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Project Entitled as

Smart Attendance System (using face recognition)

A

Project Report on

Smart attendance system (using face recognition)

Submitted to

Savitribai Phule Pune University

In the partial fulfillment of the requirement of the award of the degree

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By

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Mini Project Index

INDEX

1. Chapter 1: Introduction

1.1 Existing System and Need for System:

The Existing system is a manual entry for the students. Here the attendance will be carried out in the hand written registers.It will be a tedious job to maintain the record for the user. the human effort is more here. The retrieval of the information is not as easy as the records are maintained in the hand written registers. This application requires correct feed on input into the respective field. Suppose the wrong inputs are entered, the application resist to work. so the user find it difficult to use.

1.2 Scope of Work:

- Analyse student attendance details as per requirement.
- Reduction of paperwork and elimination of errors.
- Manage all ongoing activities on a real-time basis.
- Smoothen administration and college/school management.
- Improve the productivity of an institution.

1.3 Operating System

- Windows 10
- Browser (firefox & chrome)

1.4 Software & Hardware

- Memory – 1GB RAM
- Hard Disk – Min. 2 GB
- Memory – Min. 1GB RAM

1.5 Technology Used

- ♠ Front-end: HTML5 , CSS3
- ♠ Back-end : python
- ♠ Framework: Django
- ♠ Database : SQLITE

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Chapter 2: Proposed System

2.1 Proposed System:

The purpose of this document is to specify software requirements of the Attendance Management System Using Face Recognition. It is intended to be a complete specification of what functionality the Attendance Management System provides. Furthermore, this project aims to automate the traditional attendance system where the attendance is marked manually. It also enables an organization to maintain its records like in-time, out time, break time and attendance digitally. Digitalization of the system would also help in better visualization of the data using graphs to display the no. of employees present today, total work hours of each employee and their break time. Its added features serve as an efficient upgrade and replacement over the traditional attendance system.

2.2 Objective of System:

- This project aims to automate the traditional attendance system where the attendance is marked manually.
- It also enables an organization to maintain its records like in-time, out time and attendance digitally.
- Digitalization of the system would also help in better visualization of the data using graphs to display the no. of students present today, total wsssork hours of each student.
- Its added features serve as an efficient upgrade and replacement over the traditional attendance system.

-

2.3 Module Specification:

- **User Management**

Registration :

This module mainly deals with the functionalities related to the registration of any new student to the organization, login into the system and managing students profile details.

Login :

Using features provided by this module admin can register new employee to the system and admin / students both can log into the system using their credentials.

Attendance Management

This module mainly deals with the features related to the student's attendance. Using this, student can mark their presence, time-in and time-out in the system.

Admin can see the availability report of each student, students can see his/her attendance report along with some possible filters such as filter by student and filter by date.

- **Student Management**

This module mainly deals with the features related to the student's profile. Using this admin can add a photo of the newly registered student during registration.

Admin can also command the system explicitly to train the model and system will make necessary calculation and will generate some data which will be used internally to identify each student uniquely.

2.4 User Requirements:

- UI Should Interactive.

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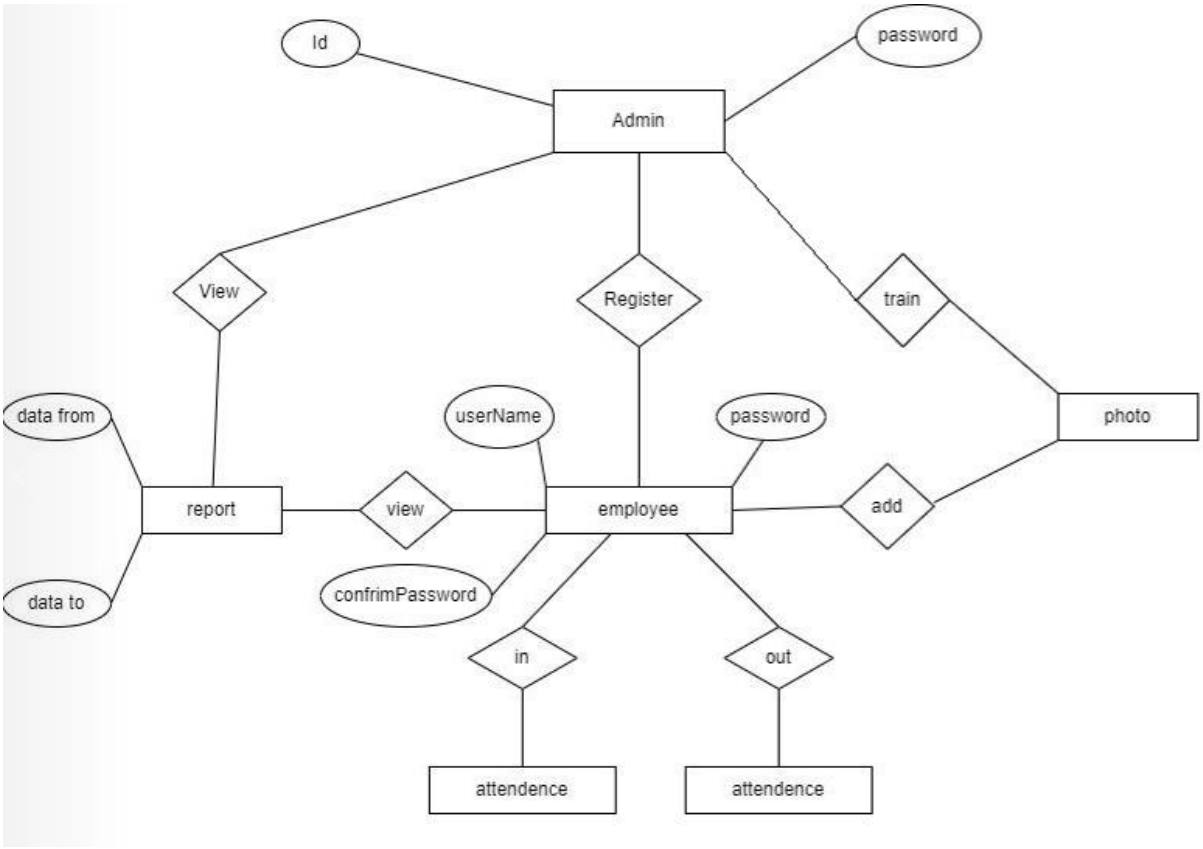
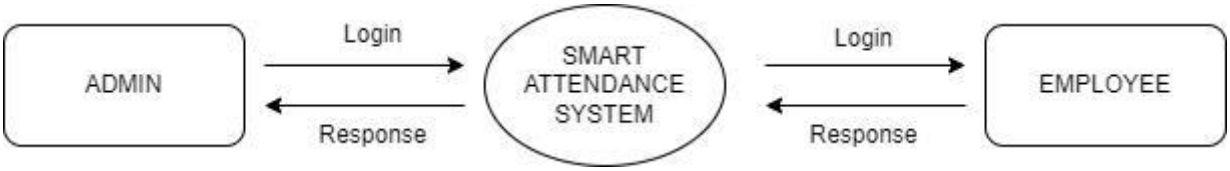
Chapter 3: Analysis & Design

3.1 ER Diagram:

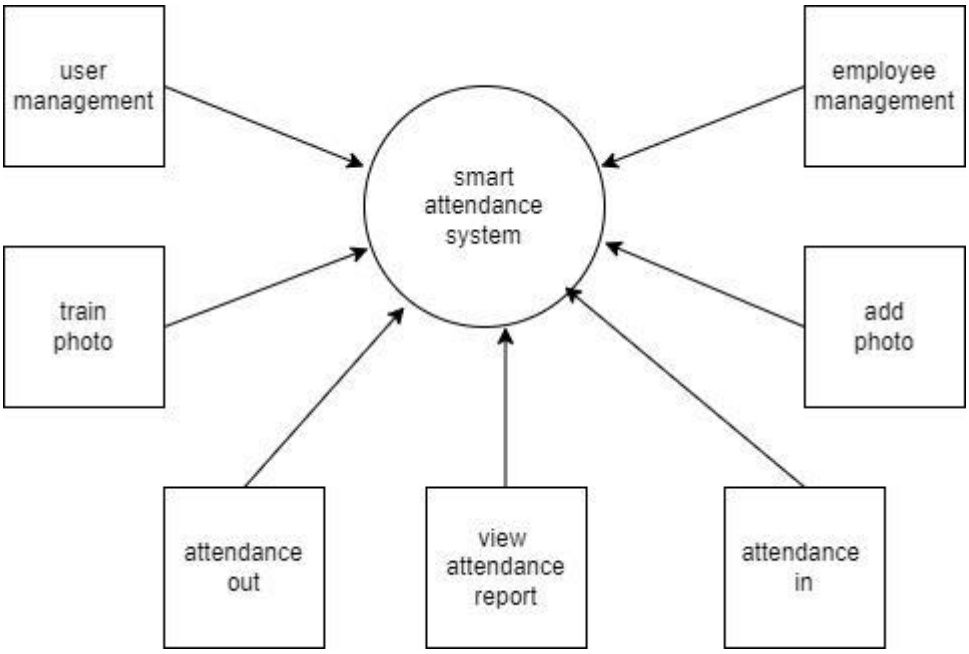


-

Zero Level DFD-

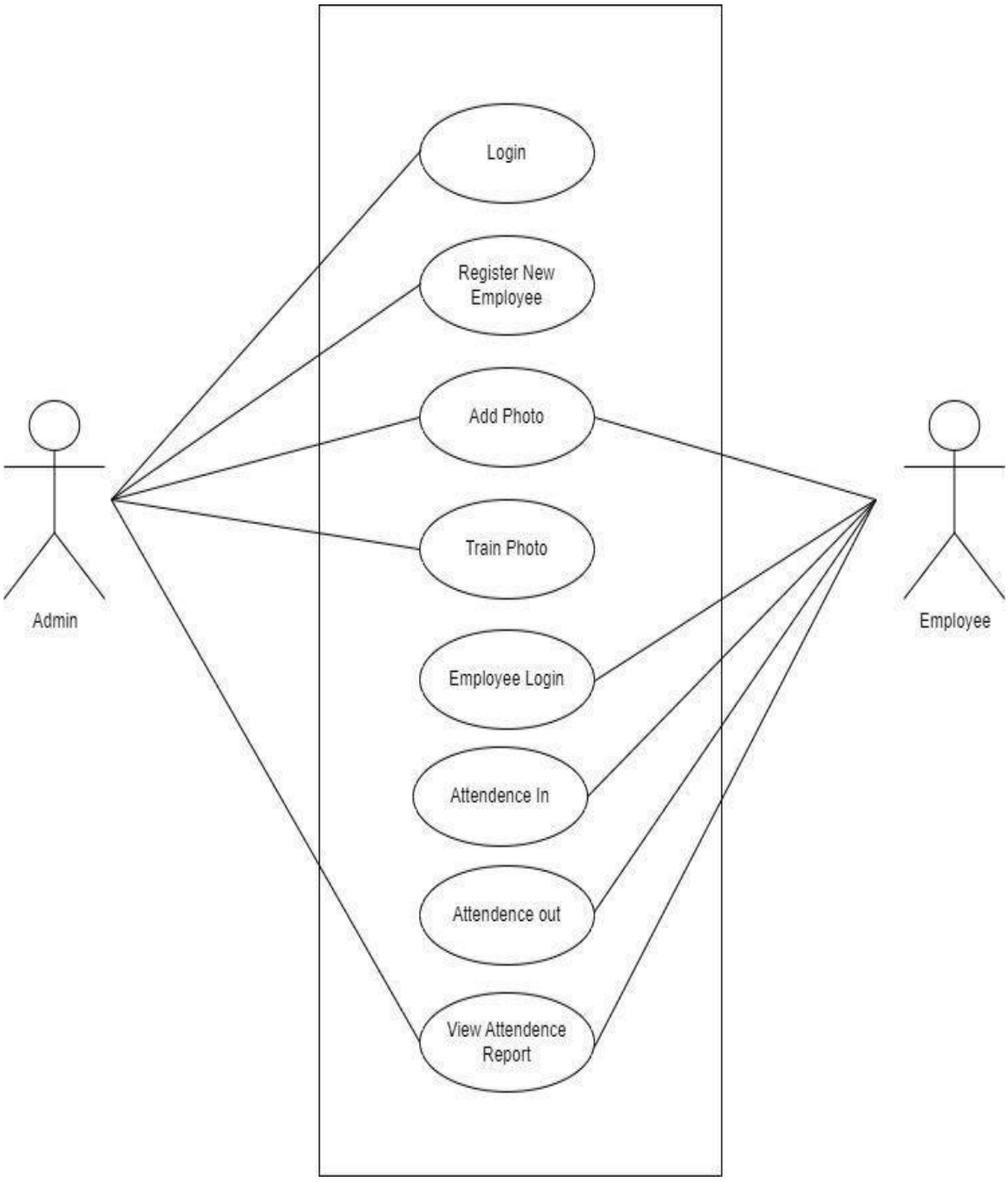


1st Level DFD-



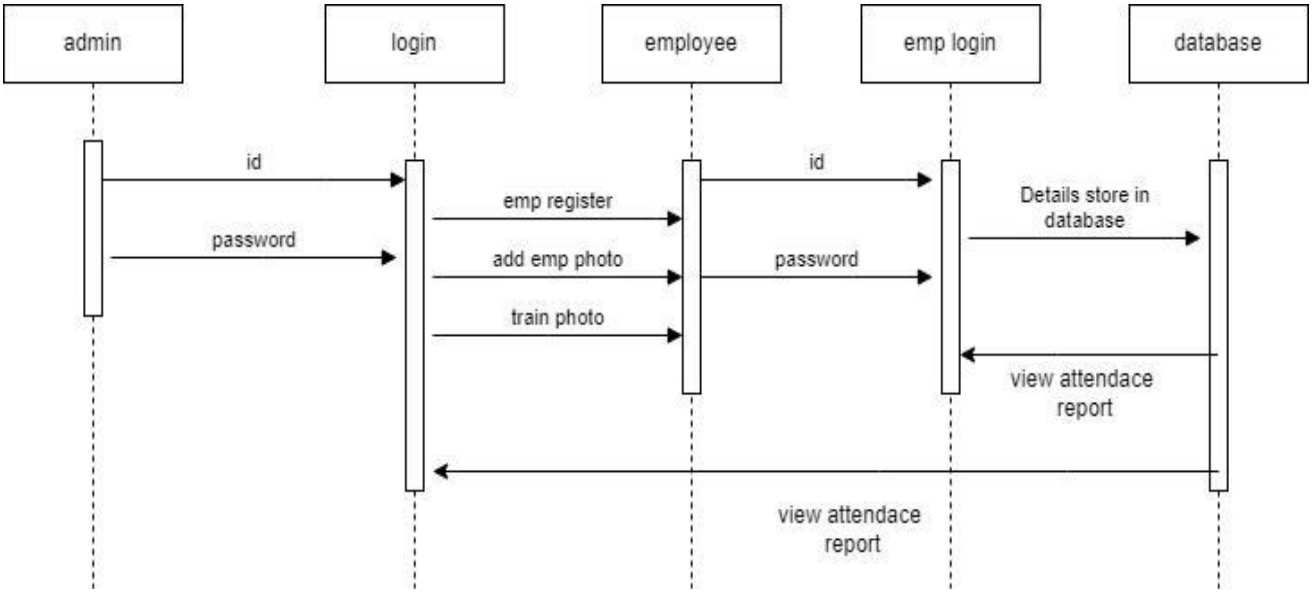
-

3.3 Use Case:


Login
Register New Employee
Add Photo
Train Photo
Employee Login
Attendence In
Attendence out
View Attendence Report
Admin
Employee

-

3.4 Sequence Diagram:



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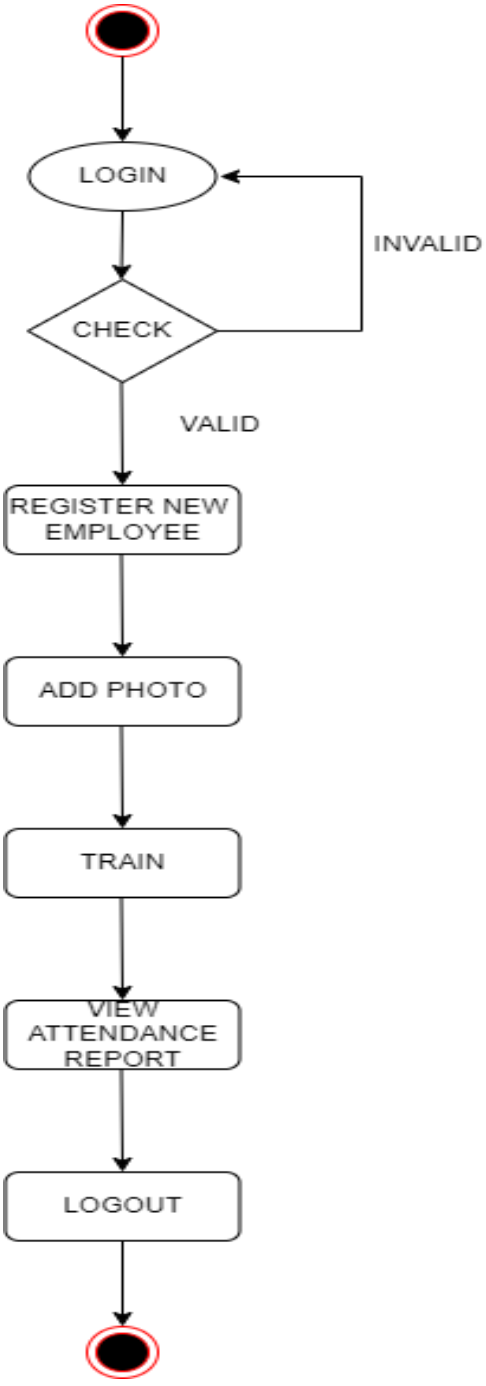
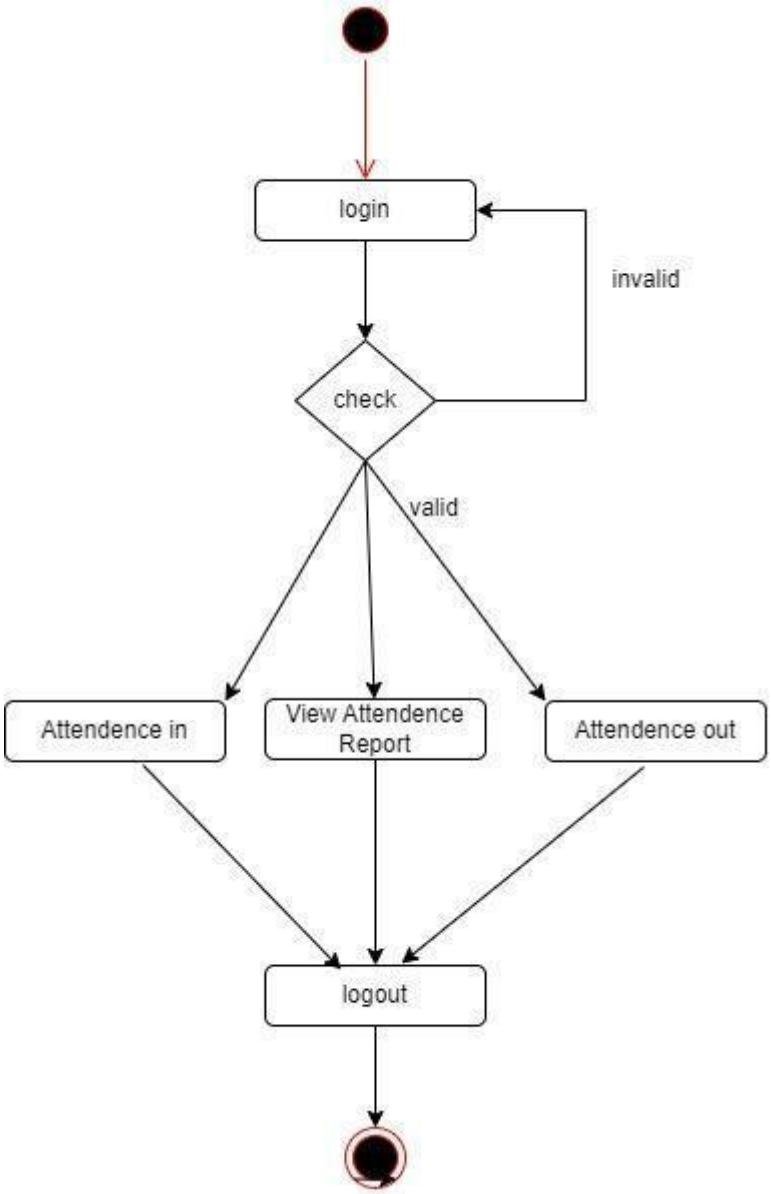
3.5 Activity Diagram:

Admin –



-

User –


login
invalid
check
valid
Attendence in
View Attendence Report
Attendence out
logout

•

Table Design:

[Sr no. Name, Data type, Size]

Table Name : Admin

Sr.No	Name	Data Type	Size	Constraints	Description
1.	Id	INTEGER	11	PRIMARY KEY	User id
2.	Action_time	DATE	20	NOT NULL	Time of action
3.	Object_id	INTEGER	11	NOT NULL	Id of the object
4.	Object_repr	VARCHAR	100	NOT NULL	Object report
5.	Content_type_id	INTEGER	10	NOT NULL	Id of “Content Type”
6.	User_id	INTEGER	11	NOT NULL	Admin user-id

Table Name : auth_user

Sr.No	Name	Data Type	Size	Constraints	Description
1.	id	INTEGER	10	PRIMARY KEY	Id of admin
2.	Password	VARCHAR	150	NOT NULL	Password
3.	Last login	VARCHAR	10	NOT NULL	Password last changed
4.	is_superuser	BOOLIAN	2	NOT NULL	Employee Present/Absent
5.	Username	VARCHAR	100	NOT NULL	Username
6.	First_name	CHAR	100	NOT NULL	User’s First Name
7.	E-mail	VARCHAR	100	NOT NULL	Users mail id
8.	Is_staff	BOOLIAN	2	NOT NULL	User is Staff or Not

Table Name : users_time

Sr.No	Name	Data Type	Size	Constraints	Description
1.	id	INTEGER	11	PRIMARY KEY	User id
2.	Date	DATE	10	NOT NULL	Date
3.	Time in	TIME	10	NOT NULL	Login Time
4.	Time out	TIME	10	NOT NULL	Logout Yes / No
5.	User_id	INTEGER	10	FOREIGN KEY	Id of the user

•

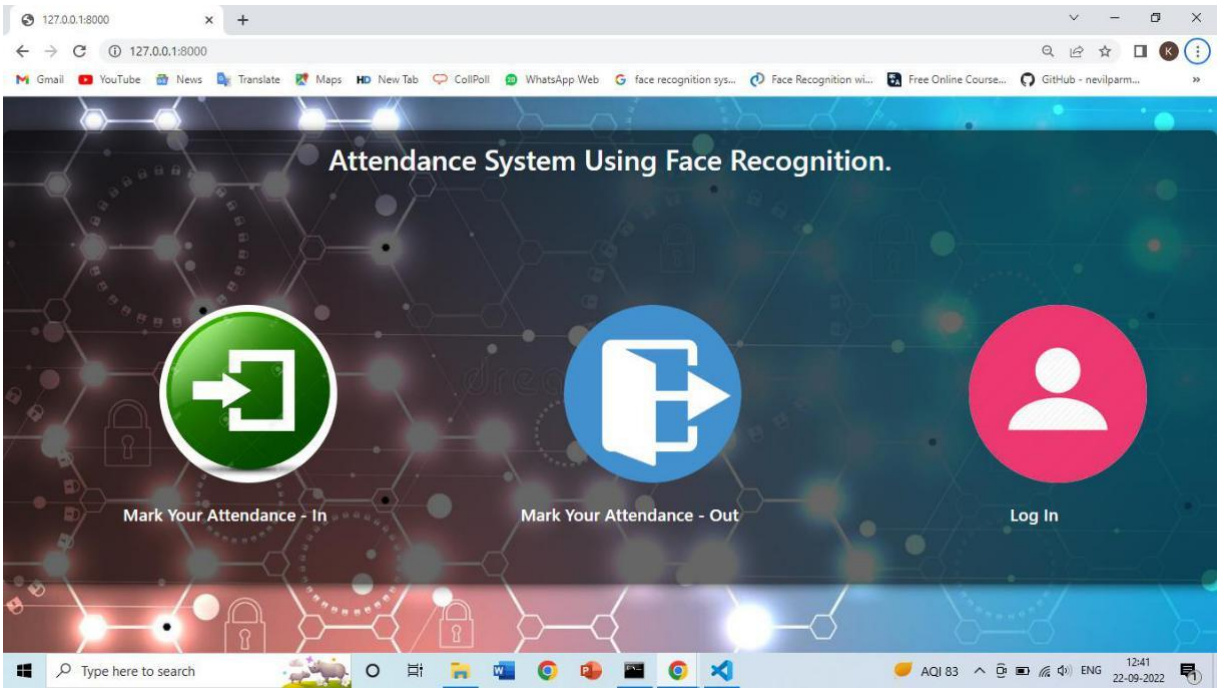
Table Name : user_present

Sr.No	Name	Data Type	Size	Constraints	Description
1.	Id	INTEGER	10	PRIMARY KEY	Id for Present user
2.	Date	DATE	10	NOT NULL	Date
3.	Present	BOOLIAN	2	NOT NULL	Is Present Yes/No
4.	User_id	INTEGER	10	NOT NULL	Id of Present User

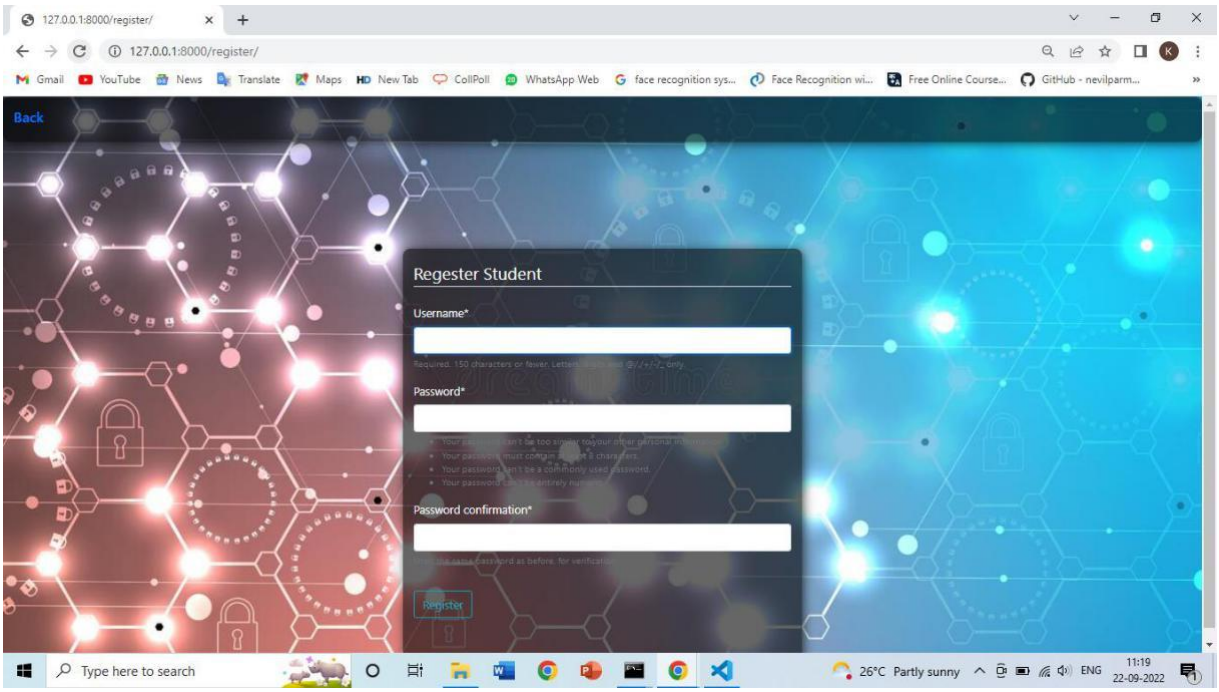
•

3.8 User Interface Screen

Home Page-

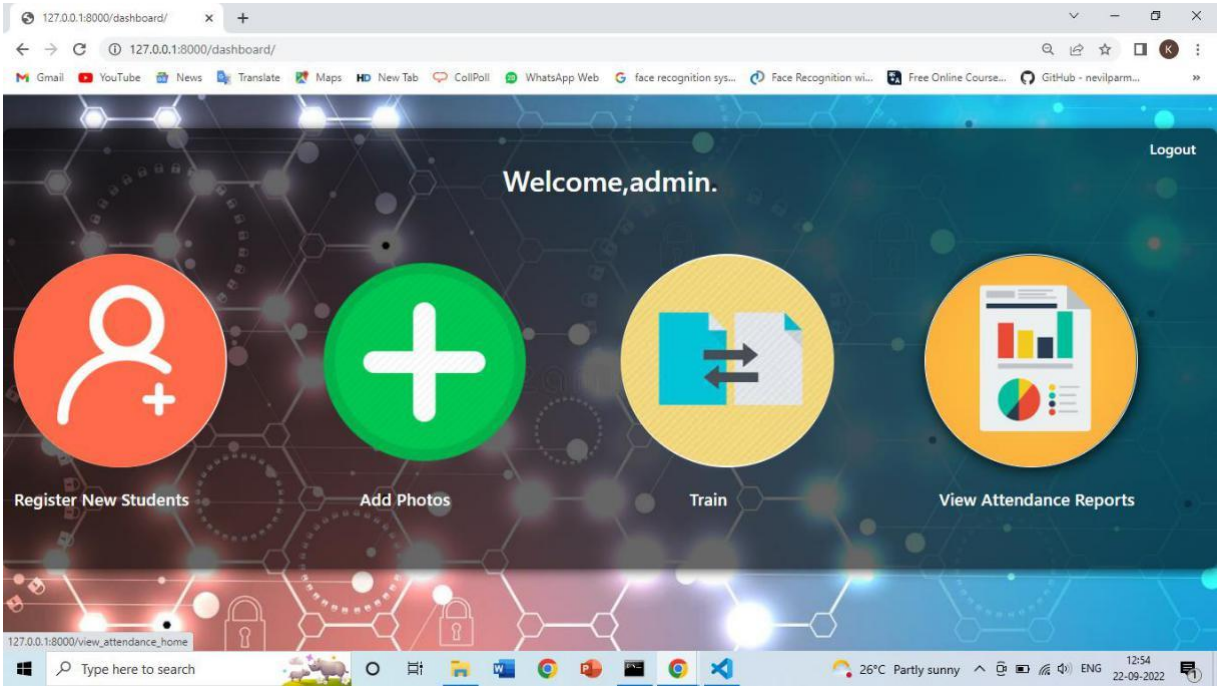


Registration Page-

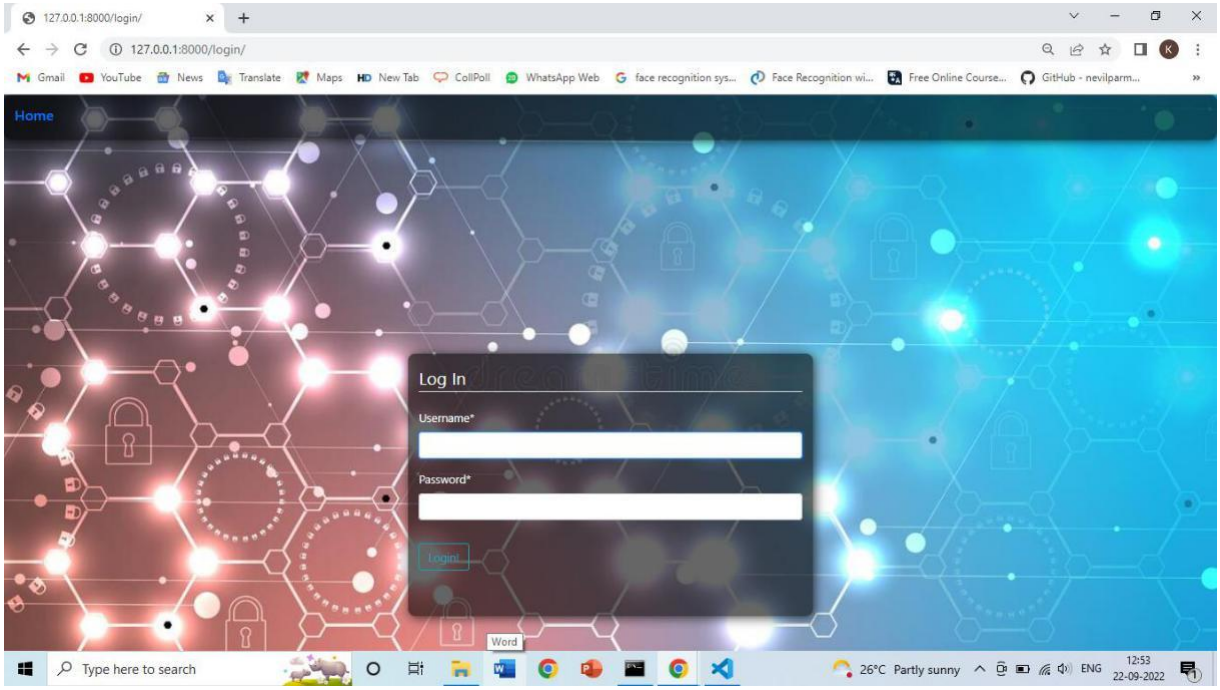


-

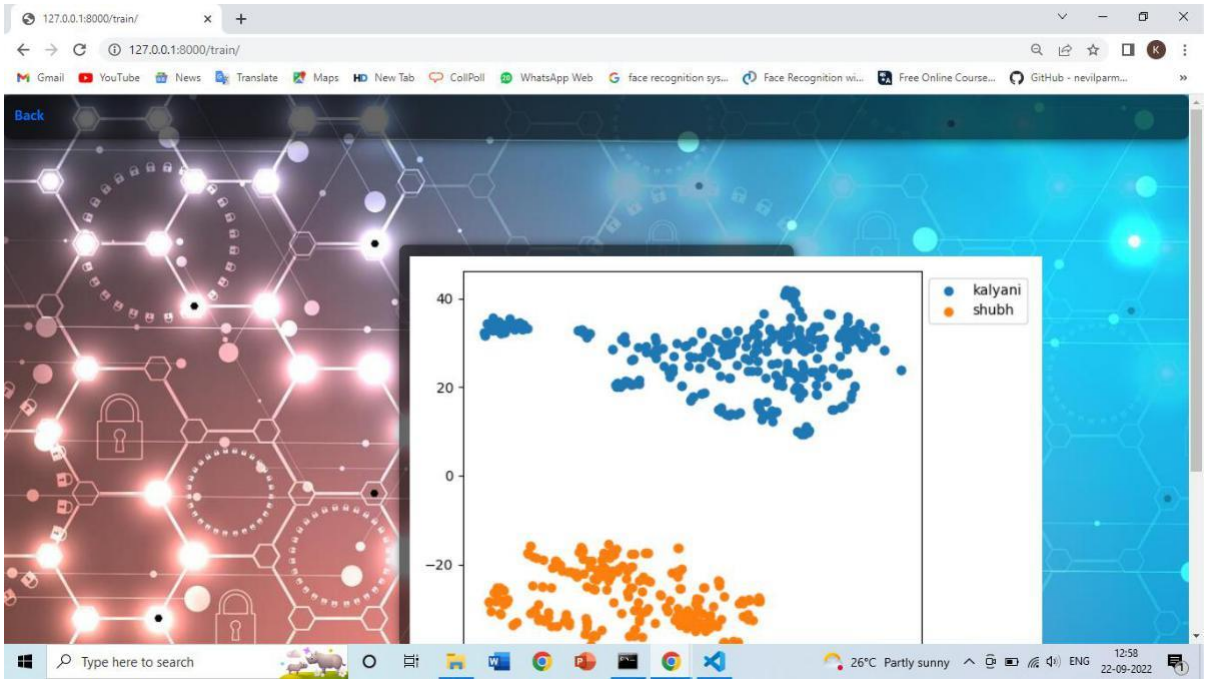
Admin Dashboard-



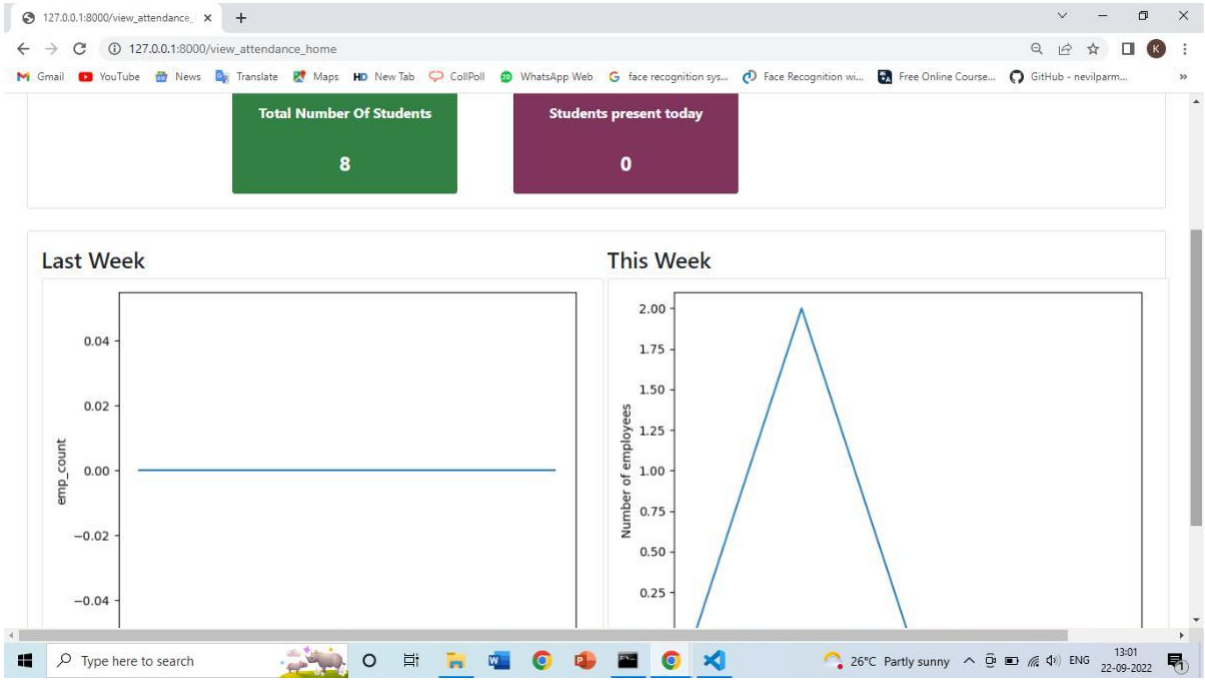
Login Page-



Train System-



Attedance Graph-



4. Drawbacks & Limitation

- Advantages of face detection include better security, easy integration, and automated identification
- Disadvantages include huge storage requirements, vulnerable detection, and potential privacy issues

5. Future Enhancement

- Attendance is a compulsory requirement of every organization. Maintaining attendance register daily is a difficult and time consuming task. There are many automated methods for the same available like Biometric, RFID, eye detection, voice recognition, and many more. This system uses face recognizer library for facial recognition and storing attendance.

6. Conclusion

Smart attendance management system is designed to solve the issues of existing manual systems. We have used face recognition concept to mark the attendance of student and make the system better.

7. Bibliology

https://github.com/
https://youtube.com/
https://stackoverflow.com/
https://iconscout.com/

8. Annexures

8.1 ANNEXURE 1:

Refer 3.8

8.2 ANNEXURE 3: SAMPLE PROGRAM CODE

```
{% load static %}

<!DOCTYPE html>
<html>
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8" />
    <meta
      name="viewport"
      content="width=device-width, initial-scale=1, shrink-to-fit=no"
    />

    <!-- Bootstrap CSS -->
    <link
      rel="stylesheet"
      href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css"
      integrity="sha384-
Gn5384xqQ1aoWXA+058RXPxPg6fy4IWvTNh0E263XmFcJlSAwiGgFAW/dAiS6JXm"
      crossorigin="anonymous"
    />

    <style>
      body {
        background: url('{% static "recognition/img/bg_image.jpg"%}') no-
          repeat center center fixed;
        background-size: cover;
      }
    </style>
  </head>

  <body>
    <div
      class="col-lg-12"
      style="
        background: rgba(0, 0, 0, 0.6);
        margin-top: 3em;
        margin-bottom: 5em;
        padding-top: 1em;
        padding-bottom: 3em;
        color: #fff;
        border-radius: 10px;
        -webkit-box-shadow: 2px 2px 15px 0px rgba(0, 3, 0, 0.7);
        -moz-box-shadow: 2px 2px 15px 0px rgba(0, 3, 0, 0.7);
        box-shadow: 2px 2px 15px 0px rgba(0, 3, 0, 0.7);
      "
    >
```

```
<div class="col-sm-12">
 <h1 class="text-center section-title" style="margin-bottom:
  2em"> Attendance System Using Face Recognition.
 </h1>
</div>
<style>
 h4 {
  margin-bottom: 1.5em;
  padding-top: 30px;
 }

 img {
  border-radius: 50%;
  -webkit-transition: all 0.3s ease-in-out;
  -moz-transition: all 0.3s ease-in-out;
  transition: all 0.3s ease-in-out;
 }

 img:hover {
  -webkit-box-shadow: 2px 2px 21px 0px rgba(0, 3, 0, 0.91);
  -moz-box-shadow: 2px 2px 21px 0px rgba(0, 3, 0, 0.91);
  box-shadow: 2px 2px 21px 0px rgba(0, 3, 0, 0.91);
  border: 2px solid #fff;
 }

 h3 {
  margin-bottom: 1.3em;
 }

 a {
  color: inherit;
 }

 a:hover {
  color: inherit;
  text-decoration: none;
 }
 /*
.section-title:after {
    content:' ';display:block;margin:0 auto;width:100px;margin-top: 6px;border:2px
solid #d0d0d0;border-radius:4px;
    -webkit-border-radius:4px;
    -moz-border-radius:4px;
    box-shadow:inset 0 1px 1px rgba(0, 0, 0, .05);
    -webkit-box-shadow:inset 0 1px 1px rgba(0, 0, 0, .05); -
    moz-box-shadow:inset 0 1px 1px rgba(0, 0, 0, .05);
  margin-bottom:1em;
 }
 */
</style>
```

```
 <div class="col-lg-12" style="padding-top: 100px">
  {% if messages %} {% for message in messages%}
  <div class="alert alert-{{message.tags}}">{{message}}</div>
  {%endfor %} {%endif%}
 </div>

 <div class="row">
  <div class="col-md-4" style="padding-left: 220px">
   <a href='{%url "mark-your-attendance" %}'
    ><img
     src="{% static 'recognition/img/enter.png' %}"
     class="img-responsive"
     style="width: 250px; height: 250px"
   /></a>
  </div>

  <div class="col-md-4" style="padding-left: 220px">
   <a href='{%url "mark-your-attendance-out" %}'
    ><img
     src="{% static 'recognition/img/exit.png' %}"
     class="img-responsive"
     style="width: 250px; height: 250px"
   /></a>
  </div>

  <div class="col-md-4" style="padding-left:
   220px"> <a href='{%url "login" %}'
    ><img
     src="{% static 'recognition/img/login.png' %}"
     class="img-responsive"
     style="width: 250px; height: 250px"
   /></a>
  </div>
 </div>
 <div class="row">
  <div class="col md-3" style="padding-left: 70px">
   <h4 class="text-center">Mark Your Attendance -
  In</h4> </div>
  <div class="col md-3" style="padding-left: 70px">
   <h4 class="text-center">Mark Your Attendance - Out</h4>
  </div>
  ]

  <div class="col md-3" style="padding-left: 70px">
   <h4 class="text-center">Log In</h4>
  </div>
  ]
 </div>
</div>
```

```
    <!-- Optional JavaScript -->
    <!-- jQuery first, then Popper.js, then Bootstrap JS -->
    <script
      src="https://code.jquery.com/jquery-3.2.1.slim.min.js"
      integrity="sha384-
KJ3o2DKtIkvYIK3UENzmM7KCkRr/rE9/Qpg6aAZGJwFDMVNA/GpGFF93hXpG5KkN"
      crossorigin="anonymous"
    ></script>
    <script
      src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.12.9/umd/popper.min.js"
      integrity="sha384-
ApNbgh9B+Y1QKtv3Rn7W3mgPxhU9K/ScQsAP7hUibX39j7fakFPskvXusvfa0b4Q"
      crossorigin="anonymous"
    ></script>
    <script
      src="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0/js/bootstrap.min.js"
      integrity="sha384-
JZR6Spejh4U02d8jOt6vLEHfe/JQGiRRSQQxSfFWpi1MquVdAyjUar5+76PVCmYl"
      crossorigin="anonymous"
    ></script>
  </body>
</html>
```

TEST CASE:-

Test Case	Test Case Name	Test case Description	Test Steps			Test Status (P/F)
			Step	Expected Result	Actual Result	
TC_ADLOGIN1	Verify Login Condition with wrong ID Password	To check weather the ID/Password is right or wrong	1)Open the URL 2)click on admin login	Login Failed ID / Password is incorrect	Login Failed ID / Password is incorrect	PASS
TC_ADLOGIN2	Verify Login Condition with Correct ID Password	To check weather the ID/Password is right or wrong	1)Open the URL 2)click on admin login	Login successful ID / Password is correct	Login Successful ID / Password is correct	PASS
TC_EMPLOGIN3	Verify Login Condition with wrong ID Password	To check weather the ID/Password is right or wrong	1)Open the URL 2)click on admin login	Login Failed ID / Password is incorrect	Login Failed ID / Password is incorrect	PASS
TC_EMPLOGIN4	Verify Login Condition with Correct ID Password	To check weather the ID/Password is right or wrong	1)Open the URL 2)click on admin login	Login successful ID / Password is correct	Login Successful ID / Password is correct	PASS
TC_EMPATT5	Mark the employee attendance by employee	Employee's attendance will be marked	1)After login employee must click on mark attendance 2) EMP must show their face on camera so that the attendance will be marked	Attendance mark	Attendance marked successfully	PASS