



SERVICE LEARNING PROJECT REPORT

NGO: AKSHAAR PAUL

**STUDENTS ATTENDANCE MANAGEMENT SYSTEM WITH POWERBI REPORT GENERATION
DIGITIZATION OF PHYSICAL STUDENT RECORDS**

SUBMITTED BY

GROUP 8

ABHISHEK RAJPUT 22070122007

ARMAAN JESWANI 22070122029

GAURI DEOGHARE 22070122049

MALAY DOSHI 22070122059

UNDER THE GUIDANCE OF

FACULTY MEMBER:

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Assistant Professor

EXTERNAL MENTOR:

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Date: 24/10/2024

CERTIFICAT OF COMMUNITY SERVICE

This is to certify that the following students – PRN – 22070122007 - **Abhishek Rajput** from Symbiosis Institute of Technology, Affiliated to Symbiosis International (Deemed University) has successfully completed 120 hours of Service-Learning work under the guidance of **Dr Dipti Theng** by fulfilling the following requirements **Attendance management system app, Power Bi report Generation and Digitization of physical student records** of our NGO from the month of July to October of the year 2024.

Thank You!

Sincerely,


Mr. Nagesh Alkunte
Founder, President



Under Trust Act Reg. No. (Mum) : F41924/PUNE
Under Society Act Reg. No. MH/454/2013/PUNE
PAN NO. AAETA9612L



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CERTIFICAT OF COMMUNITY SERVICE

This is to certify that the following students – PRN – 22070122059 - **Malay Doshi** from Symbiosis Institute of Technology, Affiliated to Symbiosis International (Deemed University) has successfully completed 120 hours of Service-Learning work under the guidance of **Dr Dipti Theng** by fulfilling the following requirements **Attendance management system app, Power Bi report Generation and Digitization of physical student records** of our NGO from the month of July to October of the year 2024.

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CERTIFICAT OF COMMUNITY SERVICE

This is to certify that the following students – PRN – 22070122029 - **Armaan Jeswani** from Symbiosis Institute of Technology, Affiliated to Symbiosis International (Deemed University) has successfully completed 120 hours of Service-Learning work under the guidance of **Dr Dipti Theng** by fulfilling the following requirements **Attendance management system app, Power Bi report Generation and Digitization of physical student records** of our NGO from the month of July to October of the year 2024.

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CERTIFICAT OF COMMUNITY SERVICE

This is to certify that the following students – PRN – 22070122049 - **Gauri Deoghare** from Symbiosis Institute of Technology, Affiliated to Symbiosis International (Deemed University) has successfully completed 120 hours of Service-Learning work under the guidance of **Dr Dipti Theng** by fulfilling the following requirements **Attendance management system app, Power Bi report Generation and Digitization of physical student records** of our NGO from the month of July to October of the year 2024.

Thank You!

Sincerely,


Mr. Nagesh Alkunte
Founder, President



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ACKNOWLEDGEMENTS

We thank **Symbiosis International University** for arranging this Service Learning opportunity, and incorporating dedicated hours for it.

We thank **Akshaar Paul** for providing an opportunity to work on a project of great significance to the core management of the organization.

We are grateful to our Faculty Mentor, **Dr. Dipti Theng**, and External Mentor, **Mr. Shivam Kolhe** and **Nagesh Alkunte** for extending patient guidance, advice, and opportunities to improve upon our work.

We also express our sincerest thanks to our classmates and faculty members whose cooperation made this Service Learning project very fruitful, enjoyable, and memorable.

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4. INTRODUCTION



Flat No. 10, Wing No. C-2, Dhanlaxmi Park, Sr.No.97/8/1, Bhusari Colony, Paud Road, Kothrud, Pune -411038 Maharashtra, India
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Akshar Paul NGO is committed to improving literacy and providing support to underprivileged children. The organization was established way back in 2013 in Pune. The organization has expanded the service into Nashik and Satara and is further looking at reaching out to more needy children in these regions in terms of education access.

Akshar Paul has been working with pavement dwellers and construction-site-based families who do not receive formal education due to their nomadic lifestyles and have no other material backup. Most of them don't have books and other reading materials, making it difficult for them to keep up with their peers in more stable environments.

To overcome all these obstacles, Akshar Paul offers free educative programmes to remote communities. They provide educational services to include basic education and numerical classes along with books and learning aids, and additional support to help children stay engaged and motivated in their studies. By creating a supportive and nurturing learning environment, Akshar Paul aims to give these children the tools they need to build a brighter future.

PROBLEM FACED BY THE NGO

Akshaar Paul has brought about one of the more significant challenges in the NGO mission of Akshar Paul, which provides for quality education to these economically deprived children, mainly living on pavements who can hardly be found sitting around a single place but at sites of construction. Since many of these children lack the privilege of continuous schooling because there is no stability either at the workplace or in houses.

Another major hindrance lies in managing the books for different libraries scattered around places because most children read off copies of learning resources developed by the organization; an effective library resource management tool will help keep track of the number of copies, hence determining which book should be brought back by a child. It is very challenging however to maintain an organized inventory without a formalized system. Books and other learning resources are frequently lost or not returned. Lack of structures in managing the inventories of the library can lead to resource shortages, making it unbearable to steadily meet the demand for education placed upon the children regularly.

A simple matter of attendance management on behalf of Akshar Paul NGO is that in general, the process would even be more hectic to get the attendance as being marked physically. Teachers along with administrators are highly affected to ensure that all the attendance recordings of the children at diverse scattered and mobile locations serviced in the communities are physically written down. This manual process is time-consuming, labour intensive, and prone to possible errors, especially when having to monitor children who can miss school at any particular time. In addition, this kind of community often does not have stable facilities, and the task of carrying physical books around becomes cumbersome and inconvenient.

Teachers and administrators cannot effectively keep track of records and data because the children also miss school irregularly. In such cases, it becomes difficult to fill gaps about attendance records and, therefore, challenges the fulfilment of adequate support for each child. Further, retrieval of historical data for the assessment of a child's progress or identification of those who need more attention due to low attendance proves difficult without digital or automated systems. The manual process also complicates the consolidation of data and its analysis, which are critical for tracing the impact of the program and making improvements.

5. PROBLEM STATEMENT

1. Attendance is recorded manually, a process that is often prone to errors and inefficiencies. The NGO struggles with manually tracking student attendance, leading to inaccuracies. This is time-consuming and labour intensive, diverting resources away from core educational activities.

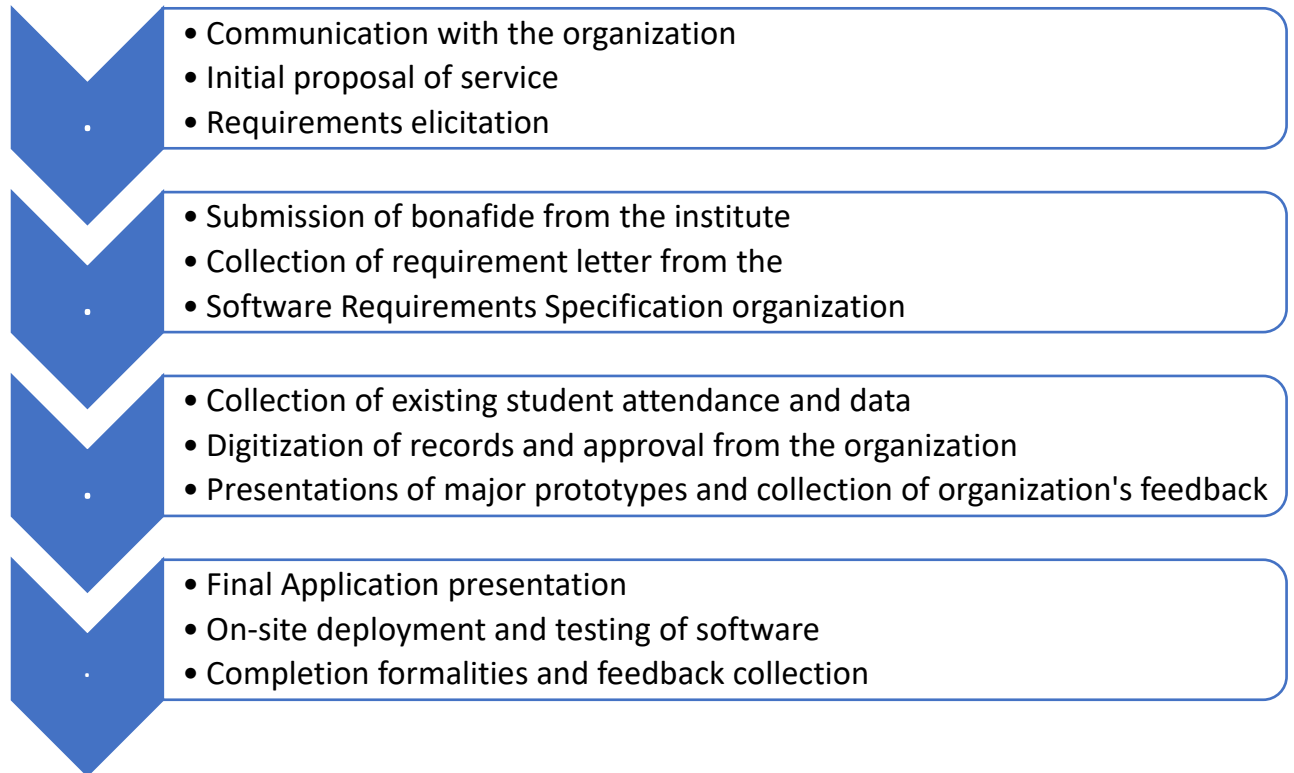
2. Additionally, the student records from the past 10 years have been manually recorded in registers, which are both difficult to maintain and vulnerable to damage. To address this, these records have been transferred to a more suitable Excel format for easier management and preservation.

WORK ALLOTTED

- Develop an efficient and user-friendly attendance management system. New system should leverage biometric tracking technology to ensure precise and consistent tracking of student attendance.
- Simplify the process for both the students and teachers by integrating Power BI reports.
- Digitalize the offline records.
- Teach students at NGO about English and basics of Computer software and hardware.

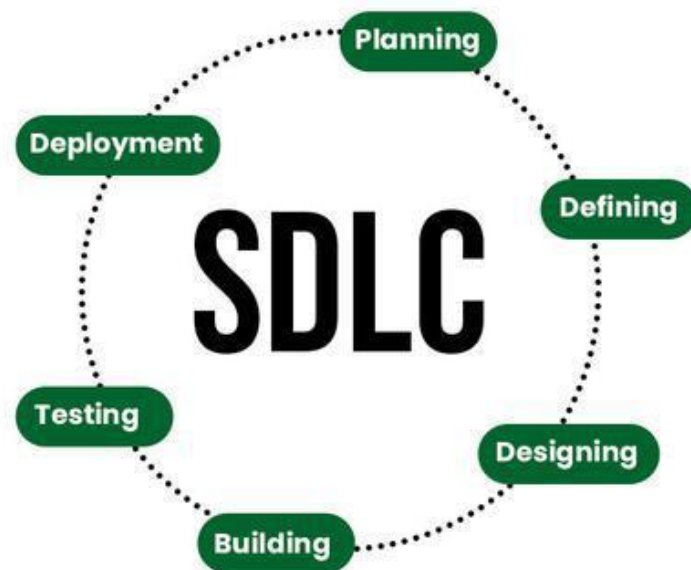
6. PROJECT PLANNING

6.1 PROJECT TIMELINE



6.2 SOFTWARE DEVELOPMENT LIFECYCLE

SDLC will be employed for the design of Biometric Attendance Management System so that each phase in its journey would help evolve a solution that is worth and capable of being termed reliable with user-friendliness and quality. For the Biometric Attendance Management System developed in this report, SDLC stages undertaken would include:



Source: [geeksforgeeks.org](https://www.geeksforgeeks.org/sdlc-phases/)

1.Requirement Gathering: Communicated with the NGO (Akshaar Paul) in such a way that their requirements and pain points regarding attendance management and record-keeping could be understood. It thus helped in defining the goals of the project: digitization of records, a biometric attendance system, and reports through Power BI.

2.Planning: Define project planning with respect to timeline, deliverables, and major milestones so that timelines are defined for individual components like data collection, digitization, and software deployment. It also included resource planning and planning of tasks.

3.Design: We designed system architecture with database structure, a frontend interface and backend logic. We came up with use case, component, and deployment diagrams to visualize the general structure of the system and its workflow. We also prototyped the user interface using Figma to ensure it is usable and caters to the NGO requirements.

4.Development: The system includes front-end programming through HTML/CSS and back-end development using Python and Django, with a MySQL database for secure data storage. Key functionalities such as attendance reporting and data backup have been implemented to enhance efficiency and reliability. Additionally, Power BI integration allows for dynamic report generation, enabling administrators to visualize

attendance trends, generate insights, and present data in an accessible, graphical format. All development was managed with version control through GitHub, supporting collaborative coding and continuous integration to ensure a smooth development process and effective team collaboration.

5.Testing: The system underwent thorough testing, checking for functionality, accuracy, and performance. Testing included unit testing, which looked at individual components, integration testing for any communication between modules, and a user acceptance test to make sure the system actually delivered what the NGO required.

6.Deployment: After the application tested positively, its deployment was made for on-site usage at Akshaar Paul. Training sessions were done and real-time data was fed into the system to make sure that the implementation of the software was as anticipated.

7.Maintenance: After the system is deployed, software upgrades, bug fixes, and performance monitoring are conducted regularly to keep the system efficient and reliable. Feedback will be collected regularly to look for areas of improvement that will make sure the system continues to meet the needs of the users.

7. DATA COLLECTION AND STANDARDIZATION

1. ATTENDANCE DATA SOURCE:

Biometric Devices: Attendance data is captured through biometric devices i.e fingerprint scanners.

Data Gathering: Biometric records were used to collect attendance data for a particular date which consists of various fields to record the attendance details of each student. The main pieces of information gathered are:

- Student Name - The student's given name.
- Student ID (Roll Number) – Distinctive identifier assigned to every student.
- Date - The recorded date of attendance.
- Presence status - Shows if the student was present or absent.
- Intime refers to the moment when the student arrived and checked in.
- Out time refers to the moment when the student officially leaves.

Every record reflects a student's presence on a specific day, providing a detailed overview of daily attendance, arrival, and departure times.

Standardizing data was done to ensure consistency and make it easier for data processing by following a set standard.

- Date Format - All dates were documented in DD-MM-YYYY format for consistency and simplicity in filtering.
- Check-in and check-out times were converted to a 12-hour format with AM/PM notation to make it easier to understand the times.
- Consistent attendance status labels ("Present" or "Absent") were used to ensure clarity and streamline data analysis.
- Maintaining consistency in roll numbers was important, so student IDs were kept in numeric form to facilitate sorting and identification.
- Completeness of Fields - Each row in the dataset was verified for completeness, making sure there were no missing values in key columns like Date, Status, Intime, Out time.

This standardization guarantees the data is neat, organized, and prepared for additional processing, analysis, or reporting in the biometric attendance management system.

	A	B	C	D	E	F
1	Student Name	Student id (Rollno)	Date	Status (Present/Absent)	Intime	Outtime
2	Aarav Patel	201	02-09-2024	Present	9:00 AM	3:00 PM
3	Aisha Sharma	202	02-09-2024	Absent		
4	Rohan Gupta	203	02-09-2024	Present	9:15 AM	3:15 PM
5	Neha Iyer	204	02-09-2024	Present	9:00 AM	3:00 PM
6	Arjun Rao	205	02-09-2024	Absent		
7	Priya Singh	206	02-09-2024	Present	9:10 AM	3:10 PM
8	Vikram Mehta	207	02-09-2024	Present	9:05 AM	3:05 PM
9	Ananya Desai	208	02-09-2024	Present	9:00 AM	3:00 PM
10	Karan Kumar	209	02-09-2024	Absent		
11	Divya Joshi	210	02-09-2024	Present	9:20 AM	3:20 PM
12	Rahul Nair	211	02-09-2024	Present	9:00 AM	3:00 PM
13	Sanya Sharma	212	02-09-2024	Absent		
14	Siddharth Gupta	213	02-09-2024	Present	9:30 AM	3:30 PM
15	Meera Rao	214	02-09-2024	Present	9:00 AM	3:00 PM
16	Ashwin Nair	215	02-09-2024	Absent		
17	Shruti Mehta	216	02-09-2024	Present	9:10 AM	3:10 PM
18	Rajesh Patel	217	02-09-2024	Present	9:00 AM	3:00 PM
19	Kavya Singh	218	02-09-2024	Absent		
20	Ayan Khan	219	02-09-2024	Present	9:05 AM	3:05 PM
21	Tanvi Agarwal	220	02-09-2024	Present	9:00 AM	3:00 PM
22	Abhinav Rao	221	02-09-2024	Absent		
23	Isha Desai	222	02-09-2024	Present	9:15 AM	3:15 PM
24	Harsh Patel	223	02-09-2024	Present	9:00 AM	3:00 PM
25	Nidhi Gupta	224	02-09-2024	Absent		
26	Dev Sharma	225	02-09-2024	Present	9:20 AM	3:20 PM

Data Collection: Biometric Device Attendance Data

Data Update Frequency:

Monthly Updates: Attendance data from biometric devices will be synced and updated in the database monthly

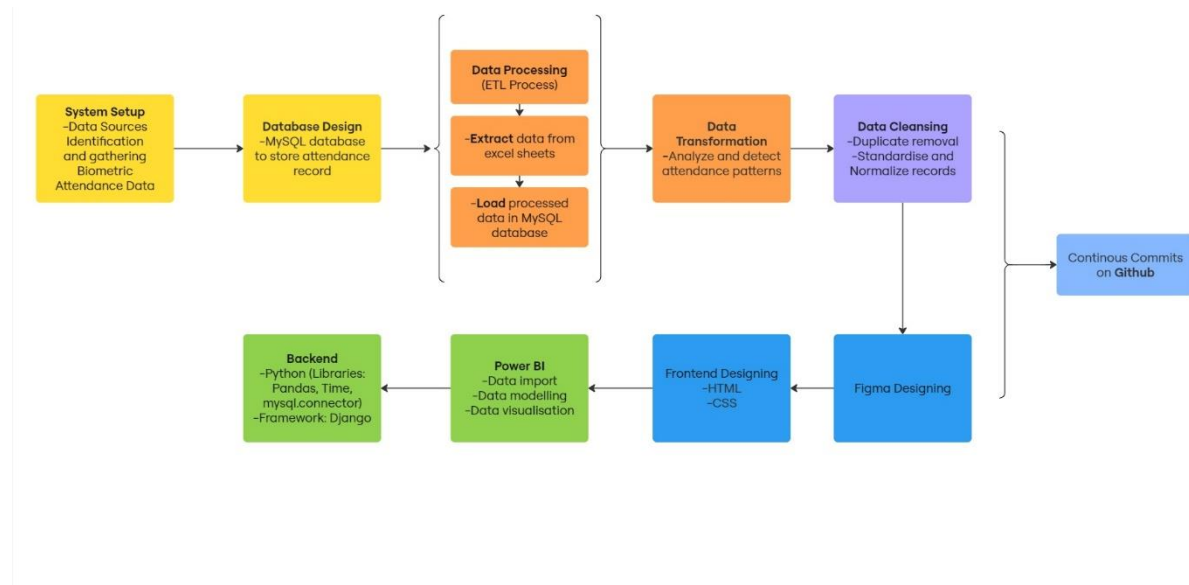
After these steps, the data was ready to be deployed for the desktop application.

पुणे महानगरपालिका					
तक्रार					
जनसंख्या					
महाराष्ट्र					
क्र.सं.	विवाहाचे पुर्ण नाव	जन्म व कोटेशन	जन्म स्थान	जन्माची तारीख सहस्र व मिन (दिवासी प्रमाणानुसार)	आईचे नाव
169	Bendre Ashwarya Atul	Hindu Mumbai	Pune	15/09/2002 Fifteenth September Two Thousand Three	Bendre Anita Atul
170	Bhambhani Tute Chandrakashi	Marathi	UP	13/12/2002 Thirteenth December Two Thousand Three	Bhambhani Mithalesht Chandrakashi
171	Chavan Ruchi Ranjeet	Hindu Nasik	Pune	06/07/2002 Sixth July Two Thousand Four	Chavan. Maye Ranjeet
172	Gawar Pooja Bhagwan	Hindu Mahar.	Jalana	03/03/2002 Third March Two Thousand Four	Gawar Jyoti Bhagwan

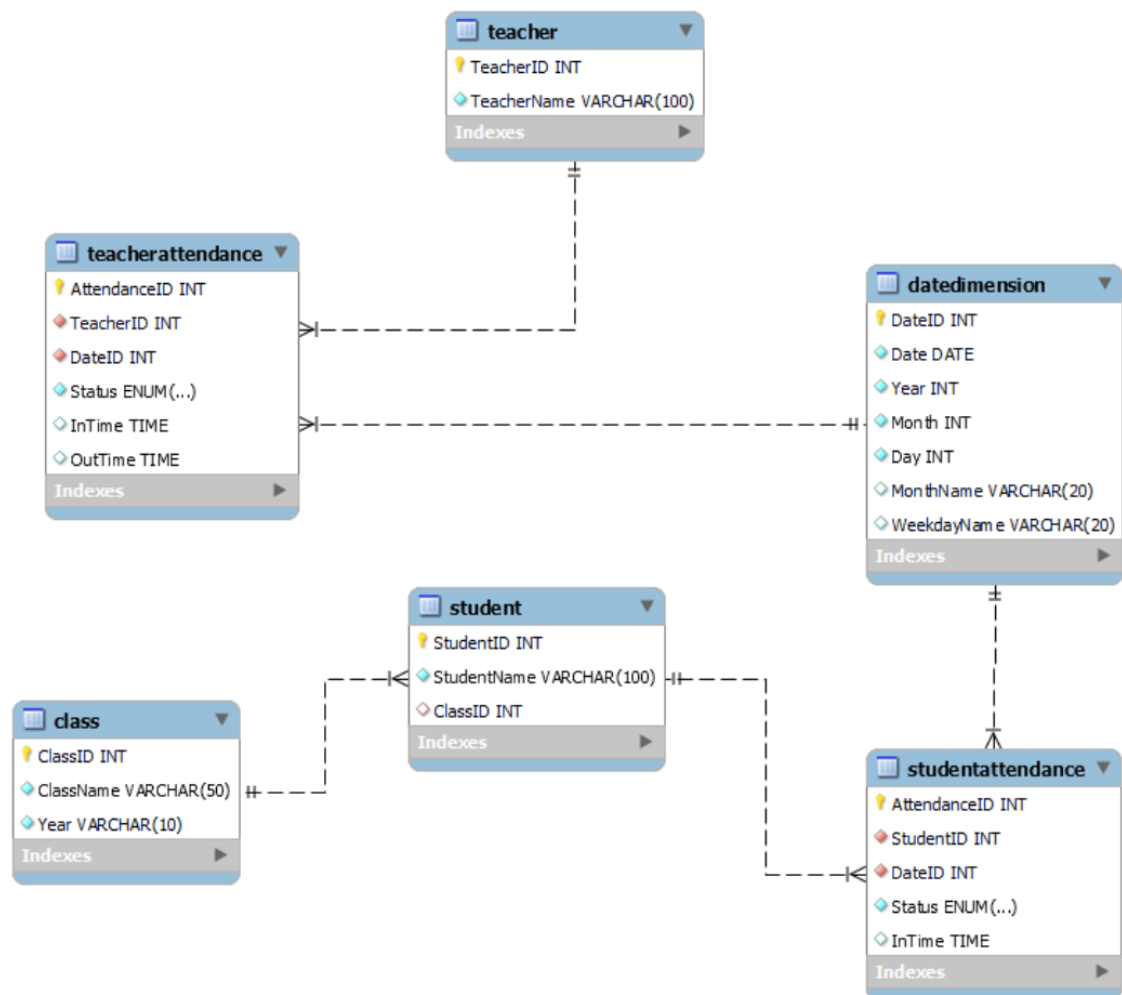
Admission Number	Name	Gender	DOB	Date of Admission	Religion	Category	Mother Tongue	Guardian's Name	Phone No. 1	Phone No. 2	Aadhaar No.
4112	Aarav Deshmukh	M	05-02-2015	10-07-2020	Hindu	Gen	Marathi	Rohan Deshmukh	9823456712	9734567812	7890 1234 5678 9123
4113	Vedika Kulkarni	F	22-08-2014	15-06-2020	Hindu	Gen	Marathi	Swati Kulkarni	9897654321	9854678934	6789 2345 8901 3456
4114	Rohan Sharma	M	30-11-2013	01-06-2021	Hindu	Gen	Hindi	Vivek Sharma	9823678912	9876543210	5678 3456 1234 8765
4115	Simran Kaur	F	10-05-2015	12-07-2020	Sikh	OBC	Punjabi	Harjit Kaur	9876543212	9867543211	2345 6789 9012 5678
4116	Aniket Jadhav	M	20-12-2013	09-06-2020	Hindu	OBC	Marathi	Milind Jadhav	9998765432	9871234567	8901 2345 6789 1234
4117	Priya Rane	F	18-03-2015	18-06-2020	Hindu	OBC	Marathi	Shraddha Rane	9876543214	9812345678	7654 3210 2345 6789
4118	Ishaan Bhatt	M	22-01-2014	05-07-2020	Hindu	Gen	Gujarati	Jignesh Bhatt	9834567812	9821678932	5432 8765 1234 0987

8. PROJECT DESIGN

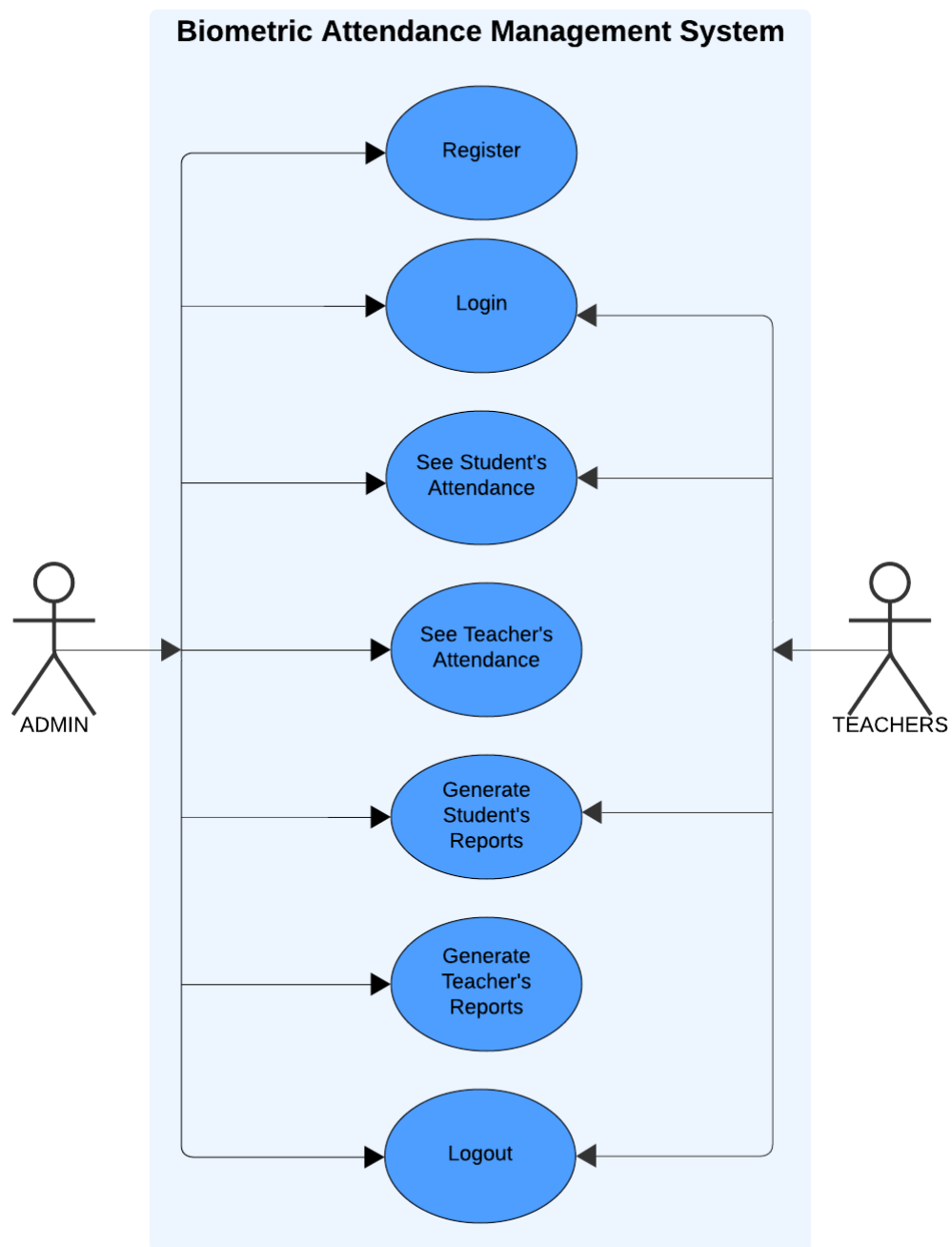
8.1 WORK FLOW DIAGRAM



8.2 CLASS DIAGRAM



8.3 USE CASE DIAGRAM



8.4 FIGMA DESIGN

Attendify

Attendance

Akshar Paaul

Every child's education should start at his correct age. Bridging the gap between underprivileged children and the main stream of education.

☒ Teacher

☐ Admin

Username

Password

☒ Remember me

Sign in

Forgot password?

Don't have an account? [Register here](#)

Login Page

Attendify

TRACK

Attendance Sheet

ANALYZE

Dashboard

Report

OTHER

Logout

Attendance

Track / Attendance

Class

3

Section

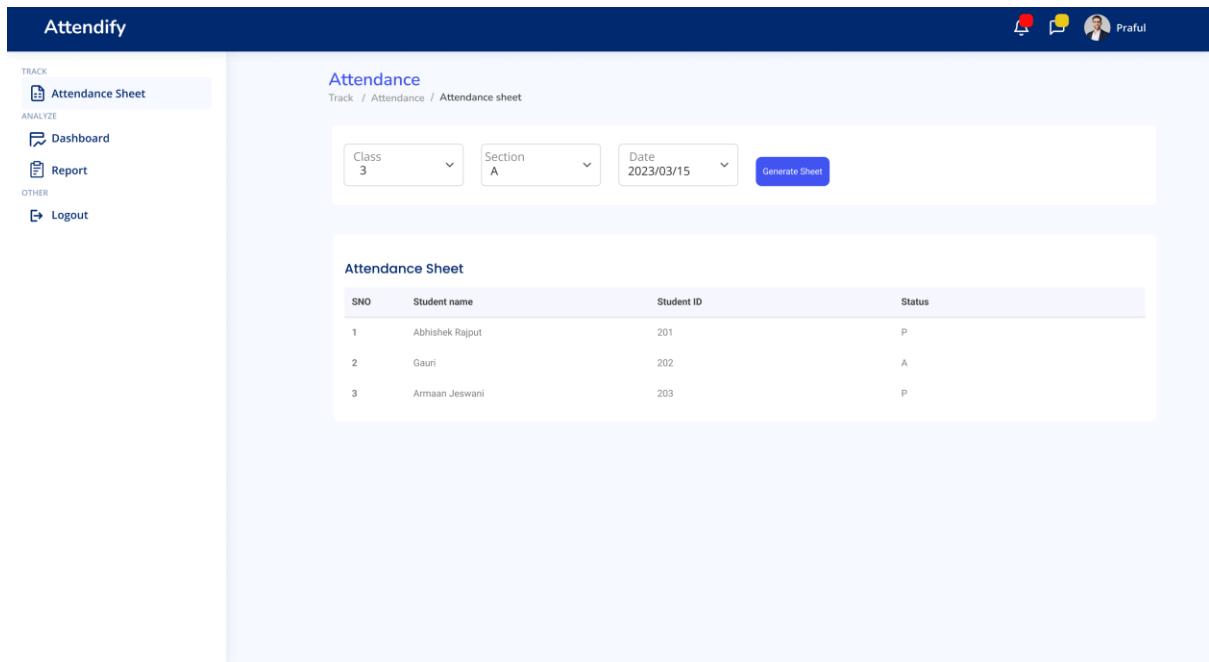
A

Date

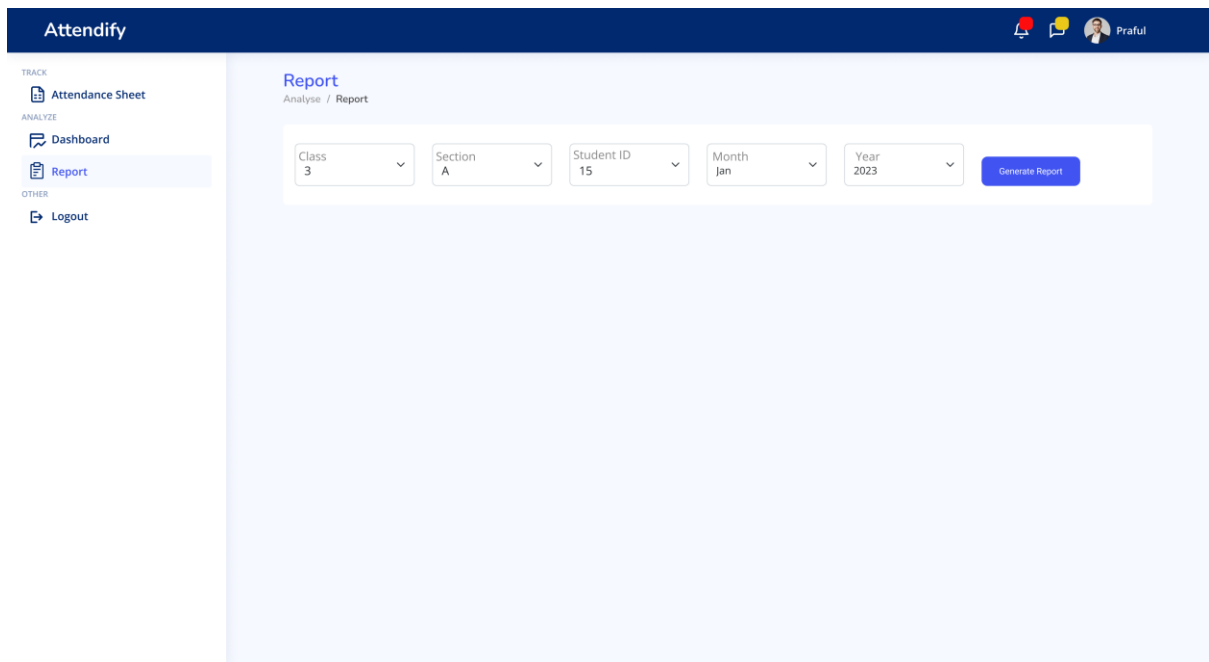
2023/03/15

Generate Sheet

Attendance Sheet Page



Attendance Sheet Preview



Report Generation Page

Link: [Figma Link](#)

9. IMPLEMENTATION

DELIVERABLE SOFTWARE

The deliverable software is a comprehensive Biometric Attendance Management System designed to streamline attendance tracking in educational institutions. Built with a focus on accuracy, ease of use, and robust data management, the software provides administrators with a reliable way to maintain attendance records through biometric data, reducing manual entry errors and improving record accuracy.

Also digitized manually entered 10 years old student data into the administrator system.

TECHSTACK EMPLOYED

Designing: Figma



Frontend: HTML, CSS



Database: MySQL



Record Database: Excel



Backend: Python, Django, Python Libraries (Pandas, Time, Mysql.Connector, etc)



Report Generation: PowerBI

Collaboration: Git/Github



Link: [Github Link](#)

The implementation of the Biometric Attendance Management System involved several key steps:

1. **System Setup:** Identified data sources and gathered biometric attendance data to establish a clear framework for data handling.
2. **Database Design (MySQL):** Developed a MySQL database to securely store attendance records, user information, and biometric data, ensuring efficient data management.
3. **Data Processing (ETL Process):** Conducted an ETL process to extract data from Excel sheets, transform it for analysis, and load it into the MySQL database.
4. **Data Cleansing:** Applied techniques to remove duplicates and standardize records, enhancing data accuracy and consistency.
5. **Backend Development:** Utilized Python and Django for backend development, leveraging libraries like Pandas and mysql.connector for data manipulation and database connectivity.

1. **Frontend Development:** Designed the user interface using HTML and CSS, guided by a Figma prototype to ensure an intuitive user experience.
2. **Data Visualization:** Integrated Power BI for visualizing attendance trends and summaries, providing insights through dynamic reports.
3. **Continuous Integration:** Maintained version control and collaboration using GitHub for continuous commits, ensuring updates were tracked and easily managed.

This structured approach led to a reliable and user-friendly system for managing biometric attendance effectively.

A) FUNCTIONALITIES PROVIDED:

The Figma design showcases the main functionalities of the Biometric Attendance Management System, which includes:

1. **Login Screen:** The initial interface allows users to log in securely with their credentials, ensuring that only authorized personnel access the system.
2. **Dashboard:** The dashboard provides an overview of key metrics, such as the number of present, absent, and total attendance records. It includes graphical data representation, allowing administrators to visualize attendance trends and gain quick insights.
3. **Attendance Management:** The attendance management screen enables users to view and manage attendance records for both teachers and students. Filters for date and user type help in narrowing down the records as needed.
4. **Report Generation:** This section allows users to generate attendance reports for specified time frames, making it easy to review attendance history and patterns.
5. **User Navigation:** A sidebar with navigation options such as "Dashboard," "Attendance Sheet," "Report," and "Logout" ensures easy access to various sections of the application, enhancing the user experience.

B) Data - Management / Backup / Restore / Recovery / Export

The Biometric Attendance Management System incorporates robust data management capabilities that guarantee the integrity, security, and accessibility of data. The following is a description of each function:

Data Management:

The database to be used in the system is a MySQL database where all data related to attendance records, biometric data, and user information will be stored. Good data management practices through indexing, normalization, and controlled access will enhance consistent, optimized, and secured data organization for performance and protection against unauthorized access.

Data Backup:

Regular automated backups are scheduled to prevent loss of data. Such automated backups will take a snapshot of the database that preserves both recent and historical records of attendance. These backup files are stored securely in such a manner that can be reverted when such recovery is required, thereby minimizing the disruption caused in case there is data corruption and accidental deletions.

Data Restore

The restore function allows administrators to roll back to the most recent backup in case data is lost or gets corrupted. It involves loading a previous copy of the backup into the database, allowing the system to revert to the stable state without some critical information that may have been lost.

Data Recovery

Recovery Mechanism: If the system happens to suffer an intractable loss of data or system failure, a recovery mechanism helps to bring back the system in a working state by the utilization of recently made backup. This reduces the time out with the operations with no permanent data loss during the failure.

Export of Data:

Administrators could also extract the attendance data into formats like Excel and CSV for reporting and analysis outside the system. This will enable users to provide attendance records for stakeholders, incorporate the data into other systems, or generate custom reports in making the data more accessible and usable.

C) SYSTEM MAINTENANCE

Regular optimization of the database, installation of updated software, and security patches required to guarantee that the Biometric Attendance Management System be running smoothly with data in a secured state. Regular backup testing saves the data from the loss, and system monitoring and performance tuning keep it from slowing down. The access of a user is reviewed regularly to maintain the secure access of data and log analysis helps in finding out the bugs arising in the system and fixes them too. Periodic interface improvements based on user feedback promote usability, as updated documentation ensures users are given accurate up-to-date guidance to specific functionality of the system. Together, these activities ensure the system remains reliable, efficient, and friendly over time.

1. DEPLOYMENT AND TESTING

DEPLOYMENT

The deployment of the biometric attendance management system will be undertaken by the NGO at a later phase, allowing them to implement it when they are fully prepared and have the necessary infrastructure in place. This phased approach enables the NGO to manage resources effectively, providing time for any additional staff training or adjustments required to ensure a smooth transition. By deploying at their preferred timeline, the NGO can also monitor and address real-time operational challenges, facilitating a gradual integration of the system into daily processes. Additionally, this strategy allows for initial feedback from users, which can guide further fine-tuning of the system to better meet their specific needs.

TESTING

1. Unit Testing:

- We verified each part of the system, including biometric data capturing, data entry forms, and database operations, to ensure they operated as anticipated.
- Every unit was checked to make sure it produced accurate results, performed well, and effectively managed errors to guarantee dependability.

2. Integration Testing:

- We evaluated how the front-end, back-end, and database components work together to guarantee smooth functioning.
- This stage allowed us to confirm the flow of data from capturing to storing and reporting, addressing any communication problems between components.

3. Functional Testing:

- Every system feature was evaluated based on the criteria to verify alignment with the intended functionality.
- Key aspects such as monitoring attendance, retrieving data, and generating reports were assessed to confirm their effectiveness.

4. User Interface Testing:

- We tested the user interface to ensure it met design and accessibility standards by checking usability, responsiveness, and compatibility across various devices.
- This testing validated the system's user-friendliness and intuitiveness.

5. Performance Testing:

- We assessed the system's ability to handle anticipated usage by measuring response times and load capacity.
- Through experimenting with bigger datasets, we verified that the system is able to handle high usage periods without any decrease in performance.

6. Security Testing:

- We carried out security assessments to detect and address any weaknesses, with a specific emphasis on safeguarding confidential biometric data.
- This involved examining access controls, encryption of data, and security protocols to protect data.

7. User Acceptance Testing (UAT):

- We collaborated with NGO employees to evaluate the system in a practical environment, gathering input on usability and performance.
- Using the feedback provided, we made necessary final modifications to ensure the system better meets their individual requirements.

8. Regression Testing:

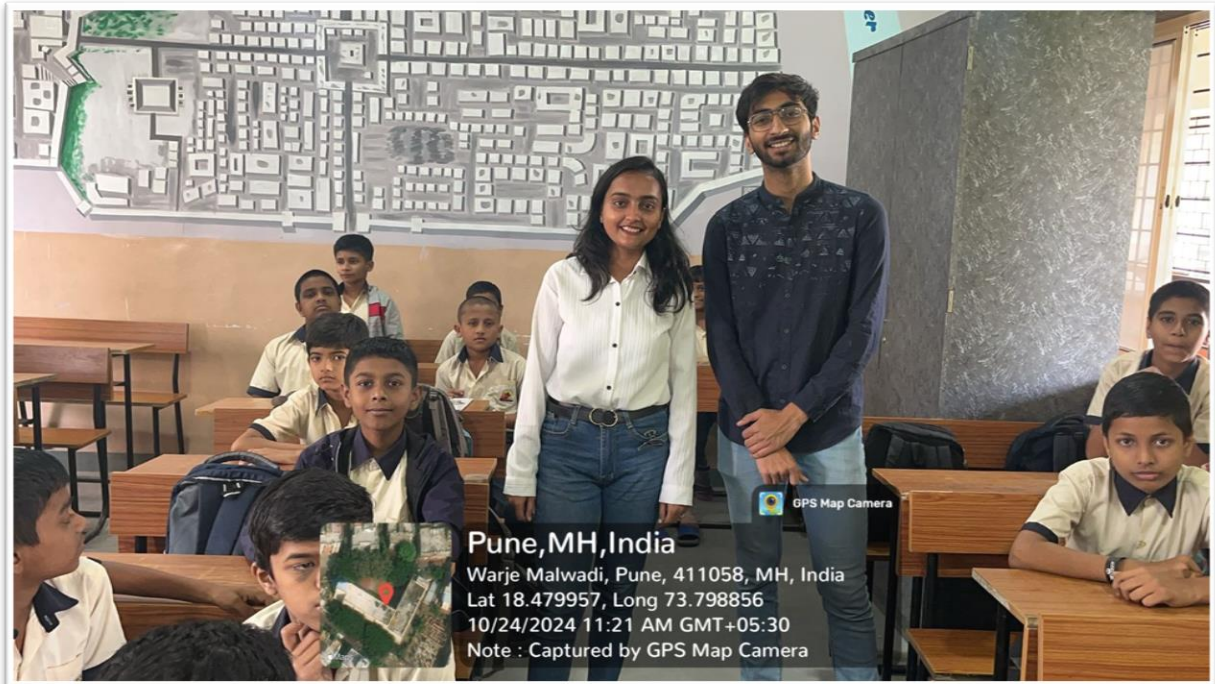
- Following every alteration or improvement, we conducted further tests on the system to confirm that there were no new problems created and to ensure that all features continued to function properly.
- Given the NGO's frequent updates and changes requested, this was particularly crucial.

9. Final Testing and Documentation:

- A thorough final testing phase was carried out to ensure all parts functioned together smoothly and met the project requirements.
- We recorded our testing outcomes, problems, and solutions in order to produce a thorough documentation for the system's deployment readiness.

11. NGO IMAGES

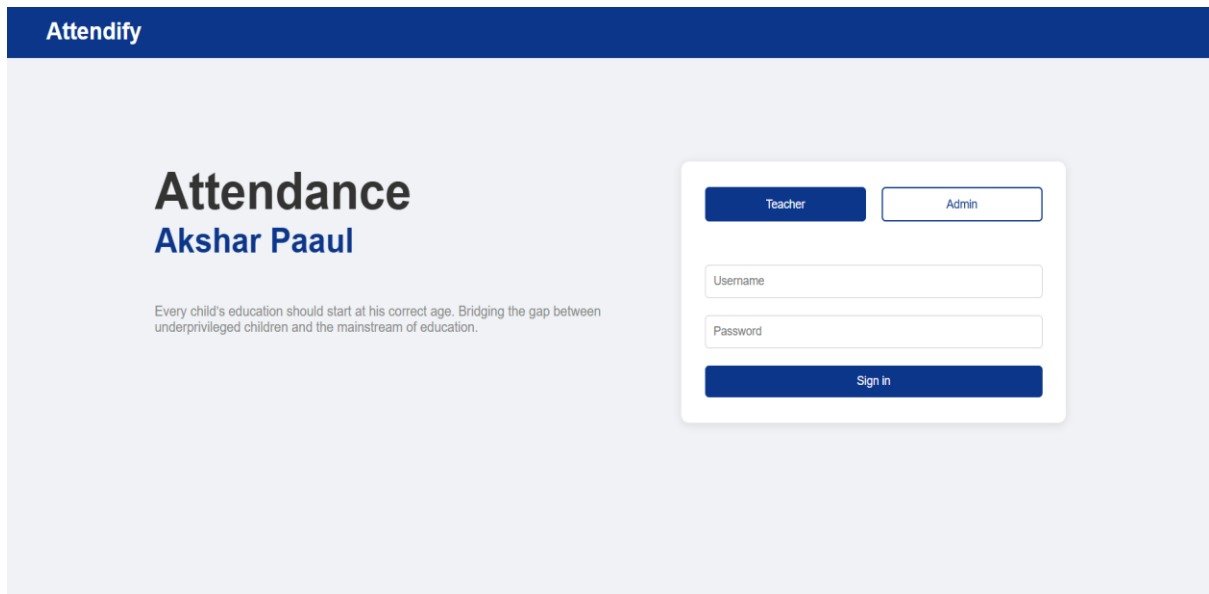






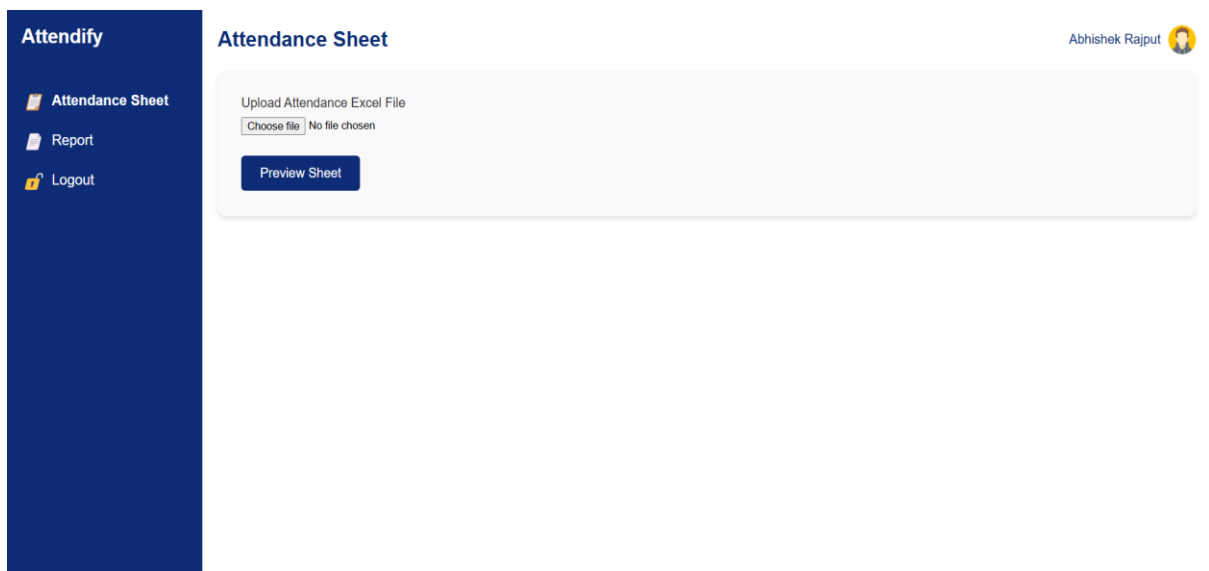
12. FINAL APPLICATION

WEBSITE



The screenshot shows the 'Attendify' login page. It features a dark blue header with the 'Attendify' logo. The main content area has a light blue background. On the left, the text 'Attendance Akshar Paaul' is displayed, followed by a mission statement: 'Every child's education should start at his correct age. Bridging the gap between underprivileged children and the mainstream of education.' On the right, there is a login form with two tabs: 'Teacher' (selected) and 'Admin'. Below the tabs are input fields for 'Username' and 'Password', and a 'Sign in' button.

Login Page



The screenshot shows the 'Attendance Sheet' page. It has a dark blue sidebar on the left with the 'Attendify' logo and three menu items: 'Attendance Sheet' (selected), 'Report', and 'Logout'. The main content area has a light blue background. At the top right, the user's name 'Abhishek Rajput' and a profile icon are displayed. The main content area contains a section titled 'Attendance Sheet' with a sub-header 'Upload Attendance Excel File'. Below this, there is a 'Choose file' button and the text 'No file chosen'. A 'Preview Sheet' button is also present.

Attendance Sheet Page

Attendify

Attendance Sheet

Report

Logout

Report

Class

1

Section

A

Student ID

4102

Month

January

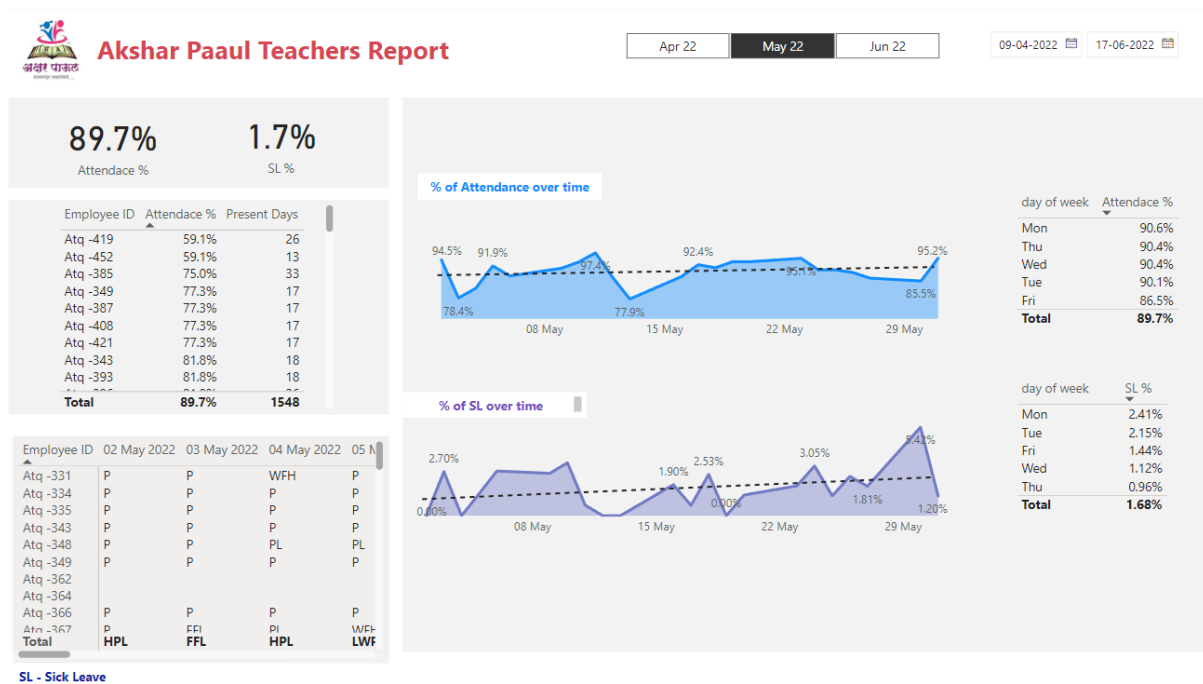
Year

2023

Generate Report

Report Generation Page

POWERBI



SL - Sick Leave

PowerBI Report

14. CONCLUSION

The NGO's developed biometric attendance management system offers an effective, precise, and user-friendly solution for monitoring and handling attendance records. By digitizing and standardizing attendance records, the system gets rid of the manual record-keeping process, which decreases the possibility of mistakes and saves time. The process of design involved building a thorough database in MySQL, creating a user-friendly interface, and producing informative reports with Power BI, all of which enhance the overall experience.

Despite facing challenges such as changing requirements and intricate integration, the project overcame these hurdles through flexible planning and rigorous testing methods. The ultimate iteration of the system is adaptable and can be expanded as the NGO's requirements increase. This project addresses current attendance management needs and lays the groundwork for potential future growth, like integrating advanced analytics or linking with other organizational systems.

To sum up, the biometric attendance system shows a major boost in efficiency for the NGO due to effective use of data management and software development principles. It shows how technology can be utilized to assist organizational objectives, guaranteeing an efficient method for monitoring attendance and managing data.