Microsoft Engage ‘22

Project Documentation

GitHub Link – https://github.com/Srijan004/attendance-face-rec

Developed By :-

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Contents:

Project Description :

My project is on mark attendance, using the face-recognition technology. It is a web application which first requires the user to register him/her. The image clicked during the registration of the employee is used to train the face-recognition model, the model then stores the face-encodings of the image, and matches it with the image sent from the frontend every time the employee tries to mark attendance.

Features :

1. Register a new employee and click his/her registration image.

2. Verification of the registration image clicked by user, checks for clarity of image, and make sure that a solo image is clicked by the user.

3. Login as employee and mark your entry-time/exit-time attendance using face-recognition.

4. Assess employees' performance with the help of working hours vs. date bar graph.

5. Login as admin to search for the attendance data of any employee, as well as for any particular date.

6. View your profile as employee and search your attendance for any range of dates.

7. Keeps sync between the marking of entry time and exit time attendance, i.e. exit time attendance can be marked only if entry time attendance is marked on that day.

Technologies Used :

1. Frontend : -

I used ReactJS for frontend. For adding styles, I used CSS. I also used some in-built libraries of React, like:

1. Chart.js
2. React-hot-toast
3. React-Datepicker
4. React-Webcam

2. Backend :-

I used Flask for building the backend Routes, and for face recognition I used :-

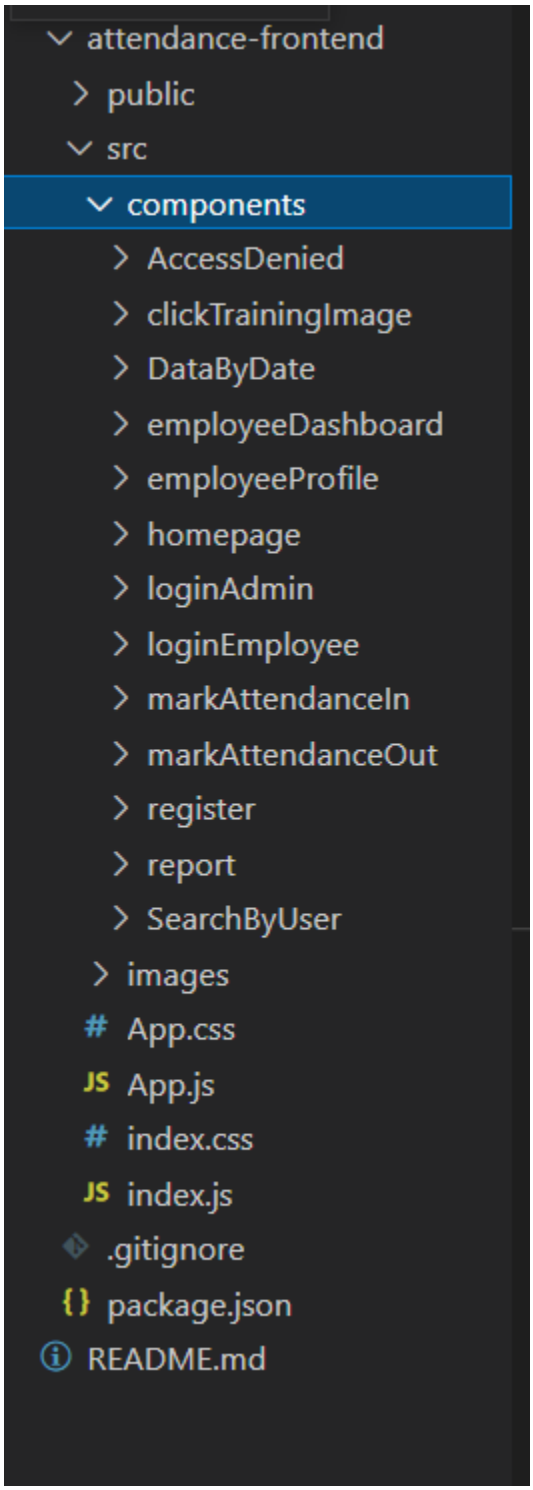
1. Dlib
2. Cmake
3. Face-recognition
4. Face-recognition-models
5. Opencv-python-headless
6. Numpy [for calculating face_distance]

3. Database :-

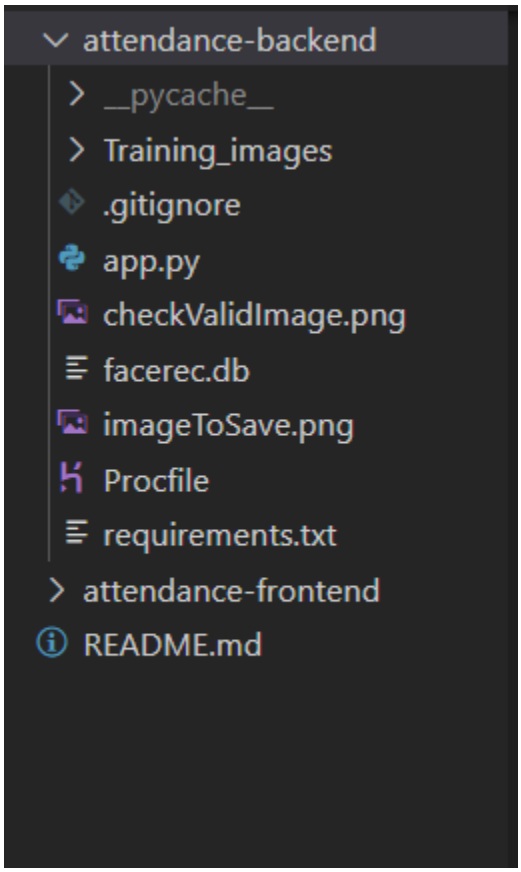
I used SQLite for Database and flask_sqlalchemy module of python for handling create-read-update queries.

Project Directory :

1. Frontend



2. Backend



Problems Faced :

After the attendance for any employee was marked in, the 'Get Attendance Report' feature would make the website crash, because for fetching the attendance report, the time duration of the employee was required. When the app tries to calculate the time duration and asks for the Out-time, the app crashes, because the employee hasn't marked his out-time attendance yet.

To resolve this, I made the 'Get Attendance Report' feature inaccessible when any employee has only marked his/her in-time attendance. After the

employee marks his/her Out-time attendance, the ‘Get Attendance Feature’ becomes functional again.