

Automated Attendance System Using Face Recognition
UCS503 Software Engineering Project Report
Mid-Semester Evaluation

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Group No: 3CO27

Submitted to:

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**THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)**

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Software Bid

UQNSW_SE Lab

Group : 3COE27_____

Dated: 03/08/22....

Team Name: Team Alpha

Team ID (will be assigned by Instructor): #7

Please enter the names of your Preferred Team Members. :

- You are required to form **a three to four person teams'**
- Choose your team members wisely. You will not be allowed to change teams.

Name	Roll No	Project Experience	Programming Language used	Signature
Amritpal Singh	102003690	Plant Disease Detection Text Summarization Project Gym Management System	C++/Python/HTML/CSS	
Rishabh Mohan	102003696	Chatbot with AI Gym Management System	C++/Python/ PL/SQL	
Sakshi	102183023	Inventory System	C++/Python PL/SQL	

Programming Language / Environment Experience

List the languages you are most comfortable developing in, **as a team**, in your order of preference. Many of the projects involve Java or C/C++ programming.

- 1.Python
- 2.C++
- 3.PL/SQL

Choices of Projects:

First Choice	Automated Attendance System: This project aims for an efficient system which records attendance of students automatically. It detects and recognizes unique faces using system's Camera and Machine Learning algorithms which extract unique features of faces such as beard, spectacles, etc. and records the student's attendance in an excel sheet along with date and time when the attendance is marked. This is an efficient solution to tedious and time-taking traditional student attendance marking system by avoiding time wastage during class started and decreasing chances of fake roll calls.
--------------	--

Second Choice	Securing data encryption and decryption using Cryptography and Steganography techniques
Third Choice	Car Price Prediction System- Using user friendly graphic interface we can make the user identify actual price of his car by providing useful features
Fourth Choice	Stock Price Prediction System- Stock Price Prediction using machine learning helps you discover the future value of company stock and other financial assets traded on an exchange. The entire idea of predicting stock prices is to gain significant profits

Additional Remarks/ Inputs

We would really like to work on The Attendance System because it reduces the risks of fake attendance and proxy and errors in student count. Also it introduces an error-free system of attendance as it involves the facial recognition which updates the attendance of student in the record.

Project Write-up: Automated Attendance System

PROJECT OVERVIEW :

This project aims for an efficient system which records attendance of students automatically. It detects and recognizes unique faces using system's Camera and Machine Learning algorithms which extract unique features of faces such as beard, spectacles, etc. and records the student's attendance in an excel sheet along with date and time when the attendance is marked. This is an efficient solution to tedious and time-taking traditional student attendance marking system by avoiding time wastage during class started and decreasing chances of fake roll calls. In this way, School/College teachers can easily manage attendance records and check absenteeism percentage without any manual errors.

FUNCTIONAL REQUIREMENTS:

1. Adding a New student:

Function: Sign up a new student to the system.

Priority: Top (Required for first release)

Requirements: To add a new user to the system, all of them should have registered in the admission office before they can register in their classes.

2. Use the system to attend to classes

Function: Attend to classes

Priority: Top (Required for every class attended)

Requirements: When students have a class, the system must scan their faces to recognize them and mark the attendance

3. Report students

Function: The user will look at their reports for the current status.

Priority: Top (Required for first release)

Requirements: When the students have enrolled in the class, they are now able to check on their current attendance situation. In the system, they will be shown a page that gives them the whole attendance status in the semester.

4. Faculty receive a report

Function: Faculty receives a current report every class.

Priority: Top

Requirements: The system will send a message after ten minutes of the class time to the faculty. Faculty will have the all students' attendance reports in the particular class

5. Students missed classes

Function: Students receive a email for missing class.

Priority: Medium (Required for second release)

Requirements: When a student misses a class, he/she will receive a message via email.

6. Students missed two classes and more

Function: Students receive a warning message for missing class for the second time.

Priority: Medium (Required for second release)

Requirements: When students miss more than one class, students will receive a warning message for missing two classes or more. The warning message should be for the missed classes for the whole semester and their status in a danger level.

NON-FUNCTIONAL REQUIREMENTS:

1. Efficiency and Performance: The Machine Learning Model should efficiently detect and recognize facial characteristics of student and should have a good response time i.e. marks the attendance timely.

2. Security: The software should be able to detect unique facial characteristics of a particular student and make sure that no fake roll calls or proxy is being made by some other student.

3. Usability: The software interface should be user-friendly i.e. both teachers and students should find the software easy to use so that the attendance process is time saving and hassle-free and can devote their time and focus to lectures.

4. Reusability: The Machine Learning Model used in this project for facial detection and recognition can be used in other Software Engineering and ML projects thus reducing time, cost and effort.

5. Robustness: The software is not robust as the software is highly dependent on dataset which includes student name and images of their faces from different angles.

Feasibility Report

1. Technical Feasibility: The functionalities we are providing through this project can be made by presently available technology within budget and schedule constraints. Python and Streamlit which is an open source, is being used for this project thus not expanding our budget. All team members are quite familiar and have some prior experience in these technologies making the project technically feasible.

2. Operational Feasibility : Our project will be user friendly and easy to use. Through interactive GUI, User will be easily adapted to the interface of the software and will find it easier to use the proposed function of our project. The software proposed in the project will have simple installation and easy updation. An easy-to-understand User Manual will be provided to new users so that they don't find it difficult to get familiar with the software.

3. Economic Feasibility: Since our team is using an open-source and free-to-use software for development of this project, no hardware or software purchases will be made making it economically feasible. The development, operational, design or training cost is almost negligible with the usage of free open-source technology, the documentation of which is freely available on the internet.

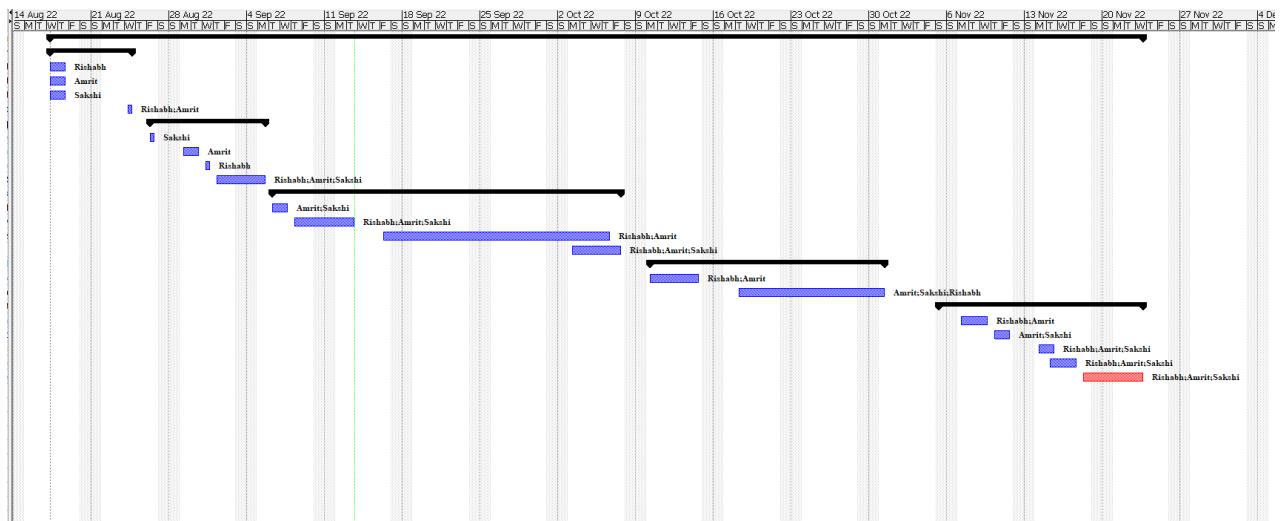
4. Legal Feasibility: Our project complies with all legal aspects of the country and no personal information of any student or faculty is breached. Since the software which we will be using is an open-source technology and freely available, no breach of copyright infringements and licenses will be there maintaining legal and ethical requirements.

5. Schedule Feasibility: Our team believes that our project will be completed and ready-to-use by the specified deadlines after analysing various requirements of the project. The deadlines have been set carefully considering promises and commitments made by the developers.

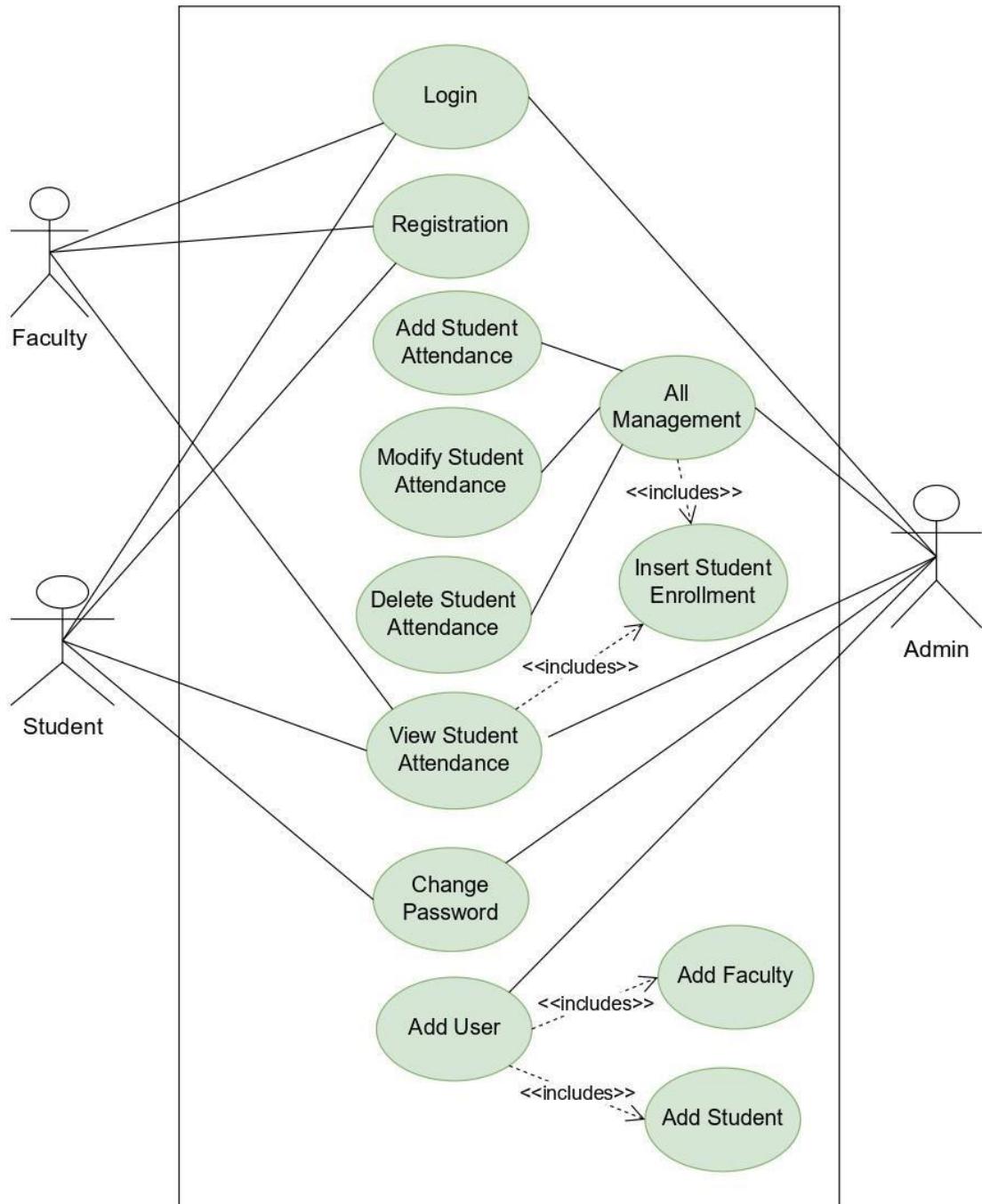
6. Cultural Feasibility: Our project does not disrespect or hinder any culture or person's personal beliefs. Planned operations in the project are integrated with the local cultural beliefs and practices in labour-intensive projects.

Gantt Chart

	⌚	Name	Duration	Start	Finish	Predecessors	Resource Names
1		▣ Automated Attendance System	71 days?	17/8/22 8:00 AM	23/11/22 5:00 PM		
2		▣ Planning	6 days?	17/8/22 8:00 AM	24/8/22 5:00 PM		
3		Estimate scope	2 days?	17/8/22 8:00 AM	18/8/22 5:00 PM		Rishabh
4		Estimate time	2 days?	17/8/22 8:00 AM	18/8/22 5:00 PM		Amrit
5		Estimate effort	2 days?	17/8/22 8:00 AM	18/8/22 5:00 PM		Sakshi
6	▣	Project Writeup	1 day?	24/8/22 8:00 AM	24/8/22 5:00 PM		Rishabh;Amrit
7	▣	▣ Requirement Analysis	7 days?	26/8/22 8:00 AM	5/9/22 5:00 PM		
8	▣	Requirement gathering	1 day?	26/8/22 8:00 AM	26/8/22 5:00 PM		Sakshi
9	▣	Analysing Requirements	2 days?	27/8/22 8:00 AM	30/8/22 5:00 PM		Amrit
10	▣	Requirements review	1 day?	31/8/22 8:00 AM	31/8/22 5:00 PM		Rishabh
11	▣	SRS	3 days?	1/9/22 8:00 AM	5/9/22 5:00 PM		Rishabh;Amrit;Sakshi
12		▣ Design	24 days?	6/9/22 8:00 AM	7/10/22 5:00 PM		
13	▣	software Architecture	2 days?	6/9/22 8:00 AM	7/9/22 5:00 PM		Amrit;Sakshi
14	▣	UML	4 days?	8/9/22 8:00 AM	13/9/22 5:00 PM		Rishabh;Amrit;Sakshi
15	▣	Machine Learning	15 days?	16/9/22 8:00 AM	6/10/22 5:00 PM		Rishabh;Amrit
16	▣	UI design	5 days?	2/10/22 8:00 AM	7/10/22 5:00 PM		Rishabh;Amrit;Sakshi
17	▣	▣ Coding	15.333 days?	10/10/22 8:00 AM	31/10/22 10:40 AM		
18		Source Code Listing	5 days?	10/10/22 8:00 AM	14/10/22 5:00 PM		Rishabh;Amrit
19	▣	Cross Reference Listing	9.333 days?	18/10/22 8:00 AM	31/10/22 10:40 AM		Amrit;Sakshi;Rishabh
20		▣ Testing	13 days?	5/11/22 8:00 AM	23/11/22 5:00 PM		
21	▣	Unit Testing	3 days?	5/11/22 8:00 AM	9/11/22 5:00 PM		Rishabh;Amrit
22	▣	Integration Testing	2 days?	10/11/22 8:00 AM	11/11/22 5:00 PM		Amrit;Sakshi
23	▣	System Testing	2 days?	12/11/22 8:00 AM	15/11/22 5:00 PM		Rishabh;Amrit;Sakshi
24	▣	Acceptance testing	3 days?	15/11/22 8:00 AM	17/11/22 5:00 PM		Rishabh;Amrit;Sakshi
25	▣	Test Summary Report	4 days?	18/11/22 8:00 AM	23/11/22 5:00 PM		Rishabh;Amrit;Sakshi



Use-Case Diagram



Use-Case Scenario

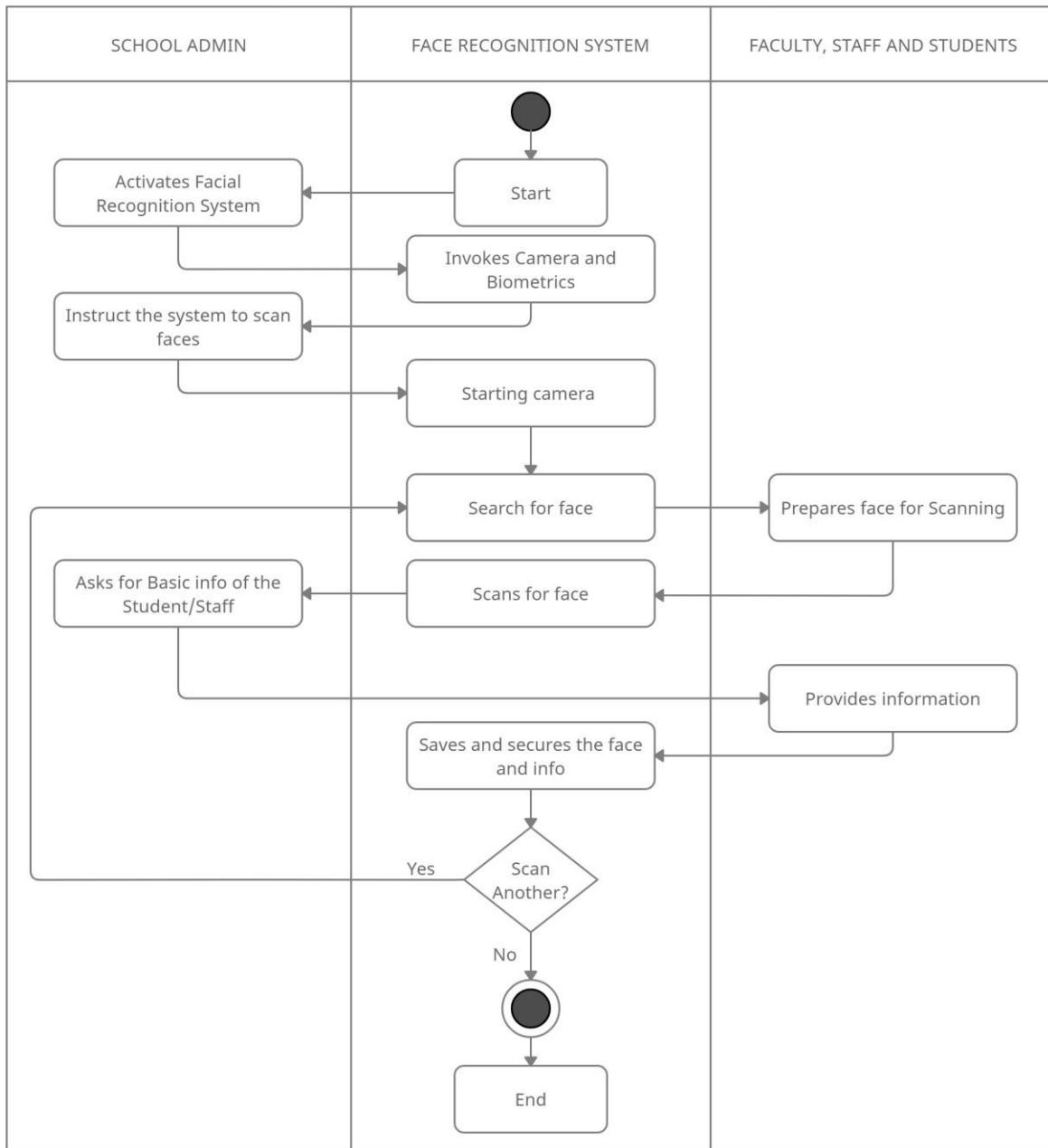
1. Use Case Title	Automated Attendance System Portal Login
2. Abbreviated Title	Automated Attendance System Portal Login
3. Use Case ID	1
4. Actors	Student, Faculty, Admin
5. Description:	With this functionality Student, Faculty and Admin can log into the system.
5.1. Pre-Conditions:	<ul style="list-style-type: none"> 1. Portal opened on PC. 2. Faculty and Admin must be authorized.
5.2. Task Sequence:	<ul style="list-style-type: none"> 1. Option to choose the mode of user (Student/Faculty/Admin) will be shown on the webpage. 2. On selection of mode, user will enter their respective credentials to login to the portal.
5.3. Post-Conditions:	<ul style="list-style-type: none"> 1. User will be successfully logged into the system.
6. Modification History:	Date 7-Sept-2022
7. Author:	Team Alpha

1. Use Case Title	Student Attendance
2. Abbreviated Title	Student Attendance
3. Use Case ID	2
4. Actors	Student
5. Description:	<p>With this functionality, Attendance of student will be marked using facial recognition, in an excel sheet accessible to Faculty.</p>
5.1. Pre-Conditions:	<ol style="list-style-type: none"> 1. Student successfully logged into the system. 2. Student's face should be properly aligned and illuminated in front of camera.
5.2. Task Sequence:	<ol style="list-style-type: none"> 1. Student log into the system by entering credentials. 2. Camera Screen will pop-up to mark student Attendance. 3. Student shows his face in the camera screen. 4. Student Name and Roll No. get marked in Excel Sheet along with the date and time.
5.3. Post-Conditions:	<ol style="list-style-type: none"> 1. Student Attendance will be marked in Excel Sheet.
6. Modification History:	Date 7-Sept-2022
7. Author:	Team Alpha

1. Use Case Title	Add new User (Student/Faculty)
2. Abbreviated Title	Add new User (Student/Faculty)
3. Use Case ID	3
4. Actors	Admin
5. Description:	With this functionality, Admin can add new faculty or Student enrolled in the institution.
5.1. Pre-Conditions:	<ul style="list-style-type: none"> 1. New User and Admin must be authorized.
5.2. Task Sequence:	<ul style="list-style-type: none"> 1. Admin log into the system. 2. Admin selects add new User option. 3. Admin enter the assigned credentials of the new user. 4. New user's credentials/details added to the database.
5.3. Post-Conditions:	<ul style="list-style-type: none"> 1. New User (Student/Faculty) added successfully.
6. Modification History:	Date 7-Sept-2022
7. Author:	Team Alpha

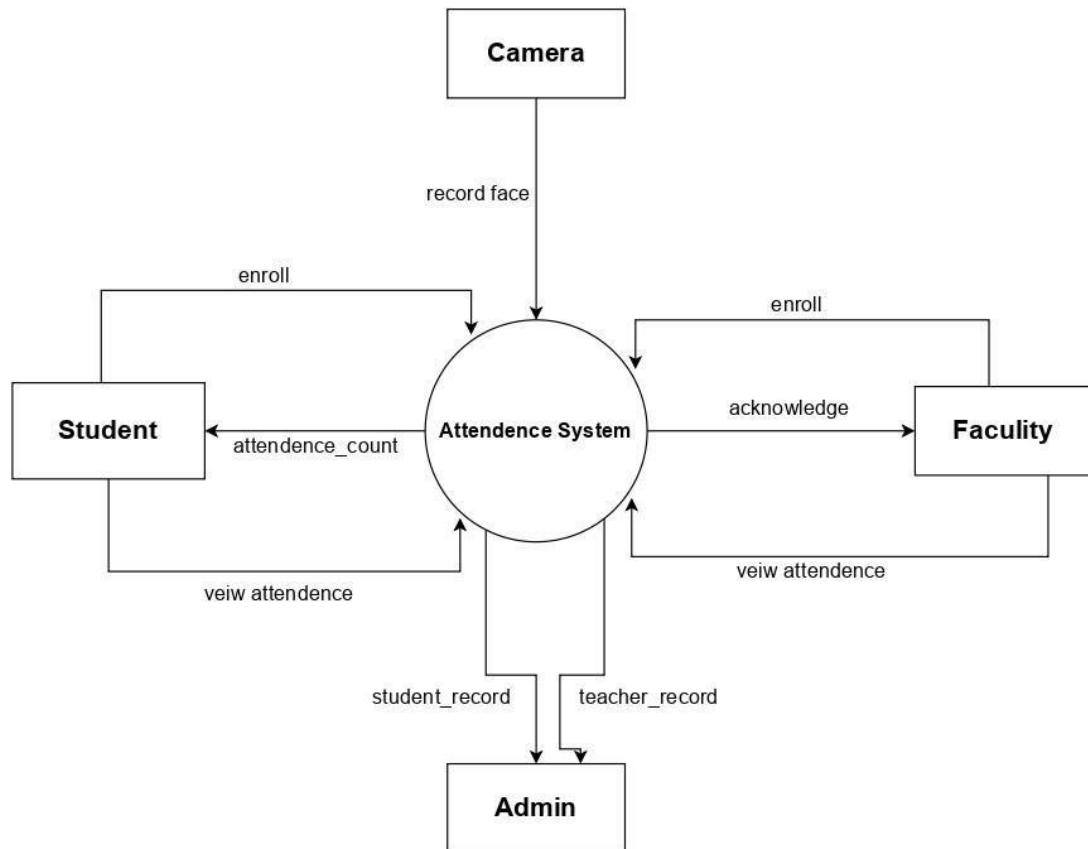
Swimlane Diagram

ATTENDENCE SYSTEM

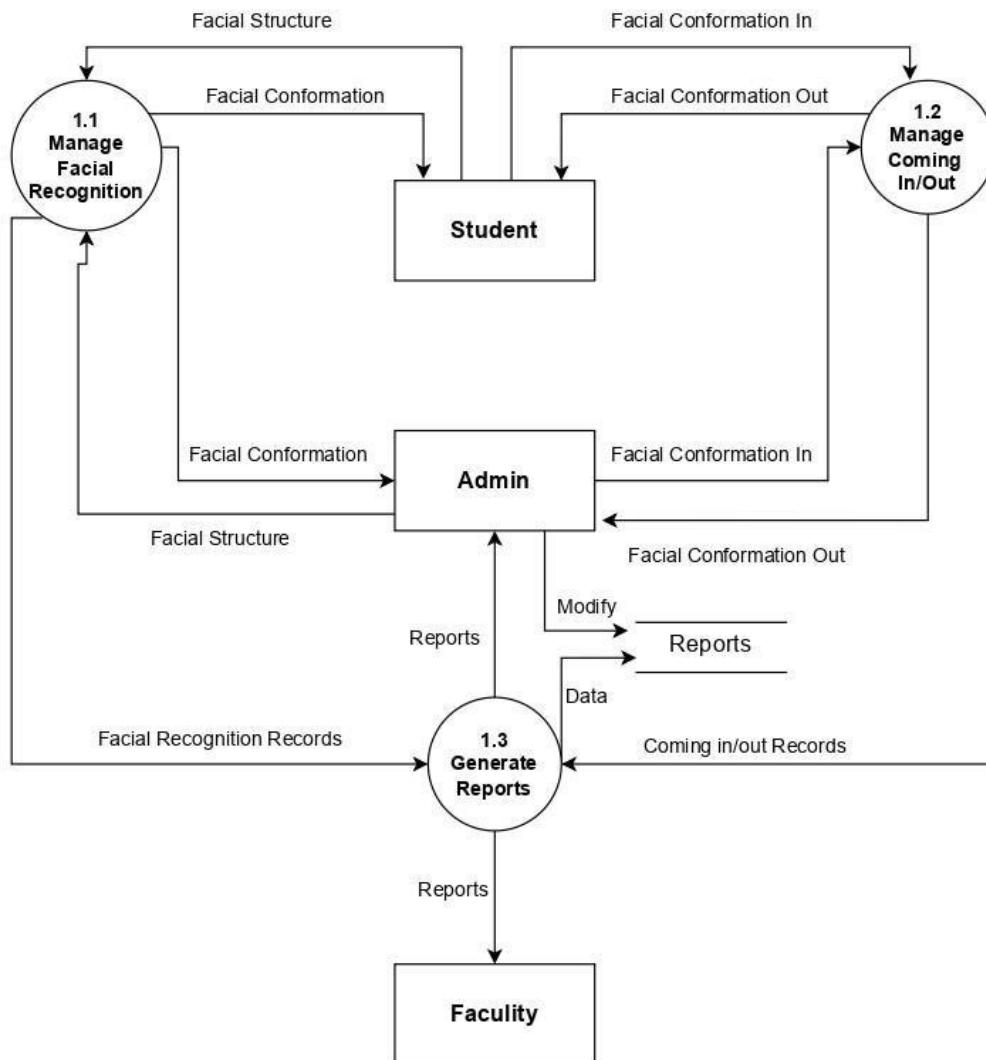


Data Flow Diagrams

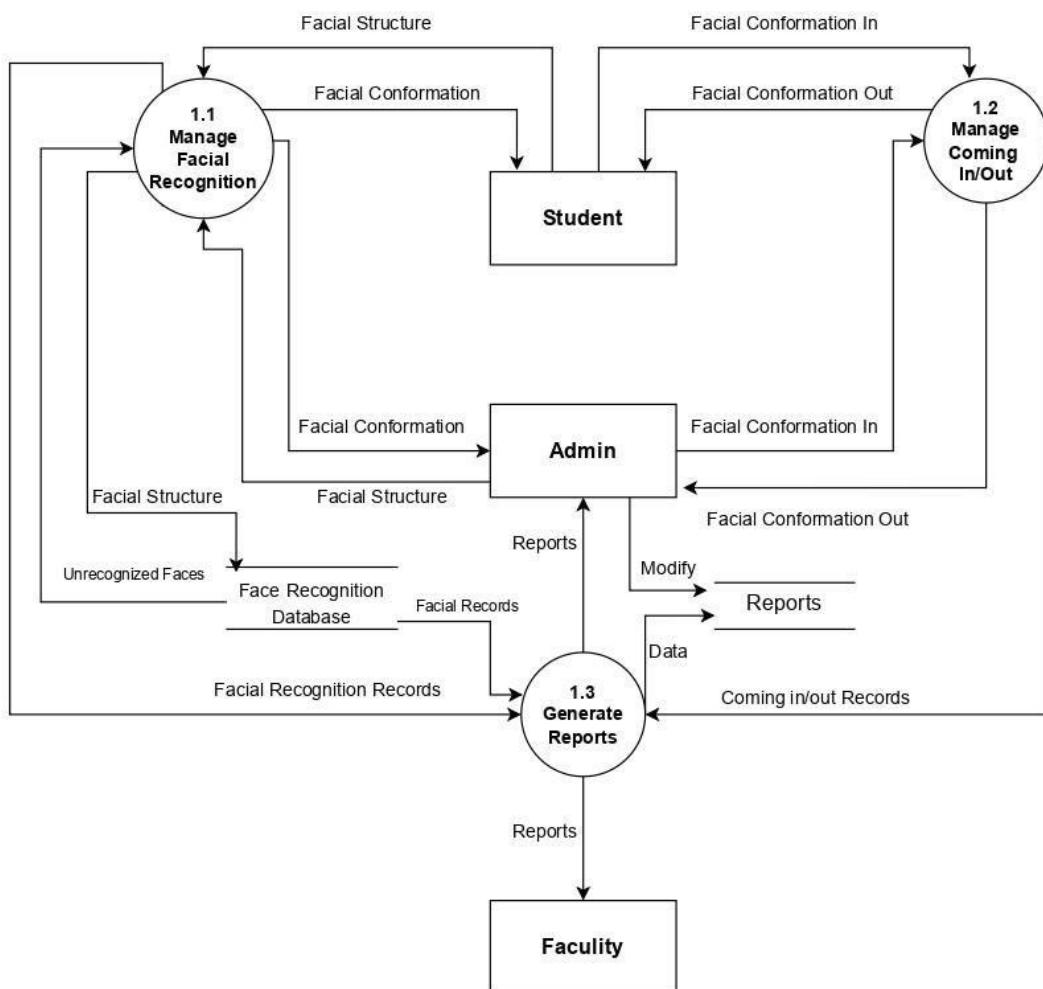
Level 0



Level 1



Level 2



Software Requirements Specification

for

Automated Attendance Management System using Face Recognition

Version 1.0 approved

Rishabh Mohan(102003696),

Amritpal Singh(102003690),

Sakshi (102183023)

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1. Introduction

1.1 Purpose

The main purpose of this specification is to help people who will work on this system to maintain the objectives and get started working in this project. This specification will direct people who will work on this project step by step through the process until they finish it successfully. This statement will describe specific details into every step of this project that workers will immediately locate the needs of this system to understand the purpose of doing any of the following steps into the system.

1.2 Product Scope

The intended readers of this document are the system analyst & designer, project developer, project panel, system owners. The system analyst & designer can use this document for his cross reference to verify his future work. Project developer can use this document for traceability of the functions implemented. Project panel can use this document to verify the quantity and quality of the end product, finally this document can help bridge-up the gaps between the project stakeholders i.e. analysts, designers, developers, system users and the system owners to help them understand what functionalities this detector project will have and what not.

1.3 Definitions, Abbreviations and Acronyms

ABBREVIATION	DEFINITION
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheets
Js	Java Script
SQL	Structured Query Language
ML	Machine Learning
Flask ,Open -CV	Python Frameworks and libraries
Bootstrap	Bootstrap
jQuery	jQuery

1.4 References

None at this time.

1.5 Overview

The remaining sections of this document provide a general description, including characteristics of the users of this project, the product's hardware, and the functional and data requirements of the product. General description of the project is discussed in section 2 of this document. Section 2 gives the functional requirements, data requirements and constraints and assumptions made while designing the multi-utility system. It also gives the user viewpoint of product use. Section 3 gives the specific requirements of the product. Section 3.0 also discusses the external interface requirements and gives detailed description of functional requirements.

2. Overall Description

2.1 Product Perspective

The Attendance Tracking System is intended to replace the manual model of attendance record keeping by means of roll call and paper records. The roll call and paper records are replaced with a single interaction between the Faculty and the Attendance Tracking System. Faculty will be able to view the attendance of students on their Pocket PC and quickly maintain attendance records. The features expressed in this Software Requirements Specification document are intended to be fully implemented in version 1.0. The system will be developed in such a way to provide easy addition of enhanced features, which may be desired in subsequent versions.

2.2 Product Functions

1. Adding a New student:

Function: Sign up a new student to the system.

Priority: Top (Required for first release)

Requirements: To add a new user to the system, all of them should have registered in the admission office before they can register in their classes.

2. Use the system to attend to classes

Function: Attend to classes

Priority: Top (Required for every class attended)

Requirements: When students have a class, the system must scan their faces to recognize them and mark the attendance

3. Report students

Function: The user will look at their reports for the current status.

Priority: Top (Required for first release)

Requirements: When the students have enrolled in the class, they are now able to check on their current attendance situation. In the system, they will be shown a page that gives them the whole attendance status in the semester.

4. Faculty receive a report

Function: Faculty receives a current report every class.

Priority: Top

Requirements: The system will send a message after ten minutes of the class time to the faculty. Faculty will have the all students' attendance reports in the particular class

5. Students missed classes

Function: Students receive a email for missing class.

Priority: Medium (Required for second release)

Requirements: When a student misses a class, he/she will receive a message via email.

6. Students missed two classes and more

Function: Students receive a warning message for missing class for the second time.

Priority: Medium (Required for second release)

Requirements: When students miss more than one class, students will receive a warning message for missing two classes or more. The warning message should be for the missed classes for the whole semester and their status in a danger level.

2.3 User Characteristics

- 1. Admin:** The Administrator is responsible for handling the database of features that identify students uniquely. The Administrator provides access to the database for the application to mark the attendance of the students.
- 2. Faculty:** The Faculty initiates/launches the application for their respective subjects to mark the attendance. The Faculty will provide the human intervention of the system is unable to process the student to mark the attendance.
- 3. Student:** The student will be the subject for the system to satisfy the goal of correct identification and marking of their respective attendance.

2.4 General Constraints, Assumptions and Dependencies

AS-1: The database mentioned within this Software Requirements Specification document is previously administered with the correct information needed by the Attendance Tracking System.

AS-2: For attendance policies, since professors do not usually tabulate tardiness, it is assumed a student is either present or absent. The notes functionality allows the professor the option to comment on tardiness and the edit mode allows the professor to correct attendance due to tardiness.

DE-1: Class data being used for setup and student recognition is dependent on information in a database administered outside of the capabilities of the Attendance Tracking System.

DE-2: Statistics on student attendance is dependent on a professor's consistent utilization of the system for each class period.

2.5 Apportioning of the Requirements

None at this time.

3. Specific Requirements

Requirement 1: The system must perform Facial Recognition locally.

A localized environment must provide a performance speed for our system. If we develop online software, the network latency may degrade our software performance. Also, the system must be secure when it is not connected to the internet since we are dealing with private data such as the facial image of each student.

Requirement 2: The system must capture the face of each and every person present in the classroom.

Each and every people present in the room must be detected as a person and classified to one particular person registered in the class or other people which do not belong to the class. A clear facial image should be captured and recorded by the system in order to identify the students.

Requirement 3: The system must able to identify an individual in real time video feed.

Every time a person coming into the class, the system should recognize the person belongs to the class or not. Attendance must be taken if he/she belongs to the class. Otherwise, the system should classify him as an anonymous person.

Requirement 4: Administration must able to retrieve or alter the attendance record in the system.

Since the system may have a possibility of miss-identify a student. A manual control platform must be provided. The administrator must have the authority to edit the record and retrieve the feeds taken during the class.

3.1 External Interface Requirement

3.1.1 User Interface

1. We will provide three different modules such as a Faculty, Student and Administrator.
2. We will also have a login and registration process for all administrator and store data in the server. The administrator can log in and check the status of student attendance sheet

3.1.2 Hardware Interface

The machine needs Windows 7,8,10, 11 version with 2 GB minimum RAM, 512 GB HD graphics card (Intel/AMD) and i7 or i5 5th generation with a working Camera capturing clear Image . For database storage Microsoft SQL Server 2014 or 2012 OpenCV library to detect the facial structure of students. This system must be available in every classroom in the school. Also, it must be in the registration office. The interfaces for the hardware part are the same in the

registration office's interface. This part of the interface has also other components, such as student's information, faculty information, class's information, and other related information. All of these data are stored in the database and end with the device screen and web pages.

3.1.3. Software Interface

The System will use Windows Operating System, Client-Side Browser support, Web pages for the forms HTML, PHP , Programming using Python and databases uses with MySQL.

3.2 Detailed Description of Functional Requirements

3.2.1 Functional Requirements for Adding a New student

Purpose	This screen provides information specific to a new user for registering or signing themselves up to the system to provide their attendance regularly.
Inputs	A student can provide their details after getting registered in the admission office for signing up to the system with their provided admission details. Sign-up is performed with registering the new user and then logging in into their new accounts.
Processing	The menu responds to verifying the admission details of the new students with the registered details at the admission office and then save them to display a login page containing pre-defined text requested information.
Outputs	Output consists of a screen of information specific to a student. For example, a student would be able to sign up and then get themselves registered to the system and then use the same sign-up details to again login into the system in future.

3.2.2 Functional Requirements for Using the system to attend the class

Purpose	This screen provides information specific to a student to attend the classes and get their attendance marked
Inputs	A student must attend the class to get their faces scan by the system to recognize them and mark the attendance.
Processing	The menu responds to verifying the student according to their registered details and their scanned face for recognition to mark the attendance.
Outputs	Output consists of a screen of information specific to a student. For example, if a student attends a class, the system will scan their face and recognize it and automatically mark him/her present. If not recognizable, the attendance would be marked as absent.

3.2.3 Functional Requirements for Reporting Students

Purpose	This screen provides information specific to a student for their reports about their current status.
Inputs	A student must get himself/herself enrolled in the class to check their current attendance situation.

Processing	The menu responds to displaying the page of the current status of the students enrolled in the class.
Outputs	Output consists of a screen of information specific to a student with the current status of the whole attendance record in the semester. For example, every student gets to check their attendance record of throughout the semester.

3.2.4 Functional Requirements for Faculty receiving report

Purpose	This screen provides information specific to a faculty about the current attendance record of each student in a particular class.
Inputs	A faculty can view a page of information by checking up on the message sent about the current attendance of each student.
Processing	The menu responds to displaying the page of the current attendance record of each student in a particular class via a message.
Outputs	Output consists of a screen of information specific to a current record of attendance of each student in a particular class. For example, the system will send a message after ten minutes of the class time to the faculty. Faculty will have all students' attendance reports in the particular class.

3.3 Performance Requirements

1. The program must be able to be run concurrently by multiple professors. During peak times of usage (8:00 AM to 5:00 PM), the system shall support approximately 20 users.
2. Acknowledgement of roll received (confirmation) shall be returned within 8 seconds.
3. Queries upon the database shall be performed in less than 5 seconds.
4. As soon as the student shows his face in the Camera, his attendance should be marked in the Excel Sheet along with his information in less than 5 seconds.
5. Email messages to absent students shall be sent within one hour of the conclusion of a class.
6. The program shall support taking roll for class sizes of up to 100 students. With a maximum class size, performance must still conform to all performance requirements.

3.4 Logical Database Requirement

1. The system shall include three databases: student, class, and instructor.
2. The student database shall contain student information including name, email address, and student identification number.
3. The class database shall contain information about classes including class title, department code and course number, meeting times, students enrolled, and absences. The class database shall be grouped by department code and course number.
4. The instructor database shall contain information about instructors including name, email address, password, and classes taught

3.5 Quality Attributes

- 1. Availability:** The system shall be available to all instructors through Information Systems during their normal hours of operation.
- 2. Reliability:** Due to the use of a wireless network, reliability of the system at all times is not guaranteed. However, overall reliability of the system and roll information shall be achieved through the process of database manipulation.
- 3. Reusability:** The system shall be able to be reused for each new semester.

4. Robustness: If no network connection can be established to receive the roll information, the instructor shall be allowed to enter roll later. If a network connection is lost during roll, the program shall allow the instructor to transmit roll information at a later time.

5. Updatability: The system shall allow for addition or deletion of instructors, students, and classes while incorporating new semesters.

5. Usability: Usability of the system shall be achieved through an online help pages and an introductory training session for all instructors upon installation of the program on their system.

3.6 Other Requirements

3.6.1 Safety Requirements: As a part of the safety requirement, we prefer to keep a backup of the system generated data in any external device.

4. Change History

13/09/22	Version 1.0 – Initial Release

5. Document Approvers

SRS for Automated Attendance System using Face Recognition approved by:

Dr. Nitigya Sambyal

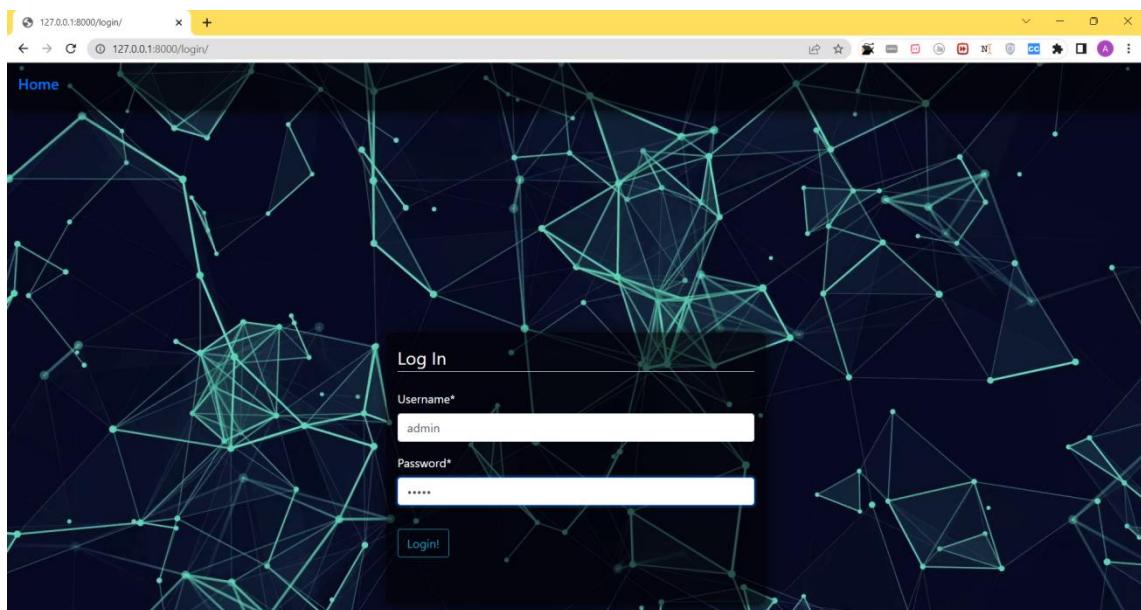
Date: 14-09-22

USER STORY CARD

UC#001

Login

As a registered user I want to login so that I can get access to the website to mark my attendance.



Confirmation:

Success:

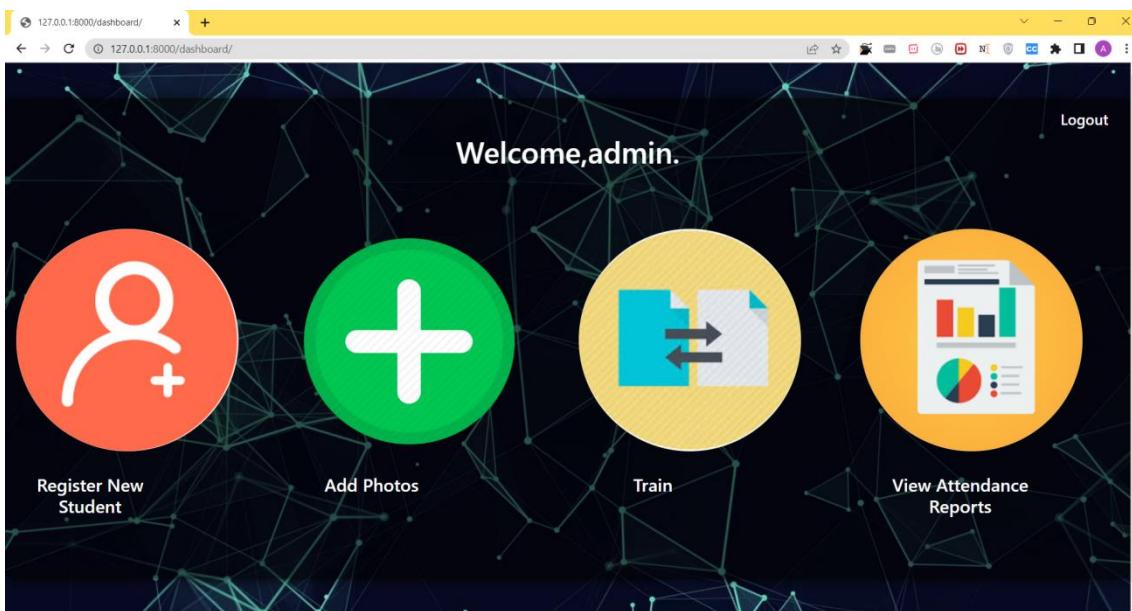
1. User will be shown a welcome message.
2. Homepage will open with an option to login to mark attendance.

Failure:

1. Incorrect username or password.
2. Device is not connected to internet.

UC#002 Add/ Remove/ Update user details

As the administrator of the website I want to add/ remove/ update details of a user so that the user is shown the correct information.



Confirmation:

Success:

1. Details will be updated in the database and a confirmation message will be shown.
2. The website will show the new information.

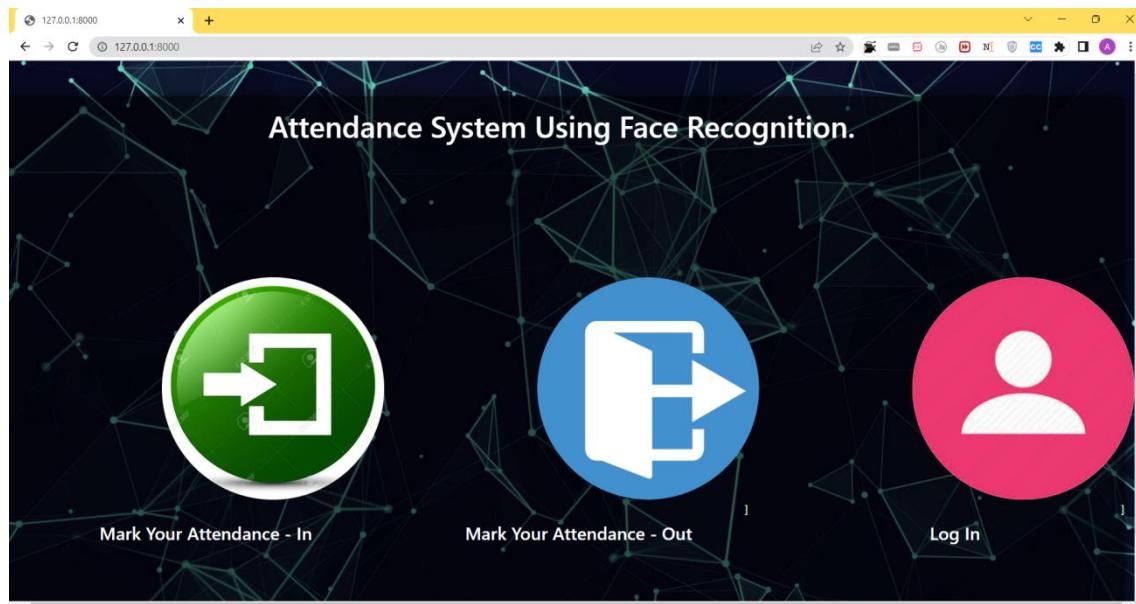
Failure:

1. The user is not an administrator.

UC#003

Dashboard

As a registered user I want the camera to turn on so that I can mark my attendance with face recognition.



Confirmation:

Success:

1. User is taken to the Dashboard where he/she can mark their attendance clicking on the “Mark your Attendance” button to turn the camera on.
2. Camera will turn on and recognize the users face and

[Sequence Diagram for Login Process](#)

Enter Username
Enter Password
Click on login button

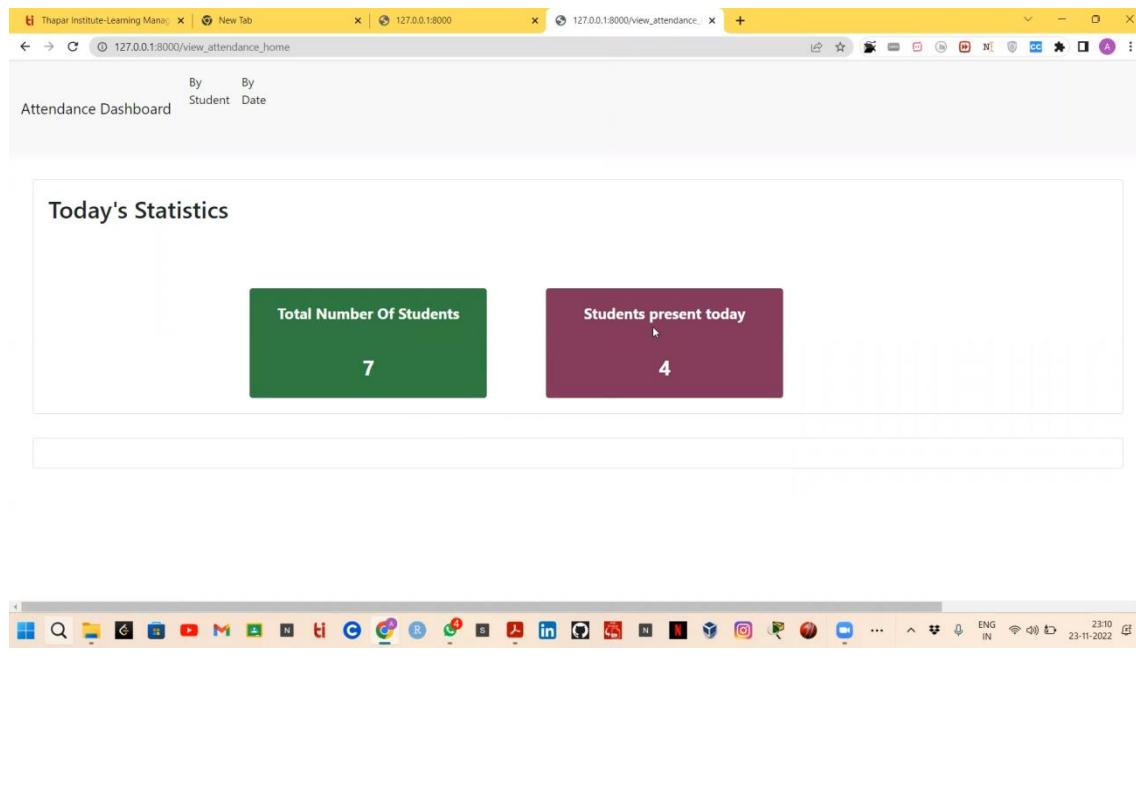
Send user into

Validate User Credentials

UC#004

Attendance Dashboard

As a user I want to view the statistics of my total attendance as per the attended classes.



Confirmation:

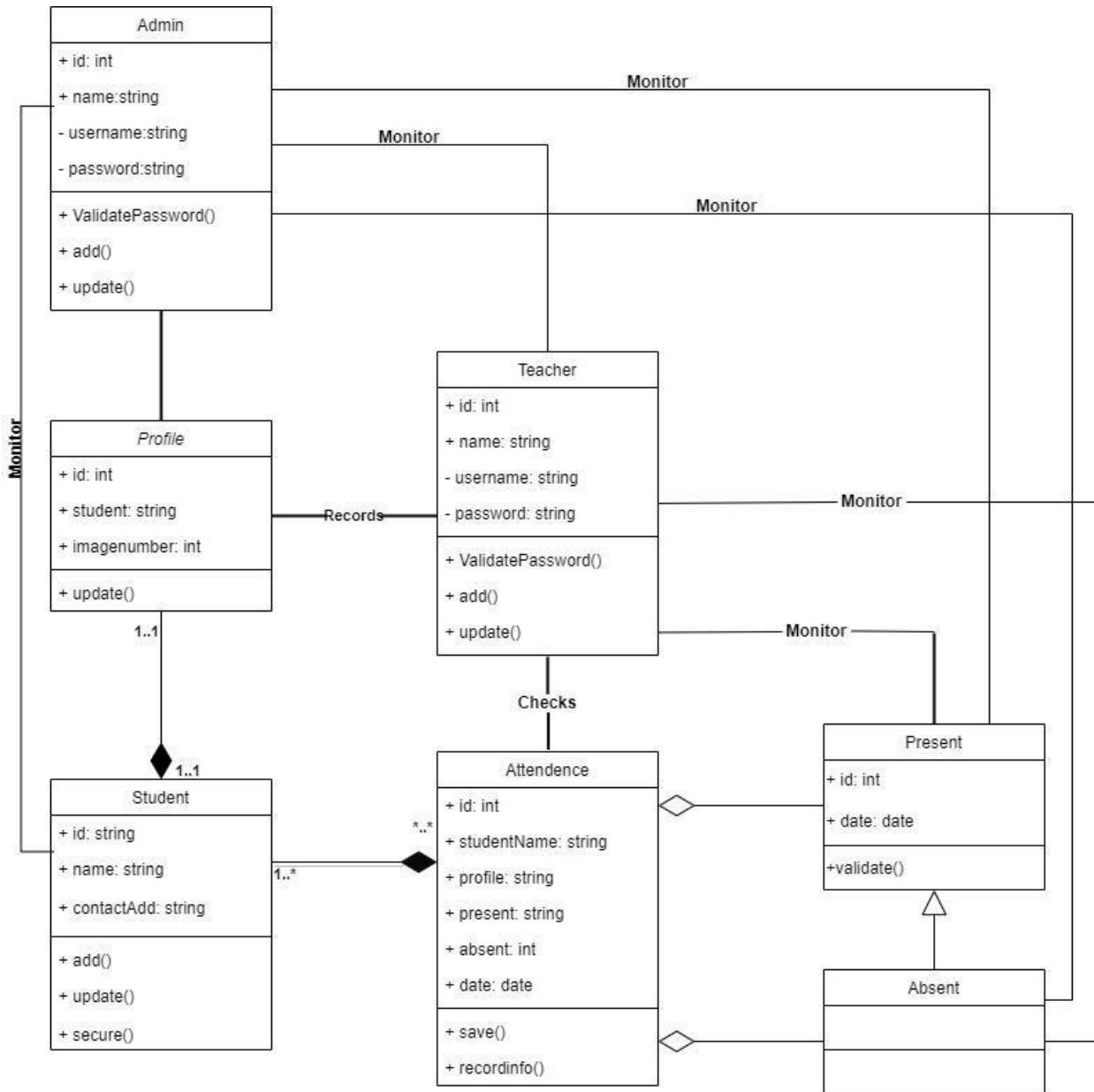
Success:

1. The results that is the statistics are shown.

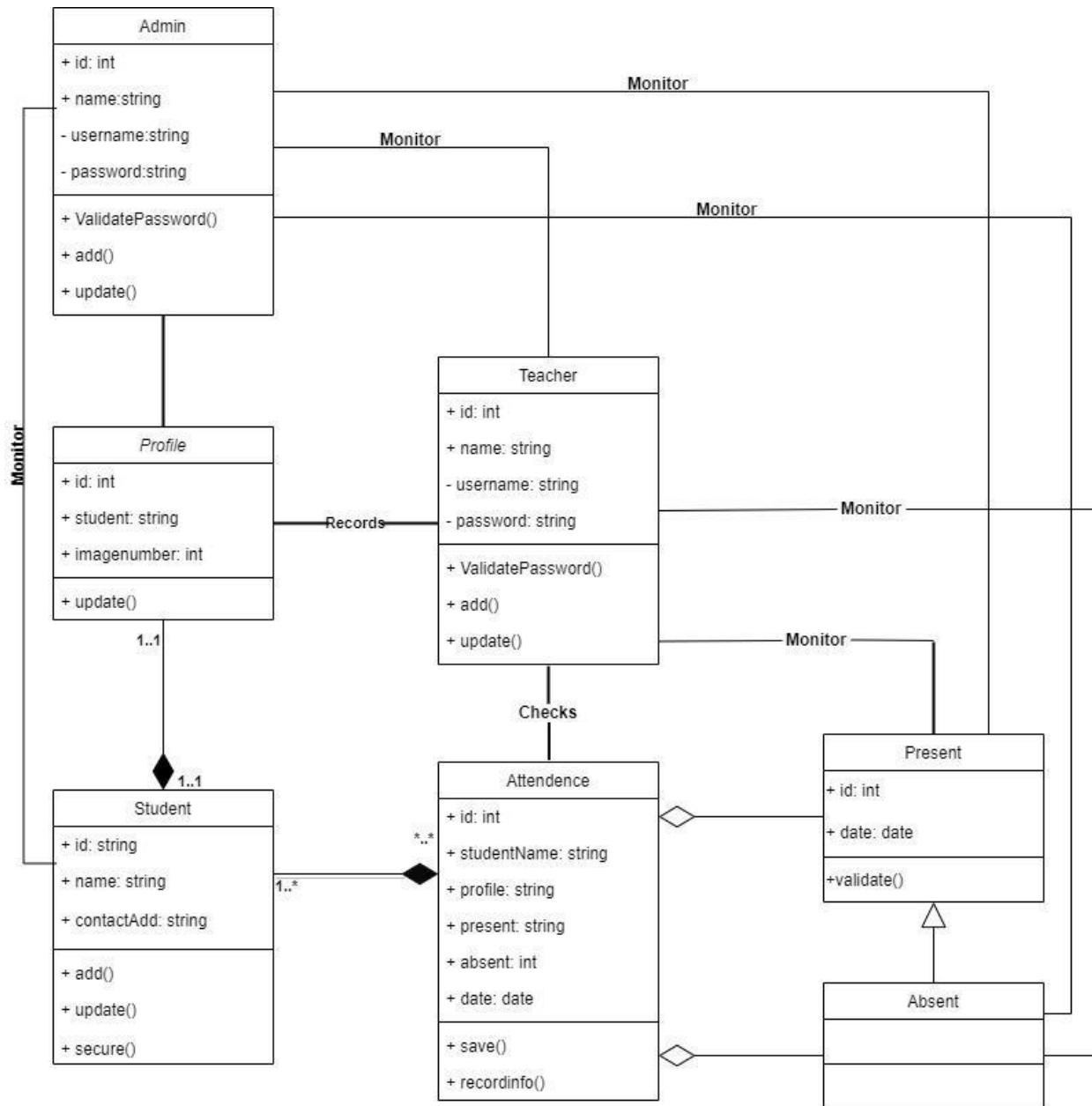
Failure:

1. The student name entered is wrong.
2. The results could not be fetched from the database due to internet connectivity issues.

CLASS DIAGRAM



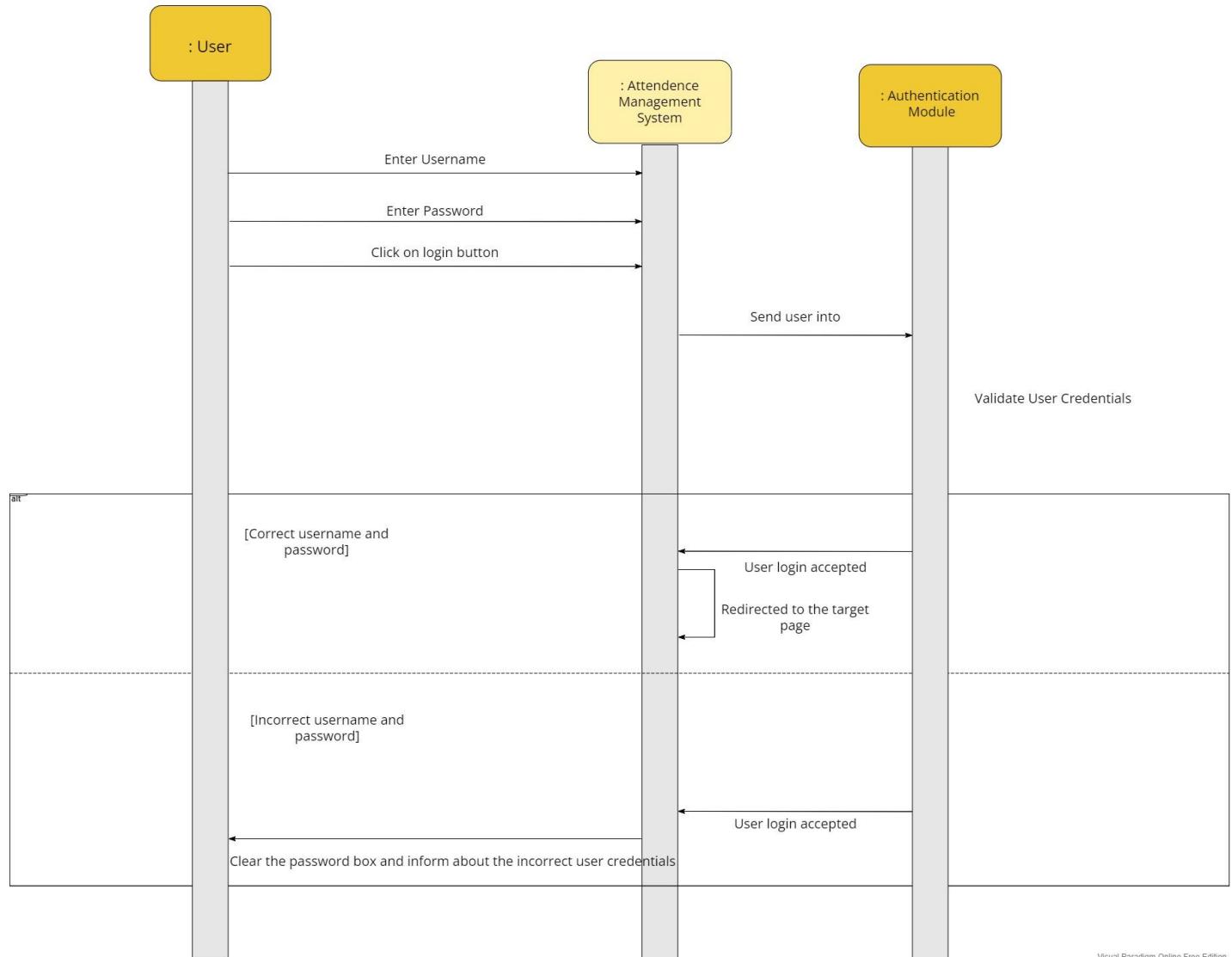
OBJECT DIAGRAM



SEQUENCE DIAGRAM

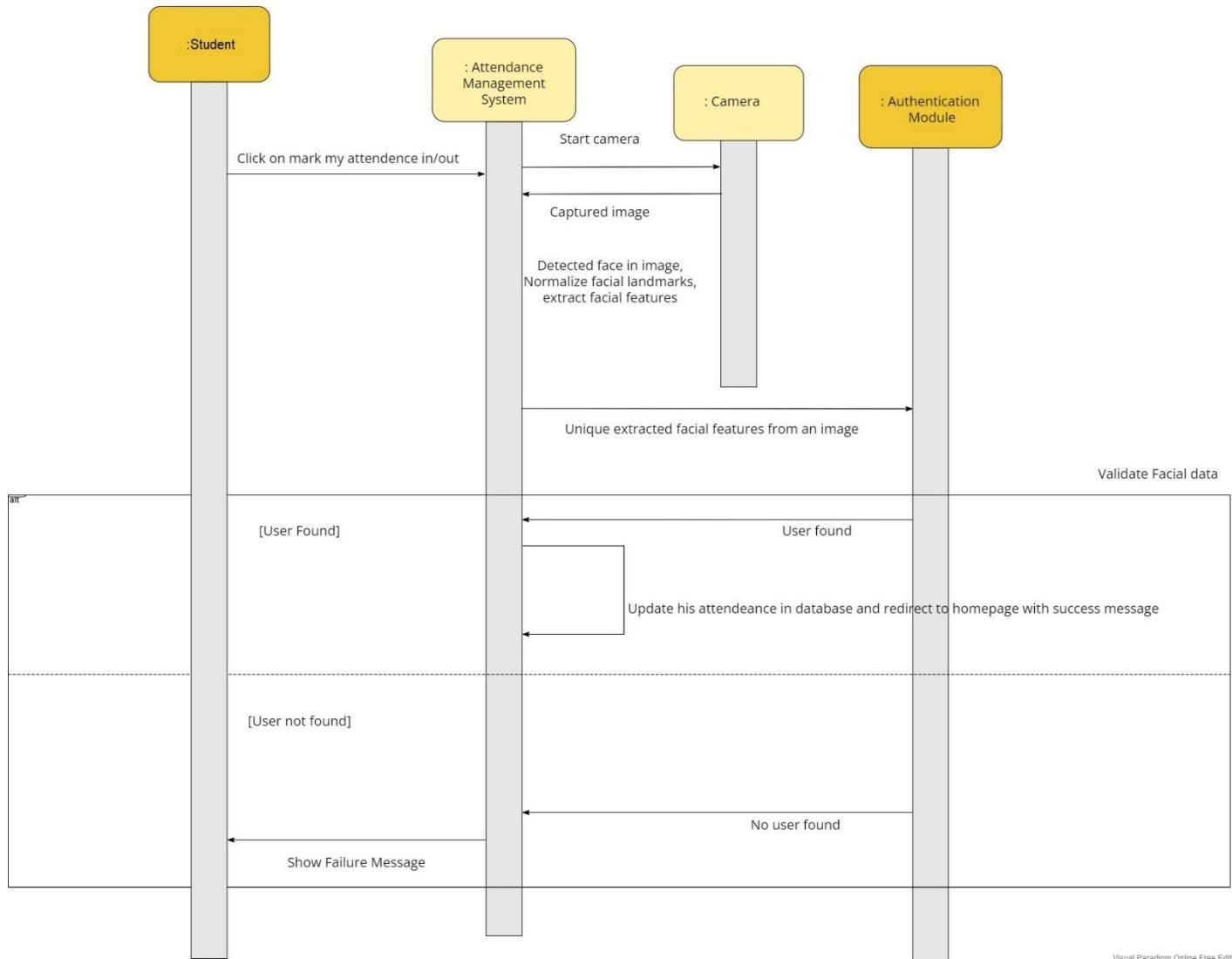
Visual Paradigm Online Free Edition

Sequence Diagram for Login Process



Visual Paradigm Online Free Edition

Sequence Diagram for Login Process

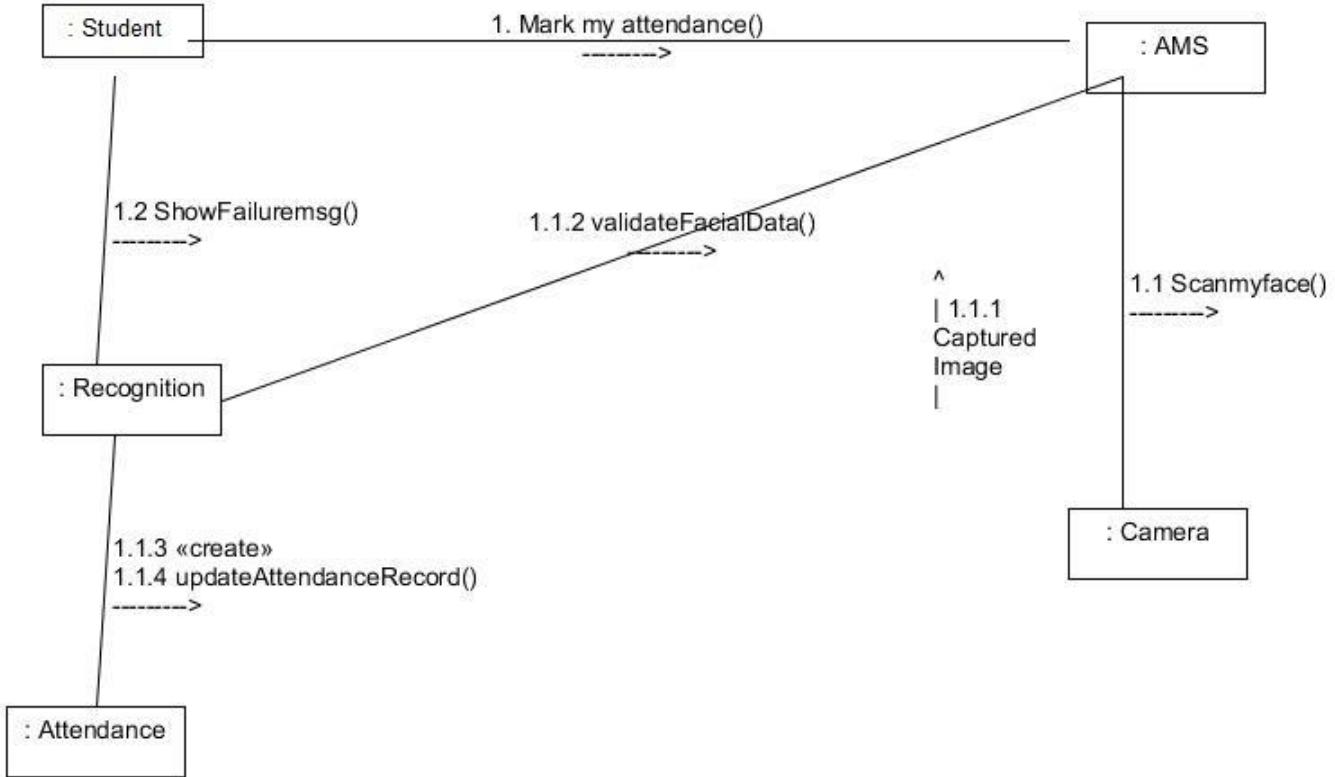


Visual Paradigm Online Free Edition

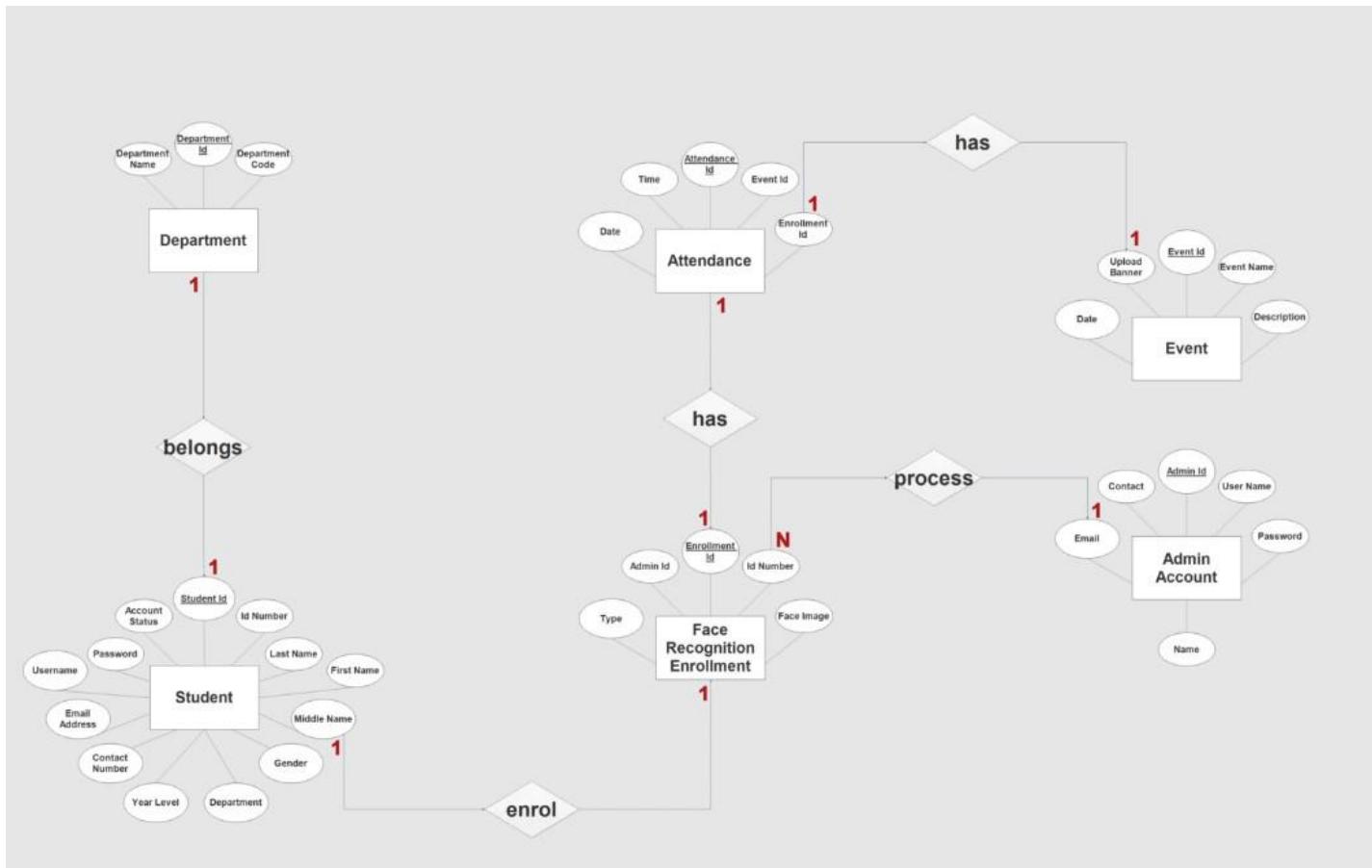
Sequence Diagram for Register User Process



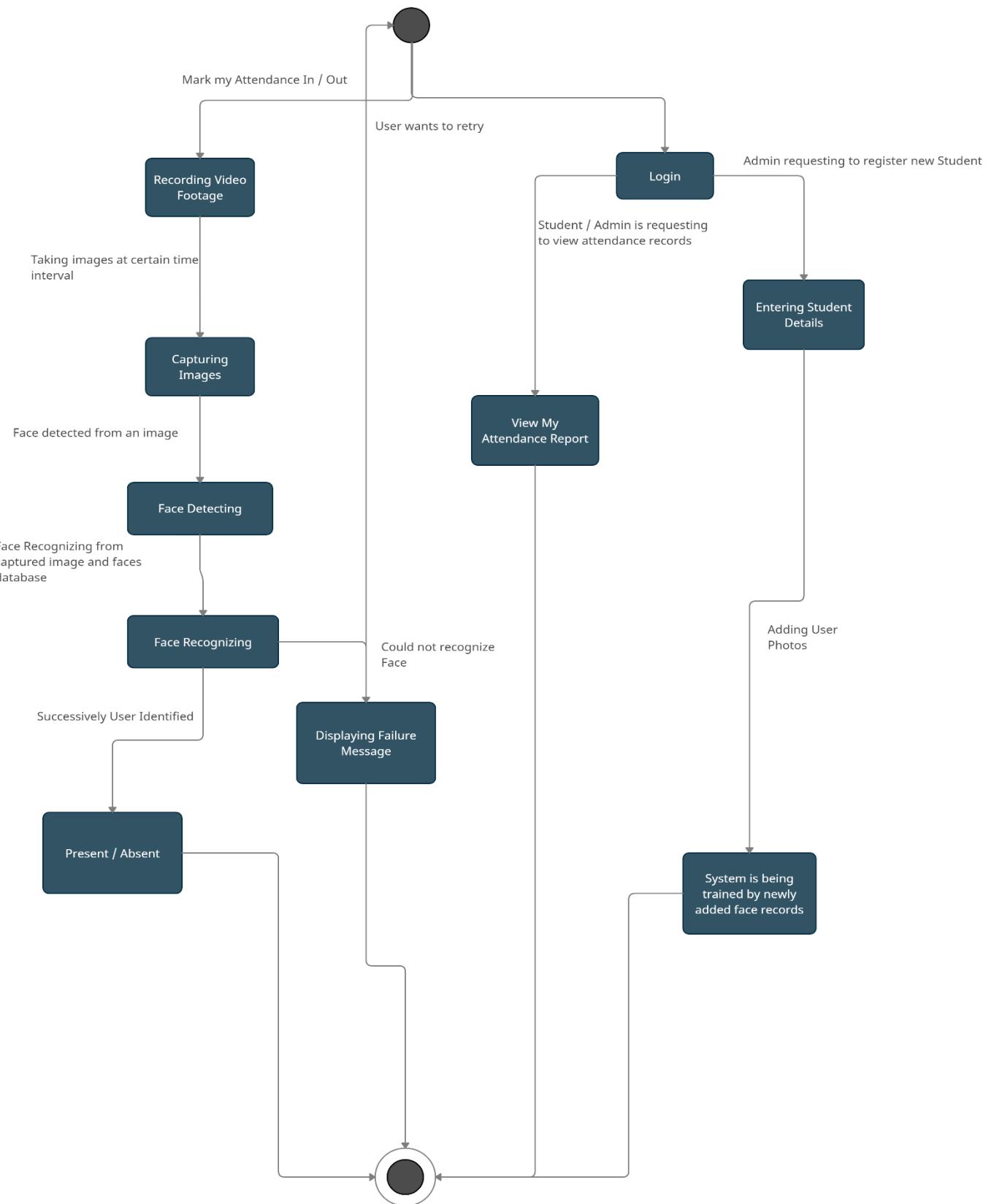
COLLABORATION DIAGRAM



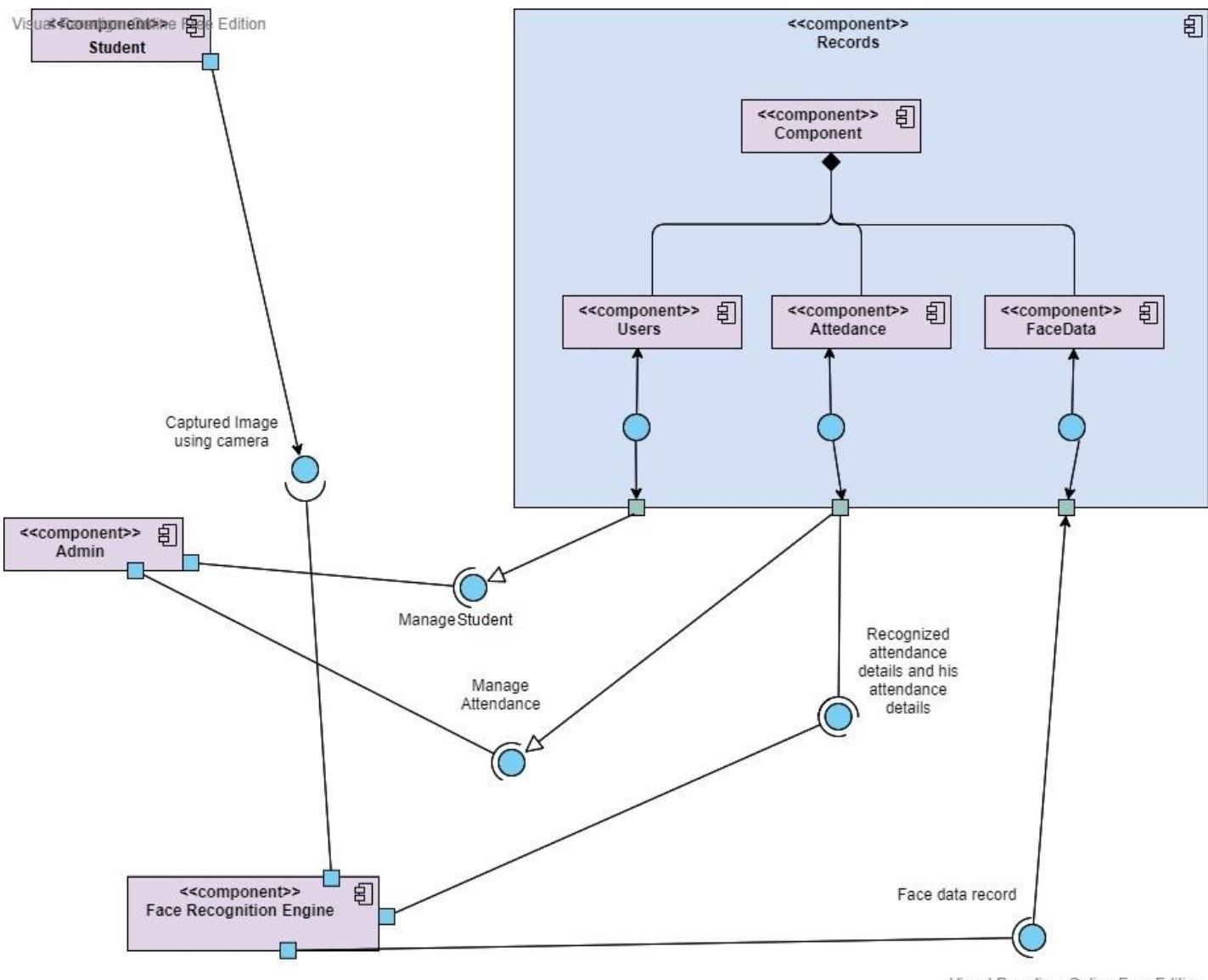
ER DIAGRAM



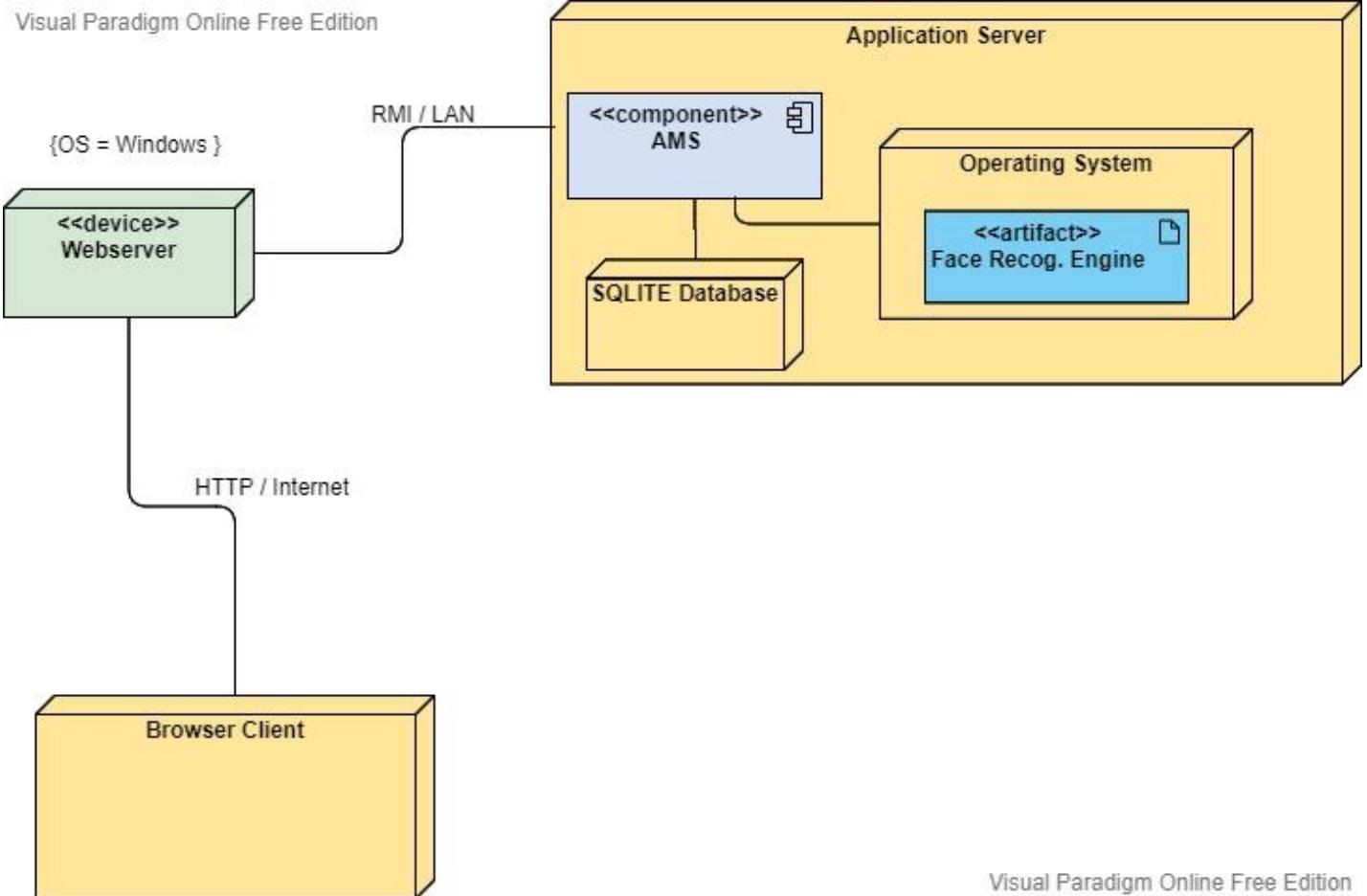
STATE CHART DIAGRAM



COMPONENT DIAGRAM

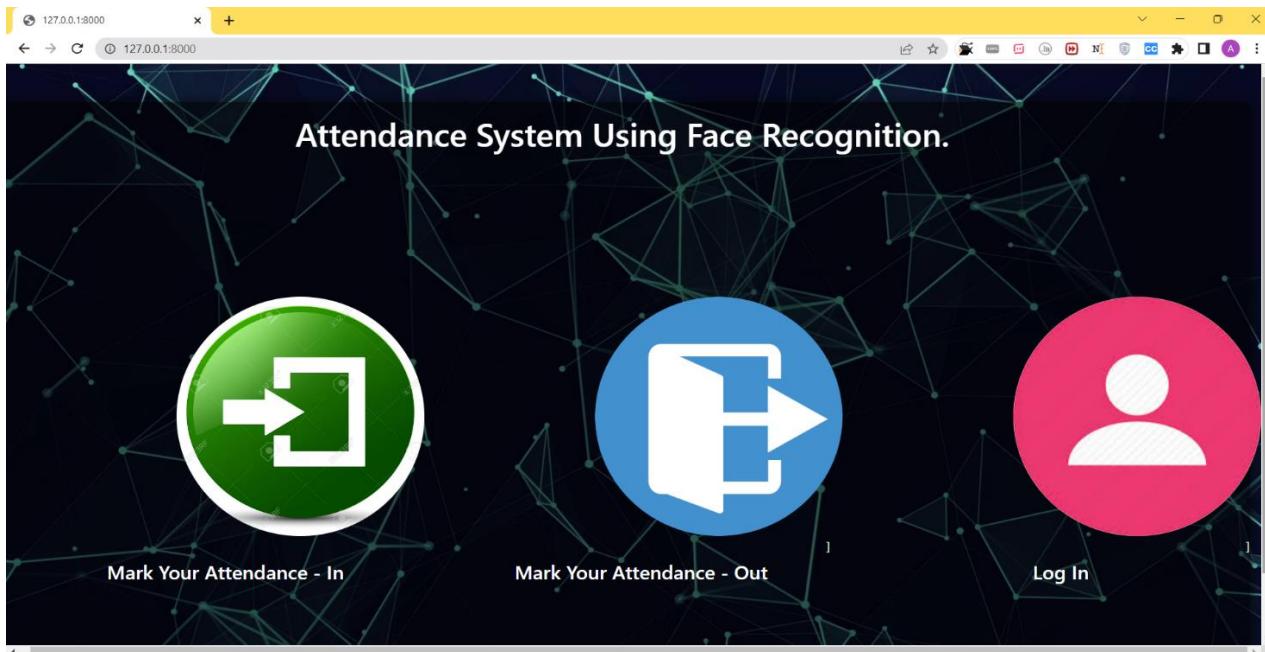


DEPLOYMENT DIAGRAM

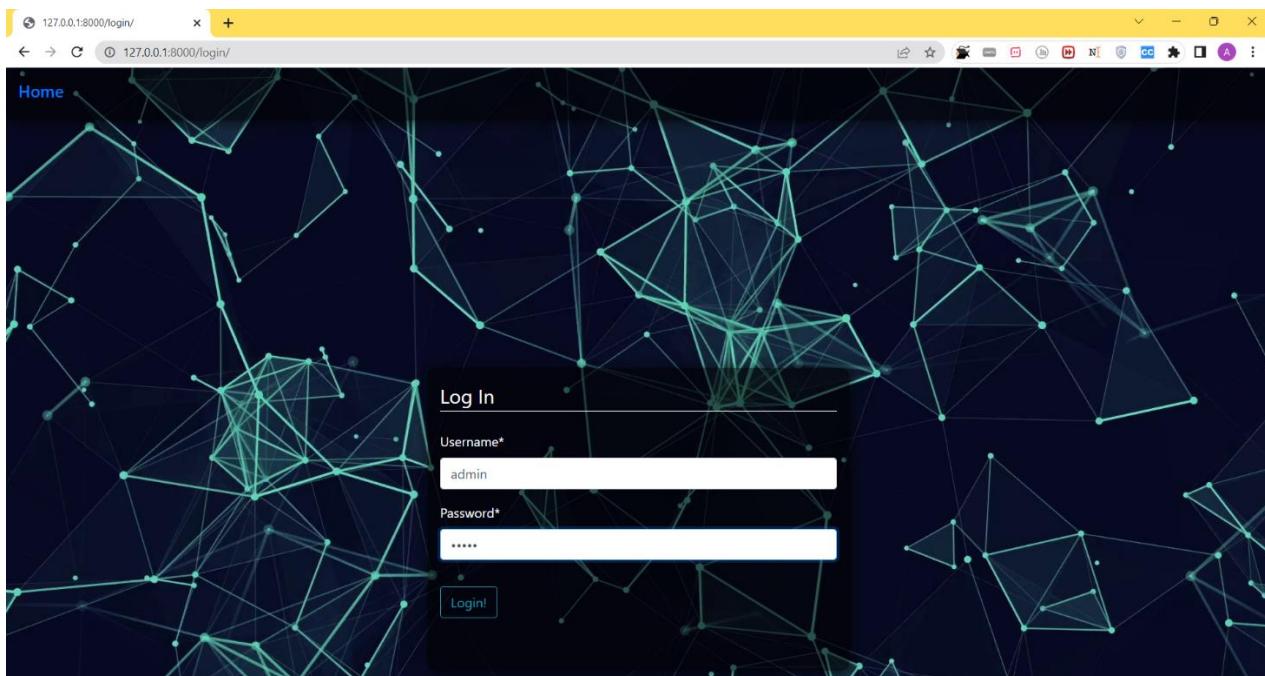


SCREENSHOTS OF WORKING PROJECT

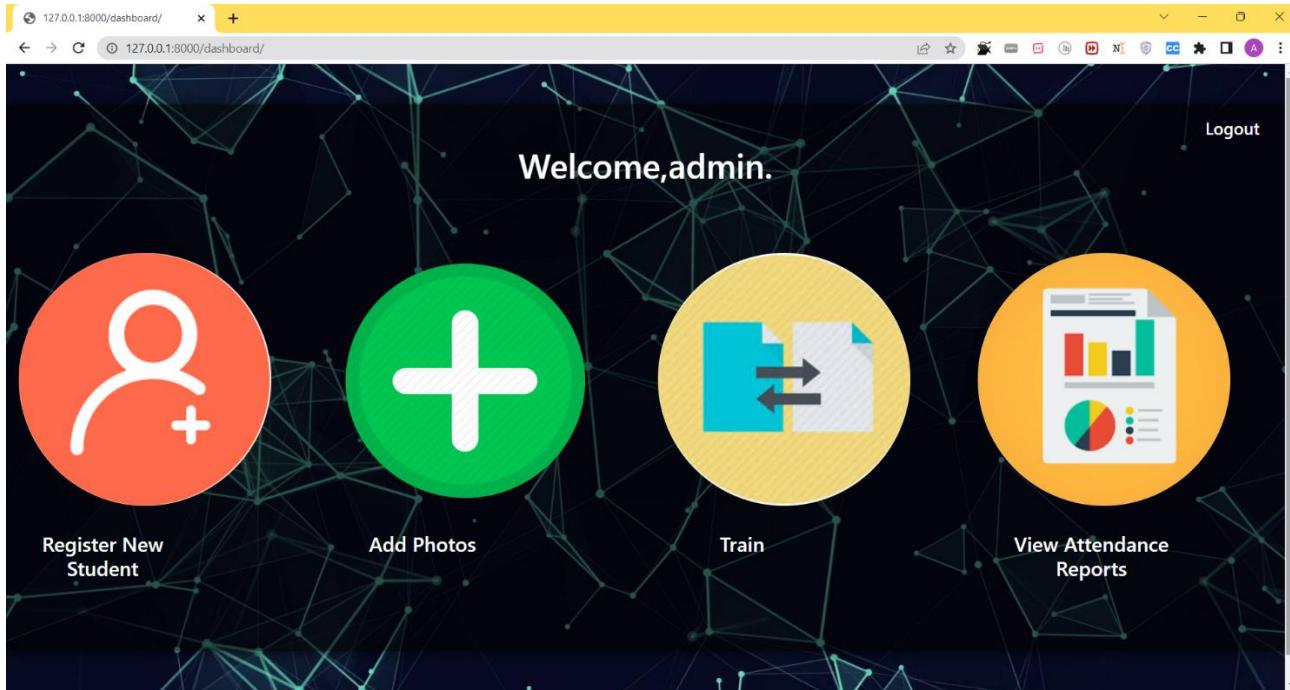
Homepage



Log in as Admin



Admin Page



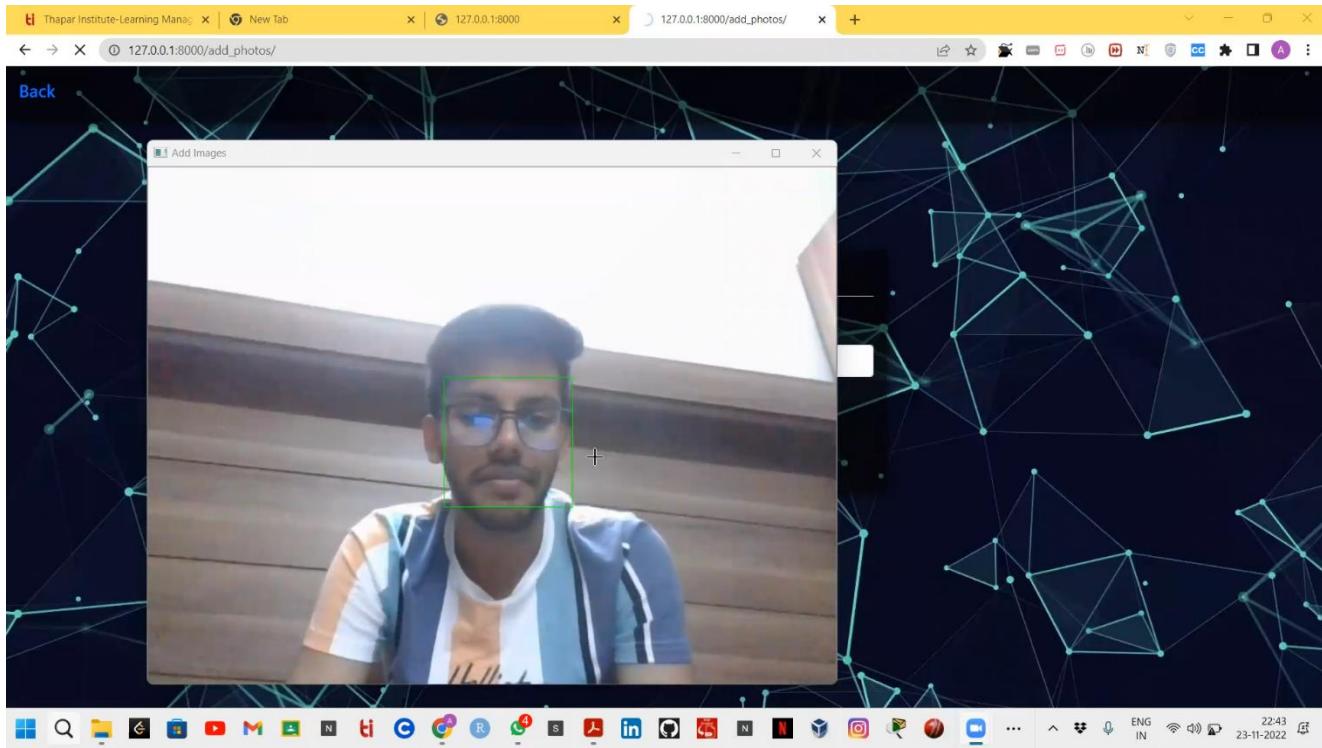
Registering New Student

The screenshot shows a registration form titled 'Register New Student' on a web browser. The form includes the following fields:

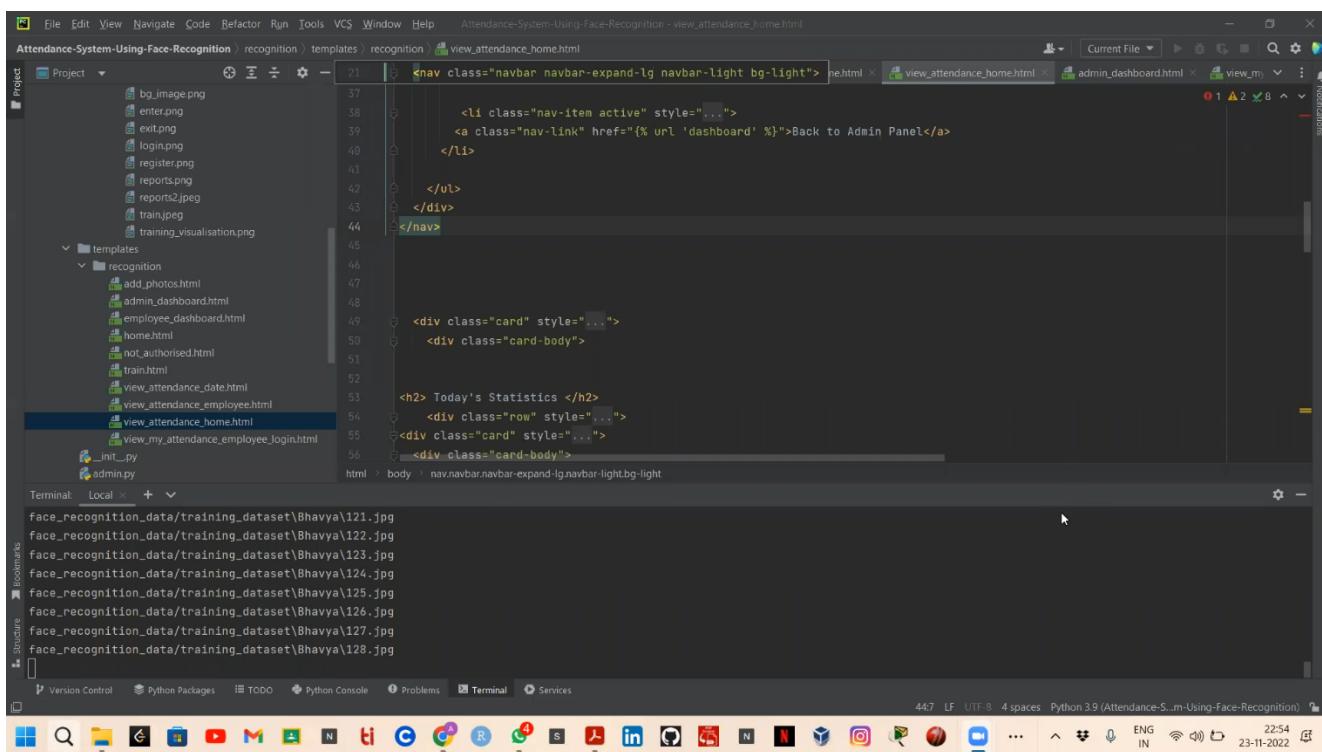
- Username***: A text input field containing 'Bhavya'. Below it is a note: 'Required. 150 characters or fewer. Letters, digits and @/./~/_. only.'
- Password***: A password input field showing masked text. Below it is a note: 'Your password can't be too similar to your other personal information.
Your password must contain at least 8 characters.
Your password can't be a commonly used password.
Your password can't be entirely numeric.'
- Password confirmation***: A password confirmation input field showing masked text. Below it is a note: 'Enter the same password as before, for verification.'

At the bottom of the form is a 'Register' button.

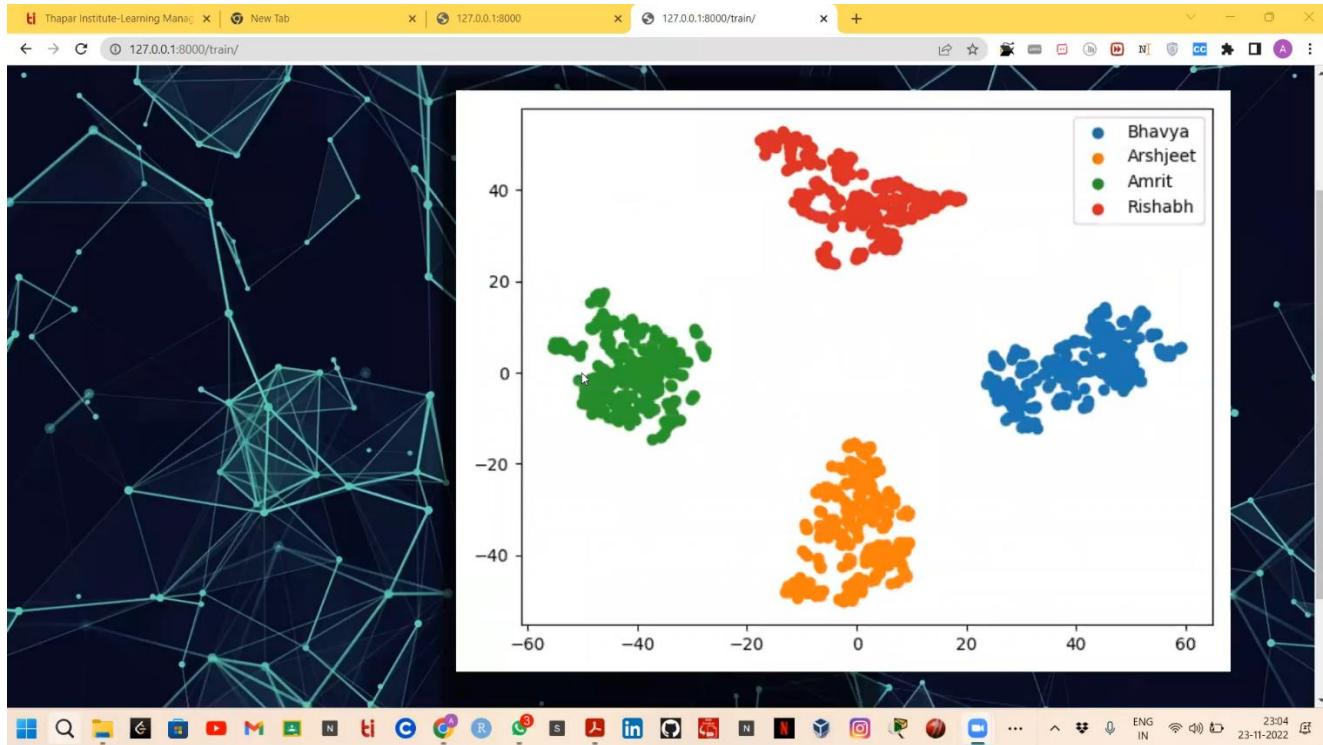
Adding pictures of New Student



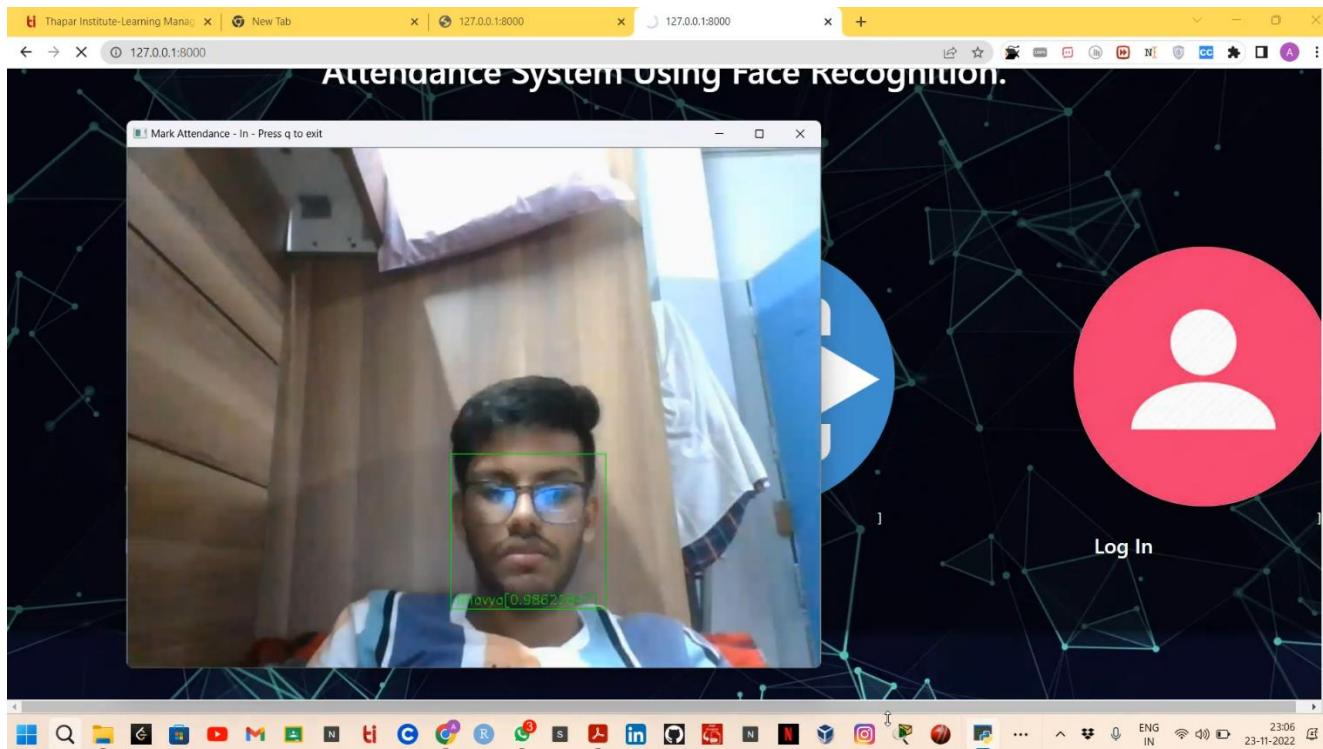
Dataset being trained



Clusters of dataset of registered students



Attendance of new student recorded



Attendance Report

Thapar Institute-Learning Mana... x | New Tab x | 127.0.0.1:8000 x | 127.0.0.1:8000/view_attendance_... x +

By By
Student Date

Attendance Dashboard

Today's Statistics



Thapar Institute-Learning Mana... x | New Tab x | 127.0.0.1:8000 x | 127.0.0.1:8000/view_attendance_... x +

Attendance Dashboard

Select Date

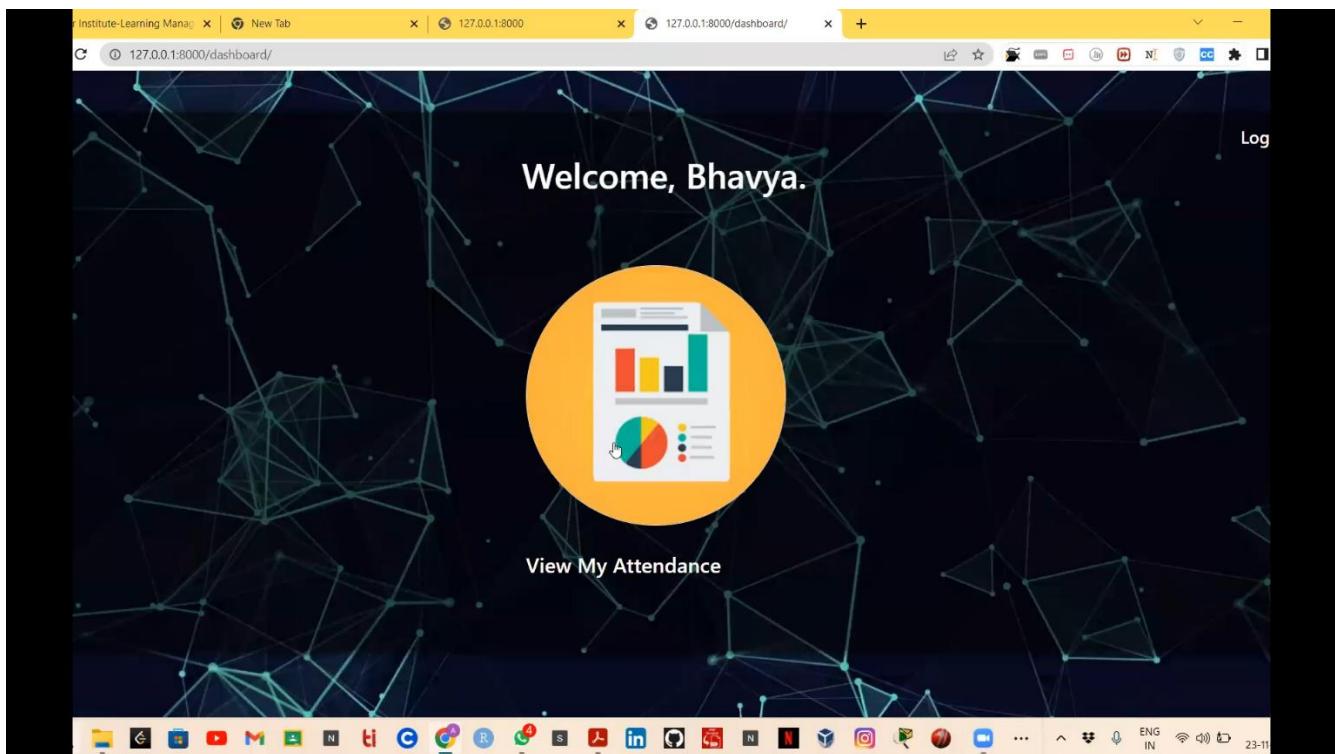
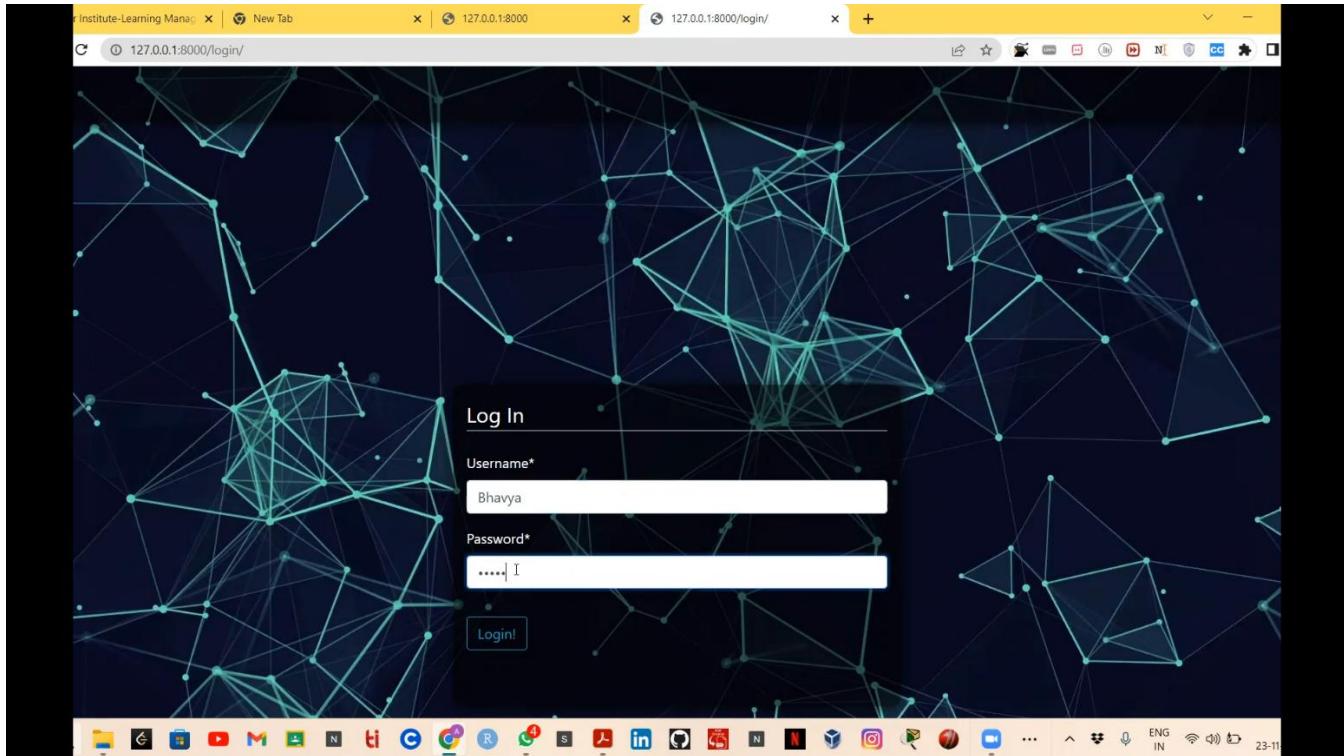
Date*

November
23
2022

Date	Student	Present	Time in	Time out	Hours	Break Hours
Nov. 23, 2022	Rishabh	P	Nov. 23, 2022, 12:31 a.m.	Nov. 23, 2022, 11:08 p.m.	22 hrs 37 mins	0 hrs 0 mins
Nov. 23, 2022	nevil	A	-	-	0 hrs 0 mins	0 hrs 0 mins
Nov. 23, 2022	Amrit	P	Nov. 23, 2022, 1:02 a.m.	Nov. 23, 2022, 8:45 p.m.	19 hrs 44 mins	0 hrs 0 mins
Nov. 23, 2022	Arshjeet	P	Nov. 23, 2022, 1:17 p.m.	-	0 hrs 0 mins	0 hrs 0 mins
Nov. 23, 2022	Bhavya	P	Nov. 23, 2022, 11:07 p.m.	Nov. 23, 2022, 11:08 p.m.	0 hrs 1 mins	0 hrs 0 mins



Log in as Registered Student



Registered Student checking his attendance record

The screenshot shows a web browser window with two tabs open. The active tab is titled "127.0.0.1:8000/view_my_attendance". The page displays a "Select Duration" form with dropdown menus for selecting dates. The "Date from*" dropdown shows November 20, 2022. The "Date to*" dropdown shows November 23, 2022. Below the form is a table showing a single attendance record for a student named Bhavya. The table has columns: Date, Student, Present, Time in, Time out, Hours, and Break Hours. The data in the table is as follows:

Date	Student	Present	Time in	Time out	Hours	Break Hours
Nov. 23, 2022	Bhavya	P	Nov. 23, 2022, 11:07 p.m.	Nov. 23, 2022, 11:08 p.m.	0 hrs 1 mins	0 hrs 0 mins

The browser's toolbar at the bottom includes various icons for file operations, search, and navigation. The status bar at the bottom right shows "ENG IN" and the date "23-11".

TESTING

6.1 Test Cases

The following test cases are planned for the testing of the application:

- Whether the admin can successfully login into his existing account.
- After login, the admin can register new students, add photos, and view attendance records.
- Whether the student is able to mark his/her attendance when at the start of the class.
- Whether the student is able to mark his/her attendance when at the end of the class and logout.

Test Case 1- Login to the account

<p>Test Case #: 1 System: Attendance System using face recognition Designed By: Vibhay Bansal Executed By: Vibhay Bansal Short Description: Test whether the admin can successfully login into his/her existing account</p>	<p>Test Case Name: Login to the account Sub System: Login Page Design Date: 10/11/22 Execution Date: 12/11/22</p>												
<p>Pre-Conditions: The admin should be on the present on localhost.</p>													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;">STEP</th><th style="text-align: left; padding: 5px;">ACTION</th><th style="text-align: left; padding: 5px;">EXPECTED SYSTEM RESPONSE</th><th style="text-align: left; padding: 5px;">PASS/FAIL</th></tr> </thead> <tbody> <tr> <td style="text-align: left; padding: 5px;">1.</td><td style="text-align: left; padding: 5px;">Click on login.</td><td style="text-align: left; padding: 5px;">Admin must have been directed to the page where credentials of admin must be entered.</td><td style="text-align: left; padding: 5px;">PASS</td></tr> <tr> <td style="text-align: left; padding: 5px;">2.</td><td style="text-align: left; padding: 5px;">Enter the username and password and click on login button.</td><td style="text-align: left; padding: 5px;">The admin must be authenticated of his access and a message should be displayed accordingly i.e successful login or invalid credentials.</td><td style="text-align: left; padding: 5px;">PASS</td></tr> </tbody> </table>		STEP	ACTION	EXPECTED SYSTEM RESPONSE	PASS/FAIL	1.	Click on login.	Admin must have been directed to the page where credentials of admin must be entered.	PASS	2.	Enter the username and password and click on login button.	The admin must be authenticated of his access and a message should be displayed accordingly i.e successful login or invalid credentials.	PASS
STEP	ACTION	EXPECTED SYSTEM RESPONSE	PASS/FAIL										
1.	Click on login.	Admin must have been directed to the page where credentials of admin must be entered.	PASS										
2.	Enter the username and password and click on login button.	The admin must be authenticated of his access and a message should be displayed accordingly i.e successful login or invalid credentials.	PASS										
<p>Post Conditions: The admin can successfully login into his/her existing account.</p>													

Test Case 2 - Register new students, add photos, and view attendance records.

Test Case #: 2	Test Case Name: Register new students, add photos, and view attendance records.		
System: Attendance System using face recognition	Sub System: Extension of login screen		
Designed By: Ishita Nagpal	Design Date: 10/11/22		
Executed By: Ishita Nagpal	Execution Date: 12/11/22		
Short Description: Test whether admin is able to register new students, add photos, and view attendance records.			
Pre Conditions: The admin must have a valid username and password and should be logged in to the system.			
STEP	ACTION	EXPECTED SYSTEM RESPONSE	PASS/FAIL
1.	If the admin selects register new student.	Then the screen should appear where admin can enter username, password for new student and register that student.	PASS
2.	If the admin selects add photos or train.	Then the camera should open through which the user can take photo of the student and save it.	PASS
3	If the user selects view attendance records.	Attendance dashboard should appear with option by student and by date at top.	PASS
4.	If the admin further selects by student.		
5.	A screen appears where you need to enter username, date from and date to and click submit.	The system will display the particular student's present status, time in, time out, hours whose username is entered.	PASS
6.	If the admin further selects by date.		
7.	A screen appears where you need to enter the date for which you want to display the attendance records and click on submit.	The system will display the name of the student, present status, time in, time out, hours present in that class on that particular date.	PASS
Post Conditions: After login, the admin can successfully register new students, add photos, and view attendance records.			

Test Case 3 – Mark attendance at the start

Test Case #: 3	Test Case Name: Mark attendance at start		
System: Attendance System using face recognition	Sub System: Main page		
Designed By: Bhavya Jain	Design Date: 12/11/22		
Executed By: Bhavya Jain	Execution Date: 18/11/22		
Short Description: Test whether the student is able to mark his/her attendance when at the start of the class.			
Pre Conditions: The student should be present on the localhost.			
STEP	ACTION	EXPECTED SYSTEM RESPONSE	PASS/FAIL
1.	The student selects attendance in option .	The system will open the camera and record the students live photograph and test it against the already present photos in the system and mark present of that student and update time in in the database.	PASS
Post Conditions: The student is able to mark his/her attendance at the start of the class.			

Test Case 4 – Mark attendance at the end and logout

<p>Test Case #: 4. System: Attendance System using face recognition Designed By: Swati Saran Executed By: Swati Saran Short Description: Test whether the student is able to mark his/her attendance when at the end of the class and logout.</p>	<p>Test Case Name: Mark attendance at end and logout Sub System: Main page Design Date: 12/11/22 Execution Date: 18/11/22</p>												
													
<p>Pre Conditions: The student should be present on the localhost.</p>													
<table border="1"> <thead> <tr> <th>STEP</th><th>ACTION</th><th>EXPECTED SYSTEM RESPONSE</th><th>PASS/FAIL</th></tr> </thead> <tbody> <tr> <td>1.</td><td>The student selects attendance out option .</td><td>The system will open the camera and record the students live photograph and test it against the already present photos in the system and mark present of that student and update time out in the database.</td><td>PASS</td></tr> <tr> <td>2.</td><td>The user selects logout</td><td>The user gets logged out and is redirected to main page .</td><td>PASS</td></tr> </tbody> </table>	STEP	ACTION	EXPECTED SYSTEM RESPONSE	PASS/FAIL	1.	The student selects attendance out option .	The system will open the camera and record the students live photograph and test it against the already present photos in the system and mark present of that student and update time out in the database.	PASS	2.	The user selects logout	The user gets logged out and is redirected to main page .	PASS	
STEP	ACTION	EXPECTED SYSTEM RESPONSE	PASS/FAIL										
1.	The student selects attendance out option .	The system will open the camera and record the students live photograph and test it against the already present photos in the system and mark present of that student and update time out in the database.	PASS										
2.	The user selects logout	The user gets logged out and is redirected to main page .	PASS										

Post Conditions:

The student is able to mark his/her attendance at the end of class and can logout whenever he/she wishes.

6.2 Test Report

Test Case #	Test Case Name	Pass/Fail
1	Login to account	PASS
2	Register new students, add photos, and view attendance records.	PASS
3	Mark attendance at the start	PASS
4	Mark attendance at the end and logout	PASS

4/4 Test Cases passed. Success Rate: 100%