "Ratan Tata.jpg", "Ryan Gosling.jpg", "Sayan Mukherjee.jpg", "Souvik Saha.jpg", "SRC sir.jpg", "Virat Kohli.jpg"). The main editor displays the code for "Face Recognition system.py", which imports libraries like face\_recognition, cv2, numpy, csv, and os, and uses VideoCapture to process video frames. The terminal output shows the execution of the script, displaying the following messages:

```
Microsoft Windows [Version 10.0.19044.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"
'Bill Gates'Checked in at : 00:26:37
'Arnab Das'Checked in at : 00:27:42
'Ayan Mukherjee'Checked in at : 00:27:44
```

The terminal output is highlighted with a red box. The system clock in the bottom right corner shows 00:27, also highlighted with a red box. A secondary window titled "Attendance System" is visible, displaying a video feed of two individuals, with facial recognition markers overlaid on their faces.



Visual Studio Code interface showing a Python project titled "Face Recognition system.py".

**EXPLORER:**

- PYTHON PROJECT
  - code image
    - Trained\_images
      - Arnab Das.jpg
      - Ayan Mukherjee...
      - Bill Gates.jpg
      - Elon Musk.jpg
      - Jake Gyllenhaal.j...
      - Ratan Tata.jpg
      - Ryan Gosling.jpg
      - Sayan Mukherje...
      - Souvik Saha.jpg
      - SRC sir.jpg
      - Virat Kohli.jpg
      - 11-11-2022.csv
      - Face Recognition ...
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      - tempCodeRunner...
      - test.py

**Face Recognition system.py**


```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.listdir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.rep
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file
```

**TERMINAL:**

```
Microsoft Windows [Version 10.0.19044.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"
'Bill Gates'Checked in at : 00:26:37
'Arnab Das'Checked in at : 00:27:42
'Ayan Mukherjee'Checked in at : 00:27:44
'Elon Musk'Checked in at : 00:29:00
```

**Attendance System**



The video feed shows a person's face on a screen, likely the output of the face recognition system.

**Status Bar:** Ln 33, Col 48 Spaces: 4 UTF-8 CRLF Python 3.10.6 64-bit Go Live ENG 00:29



Visual Studio Code interface showing a Python project titled "Face Recognition system.py". The Explorer pane on the left lists files in the "PYTHON PROJECT" directory, including "code image", "Trained\_images", and various image files (e.g., "Arnab Das.jpg", "Ayan Mukherjee.jpg", "Bill Gates.jpg", "Elon Musk.jpg", "Jake Gyllenhaal.jpg", "Ratan Tata.jpg", "Ryan Gosling.jpg", "Sayan Mukherjee.jpg", "Souvik Saha.jpg", "SRC sir.jpg", "Virat Kohli.jpg"). The "Face Recognition system.py" file is open in the editor, displaying Python code for face recognition using OpenCV and NumPy. The code includes imports, directory setup, and a loop to process images from the "Trained\_images" directory. The Terminal pane at the bottom shows the execution output, indicating successful face recognition for several individuals, with the last entry, "Souvik Saha", highlighted in red.

```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.listdir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.replace(directory, ''))
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file(known_faces_name)
```

Microsoft Windows [Version 10.0.19044.2130]  
(c) Microsoft Corporation. All rights reserved.

C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"

'Bill Gates'Checked in at : 00:26:37  
'Arnab Das'Checked in at : 00:27:42  
'Ayan Mukherjee'Checked in at : 00:27:44  
'Elon Musk'Checked in at : 00:29:00  
'Souvik Saha'Checked in at : 00:30:00

The "Attendance System" window displays a video feed of a person's face being recognized by the system. The status bar at the bottom indicates the current line and column (Ln 33, Col 48) and the time (00:30).



Visual Studio Code interface showing a Python project titled "Face Recognition system.py".

**EXPLORER:**

- PYTHON PROJECT
  - code image
    - Trained\_images
      - Arnab Das.jpg
      - Ayan Mukherjee...
      - Bill Gates.jpg
      - Elon Musk.jpg
      - Jake Gyllenhaal.j...
      - Ratan Tata.jpg
      - Ryan Gosling.jpg
      - Sayan Mukherje...
      - Souvik Saha.jpg
      - SRC sir.jpg
      - Virat Kohli.jpg
      - 11-11-2022.csv
      - Face Recognition ...
      - Face\_detection.py
      - tempCodeRunner...
      - test.py

**Face Recognition system.py**

```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.listdir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.rep
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file
```


**TERMINAL:**

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(c) Microsoft Corporation. All rights reserved.

C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"

'Bill Gates'Checked in at : 00:26:37  
'Arnab Das'Checked in at : 00:27:42  
'Ayan Mukherjee'Checked in at : 00:27:44  
'Elon Musk'Checked in at : 00:29:00  
'Souvik Saha'Checked in at : 00:30:00  
'Sayan Mukherjee'Checked in at : 00:31:00

**Attendance System**



The image shows a smartphone screen held by a hand. The screen displays a photo of a man with dark hair and a mustache. Above the photo, the text "Babi Airtel" is visible. The phone's status bar at the top shows the time as 08:30 and various icons.



Visual Studio Code interface showing a Python project titled "Face Recognition system.py". The Explorer pane on the left lists files in the "PYTHON PROJECT" folder, including "code image", "Trained\_images", and various image files (e.g., "Arnab Das.jpg", "Ayan Mukherjee.jpg", "Bill Gates.jpg", "Elon Musk.jpg", "Jake Gyllenhaal.jpg", "Ratan Tata.jpg", "Ryan Gosling.jpg", "Sayan Mukherjee.jpg", "Souvik Saha.jpg", "SRC sir.jpg", "Virat Kohli.jpg", "11-11-2022.csv", "Face Recognition ...", "Face\_detection.py", "tempCodeRunner...", "test.py").

The main editor displays the code for "Face Recognition system.py":

```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.scandir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.replace('\\', '/'))
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file(known_faces_name)
```

The TERMINAL pane shows the output of running the script:

```
Microsoft Windows [Version 10.0.19044.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"
'Bill Gates'Checked in at : 00:26:37
'Arnab Das'Checked in at : 00:27:42
'Ayan Mukherjee'Checked in at : 00:27:44
'Elon Musk'Checked in at : 00:29:00
'Souvik Saha'Checked in at : 00:30:00
'Sayan Mukherjee'Checked in at : 00:31:00
'Jake Gyllenhaal'Checked in at : 00:32:04
```

The status bar at the bottom indicates the current position is Ln 33, Col 48, Spaces: 4, UTF-8, CRLF, Python 3.10.6 64-bit, and the time is 00:32.

An "Attendance System" window is overlaid on the right, displaying a video feed of a person's face (Jake Gyllenhaal) being recognized by the system.



Visual Studio Code interface showing a Python project titled "Face Recognition system.py". The Explorer pane on the left lists files in the "PYTHON PROJECT" directory, including "Trained\_images" and various image files (e.g., "Arnab Das.jpg", "Ayan Mukherjee.jpg", "Bill Gates.jpg", "Elon Musk.jpg", "Jake Gyllenhaal.jpg", "Ratan Tata.jpg", "Ryan Gosling.jpg", "Sayan Mukherjee.jpg", "Souvik Saha.jpg", "SRC sir.jpg", "Virat Kohli.jpg"). The main editor displays the code for "Face Recognition system.py", which imports libraries like face\_recognition, cv2, numpy, csv, os, and datetime, and uses video\_capture to process images. The terminal output shows the execution of the script, displaying a list of names and their corresponding check-in times. The last line of the output, "'Ryan Gosling'Checked in at : 00:32:56", is highlighted with a red box. A small window titled "Attendance System" is also visible, showing a video feed of a person's face on a smartphone screen.

```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.scandir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.replace('\\', '/'))
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file(known_faces_name)
```

Microsoft Windows [Version 10.0.19044.2130]  
(c) Microsoft Corporation. All rights reserved.

C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"

'Bill Gates'Checked in at : 00:26:37  
'Arnab Das'Checked in at : 00:27:42  
'Ayan Mukherjee'Checked in at : 00:27:44  
'Elon Musk'Checked in at : 00:29:00  
'Souvik Saha'Checked in at : 00:30:00  
'Sayan Mukherjee'Checked in at : 00:31:00  
'Jake Gyllenhaal'Checked in at : 00:32:04  
'Ryan Gosling'Checked in at : 00:32:56

Ln 33, Col 48 Spaces: 4 UTF-8 CRLF Python 3.10.6 64-bit Go Live

ENG 00:33



Visual Studio Code interface showing a Python project titled "Face Recognition system.py". The Explorer pane on the left lists files in the "PYTHON PROJECT" directory, including "code image", "Trained\_images", and various image files (e.g., Arnab Das.jpg, Ayan Mukherjee.jpg, Bill Gates.jpg, Elon Musk.jpg, Jake Gyllenhaal.jpg, Ratan Tata.jpg, Ryan Gosling.jpg, Sayan Mukherjee.jpg, Souvik Saha.jpg, SRC sir.jpg, Virat Kohli.jpg) and a CSV file "11-11-2022.csv". The main editor displays the code for "Face Recognition system.py", which imports libraries (face\_recognition, cv2, numpy, csv, os, datetime) and uses video capture to check in faces from the "Trained\_images" directory. The terminal output shows the execution of the script, listing checked-in faces and their timestamps. The "Attendance System" window displays a video feed of a person's face being recognized.

```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.scandir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.replace(directory, ''))
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file(known_faces_name)
```

Terminal Output:

```
(c) Microsoft Corporation. All rights reserved.
C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"
'Bill Gates'Checked in at : 00:26:37
'Arnab Das'Checked in at : 00:27:42
'Ayan Mukherjee'Checked in at : 00:27:44
'Elon Musk'Checked in at : 00:29:00
'Souvik Saha'Checked in at : 00:30:00
'Sayan Mukherjee'Checked in at : 00:31:00
'Jake Gyllenhaal'Checked in at : 00:32:04
'Ryan Gosling'Checked in at : 00:32:56
'Virat Kohli'Checked in at : 00:33:56
```

Attendance System window shows a video feed of a person's face being recognized.

Bottom status bar: Ln 33, Col 48 Spaces: 4 UTF-8 CRLF Python 3.10.6 64-bit Go Live ENG 00:34




Visual Studio Code interface showing a Python project titled "Face Recognition system.py". The Explorer pane on the left lists files in the "PYTHON PROJECT" directory, including "code image", "Trained\_images", and various image files (e.g., "Arnab Das.jpg", "Ayan Mukherjee.jpg", "Bill Gates.jpg", "Elon Musk.jpg", "Jake Gyllenhaal.jpg", "Ratan Tata.jpg", "Ryan Gosling.jpg", "Sayan Mukherjee.jpg", "Souvik Saha.jpg", "SRC sir.jpg", "Virat Kohli.jpg") and a CSV file "11-11-2022.csv". The main editor displays the code for "Face Recognition system.py", which imports libraries like face\_recognition, cv2, numpy, csv, os, and datetime, and implements a face recognition system using video capture and known face encodings. The terminal output shows the execution of the script, displaying a list of names and their corresponding check-in times, with the last entry, "Ratan Tata", highlighted in red.

```
Face Recognition system.py > ...
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.scandir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.replace('\\', '/'))
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file(known_faces_name)
```

Terminal Output:

```
C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"
'Bill Gates'Checked in at : 00:26:37
'Arnab Das'Checked in at : 00:27:42
'Ayan Mukherjee'Checked in at : 00:27:44
'Elon Musk'Checked in at : 00:29:00
'Souvik Saha'Checked in at : 00:30:00
'Sayan Mukherjee'Checked in at : 00:31:00
'Jake Gyllenhaal'Checked in at : 00:32:04
'Ryan Gosling'Checked in at : 00:32:56
'Virat Kohli'Checked in at : 00:33:56
'Ratan Tata'Checked in at : 00:34:48
```

The status bar at the bottom indicates the current file is "Face Recognition system.py" at line 33, column 48, using UTF-8 encoding. The system clock shows 00:34.





Visual Studio Code interface showing a Python project titled "Face Recognition system.py".

**EXPLORER:**

- PYTHON PROJECT
  - code image
    - Trained\_images
      - Arnab Das.jpg
      - Ayan Mukherjee....
      - Bill Gates.jpg
      - Elon Musk.jpg
      - Jake Gyllenhaal.j...
      - Ratan Tata.jpg
      - Ryan Gosling.jpg
      - Sayan Mukherje...
      - Souvik Saha.jpg
      - SRC sir.jpg
      - Virat Kohli.jpg
    - 11-11-2022.csv
    - Face Recognition ...
    - Face\_detection.py
    - tempCodeRunner...
    - test.py

**Face Recognition system.py**

```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.listdir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.rep
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file
```

**TERMINAL:**

```
C:\Users\amukh\Desktop\Python Project>python -u "c:\Users\amukh\Desktop\Python Project\Face Recognition system.py"
'Bill Gates'Checked in at : 00:26:37
'Arnab Das'Checked in at : 00:27:42
'Ayan Mukherjee'Checked in at : 00:27:44
'Elon Musk'Checked in at : 00:29:00
'Souvik Saha'Checked in at : 00:30:00
'Sayan Mukherjee'Checked in at : 00:31:00
'Jake Gyllenhaal'Checked in at : 00:32:04
'Ryan Gosling'Checked in at : 00:32:56
'Virat Kohli'Checked in at : 00:33:56
'Ratan Tata'Checked in at : 00:34:48
'SRC sir'Checked in at : 00:35:31
```

**Attendance System:**

A video feed showing a man with glasses and a white shirt, identified as "SRC sir", being processed by the system. The video is displayed in a window titled "Attendance System".

**Status Bar:**

Ln 33, Col 48 Spaces: 4 UTF-8 CRLF Python 3.10.6 64-bit Go Live ENG 00:35

Visual Studio Code interface showing a Python project titled "Face Recognition system.py".

**EXPLORER:**

- PYTHON PROJECT
  - code image
    - Trained\_images
      - Arbab Das.jpg
      - Ayan Mukherjee...
      - Bill Gates.jpg
      - Elon Musk.jpg
      - Jake Gyllenhaal.jpg
      - Ratan Tata.jpg
      - Ryan Gosling.jpg
      - Sayan Mukherjee...
      - Souvik Saha.jpg
      - SRC sir.jpg
      - Virat Kohli.jpg
      - 11-11-2022.csv
      - Face Recognition ...
      - Face\_detection.py
      - tempCodeRunner...
      - test.py

**Face Recognition system.py > ...**

```
1 import face_recognition
2 import cv2
3 import numpy as np
4 import csv
5 import os
6 from datetime import datetime
7
8 video_capture = cv2.VideoCapture(0)
9
10 directory = 'Trained_images'
11 known_faces_names = []
12 known_face_encoding = []
13
14 for filename in os.scandir(directory):
15     if filename.is_file():
16         known_faces_names.append(filename.path.replace("\\", "/"))
17
18 for known_faces_name in known_faces_names:
19     loaded_image = face_recognition.load_image_file(known_faces_name)
```

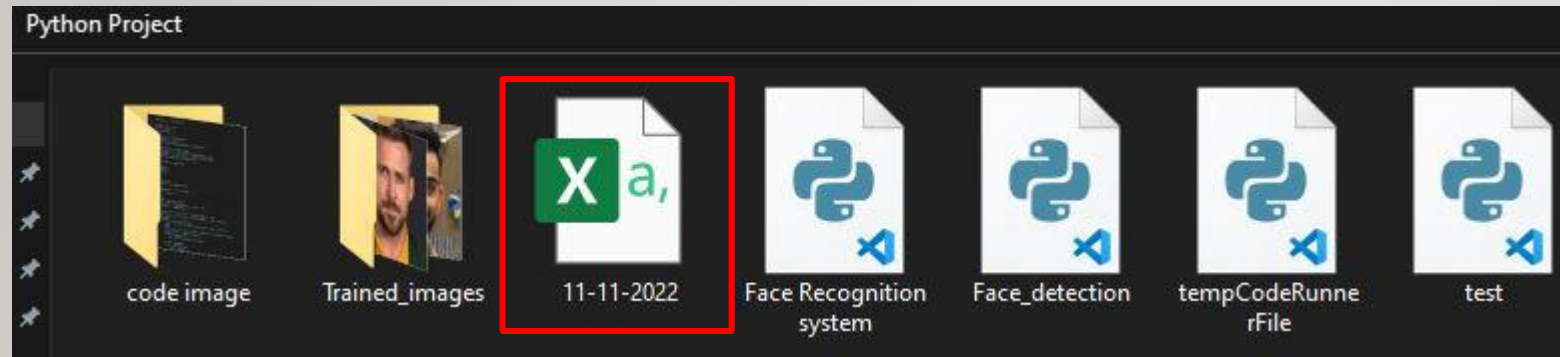
**TERMINAL:**

```
'Arbab Das'Checked in at : 00:27:42
'Ayan Mukherjee'Checked in at : 00:27:44
'Elon Musk'Checked in at : 00:29:00
'Souvik Saha'Checked in at : 00:30:00
'Sayan Mukherjee'Checked in at : 00:31:00
'Jake Gyllenhaal'Checked in at : 00:32:04
'Ryan Gosling'Checked in at : 00:32:56
'Virat Kohli'Checked in at : 00:33:56
'Ratan Tata'Checked in at : 00:34:48
'SRC sir'Checked in at : 00:35:31
Attendance Taken Successfully
```

**STATUS BAR:** Ln 33, Col 48 Spaces: 4 UTF-8 CRLF Python 3.10.6 64-bit Go Live ENG 00:36



## Excel File Creation :



## Excel File Data Images :

A1 Bill Gates				
	A	B	C	D
1	Bill Gates	00:26:37		
2	Arnab Das	00:27:42		
3	Ayan Mukherjee	00:27:44		
4	Elon Musk	00:29:00		
5	Souvik Saha	00:30:00		
6	Sayan Mukherjee	00:31:00		
7	Jake Gyllenhaal	00:32:04		
8	Ryan Gosling	00:32:56		
9	Virat Kohli	00:33:56		
10	Ratan Tata	00:34:48		
11	SRC sir	00:35:31		
12				
13				

```
'Arnab Das'Checked in at : 00:27:42
'Ayan Mukherjee'Checked in at : 00:27:44
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'Ryan Gosling'Checked in at : 00:32:56
'Virat Kohli'Checked in at : 00:33:56
'Ratan Tata'Checked in at : 00:34:48
'SRC sir'Checked in at : 00:35:31
Attendance Taken Successfully
```

```
C:\Users\amukh\Desktop\Python Project>
```



## **Purpose of this Project :**

We have seen lots of mayhem in recent few years and one of them was COVID-19 which vastly dominated the cause of various changes in our society till date.

In 21<sup>st</sup> century where everything is digitally connected with everything, Our this little project is looking forward to join this revolution.

This Face Recognition system is very accurate and effective and posts a challenge to the various biometric security options available out there.

As this process is contactless, it is very beneficial to implement Face Recognition system, making it a good alternative of fingerprint scanner because that is touched by many people and that is the last thing you want in COVID effected society.

Face Recognition system significantly decreases the chance of contamination.

As we have shown just one use of the Face Recognition process implementing with Attendance System, In Real possibilities are endless.