

## **E Chief Attendance: Digital Attendance Register**

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**Abstract** –e Chief Attendance is a Mobile application which is used as a Digital Attendance Register. The application is developed using Android Studio and registered with the Google Firebase which extends the user's ability to access the Firebase Products like Analytics, Cloud Fire store, Performance Monitor or Remote Config. The System also has the significant feature of Automatic Mentor-Mentee Mapping. The application has an ability to generate the Absentee Report in exchangeable format . The Report can be sent through conventional ways like Short Message Service (SMS), eMail or it can be transferred using Trending Cross Platform Messaging Applications. The Absentee Report can also be generated using Bar Code or QR Code Scanning method. The successful institution begins by engaging the students and make sure that they will come regularly. This e Chief Attendance System provides a smarter way of taking attendance and managing entries in the class register digitally by simply using the Smart Phones. When compared to other traditional methods, the proposed system will generate the Absentee Report in much simpler, faster, cheaper and easily shareable format.

**Key Words:** Digital Attendance Register, Android Studio, Firebase, Mentor Mentee Mapping, Cross Platform Message

### **1. INTRODUCTION**

The concept of taking Attendance is developed by mankind to track a person or a group of member's presence in a particular site for the pre-scheduled event. Checking the presence of a person is important for every institution to measure the effectiveness of their service delivery and help them to plan for the future events.

In any workspace or educational institution, the attendance is a compulsory process. Be it a school, college or any academic organizations the participation of the members should be regulated in such a way to monitor their presence in daily basis. Low attendance by a student in a class has a greater influence in the academics of that person. Poor attendance also helps in identifying the problems faced by the student in his carrier. It acts as a good indicator to understand the deficiencies in their Education. Thus, the Effective Management of the attendance plays a vital role in imparting the Knowledge and Skills needed for the students in their mere future.

The process of taking attendance has been evolved a number of times in this modern world. Formerly, the attendance was taken by using a register which is listed with enrolled member of any organization or institution. Then the invigilator or faculty will check for the physical presence of the enrolled member and mark the attendance.

In the next generation, the process was shifted from Pen paper mode to digital. Many online softwares made the process much easier. Now, it is much simpler by developing a personalized Mobile application for the attendance management with ability to access all the records and share the records with a single touch.

### **2. Objective**

- The main purpose of the Application is to provide a way to register the Students Attendance through Mobile Application itself.
- The Application will generate the Absentee Report once the necessary values are provided.
- For the Authentication purpose separate login will be provided for Mentors and Students.
- To avoid unnecessary dilemma, the absentees are dynamically mapped with the corresponding mentors.
- Smart Provisions like Barcode or QR Code based Attendance monitoring is available.

- Special feature for the faculty to view the student's details and their performance is present.
- Key feature of the applications is that, a unique mechanism which allows the report to be shared with a wide variety of devices through popular Cross Platform Messaging Application is available.

### 3. Existing System

In the existing system, the Mentor has to maintain an attendance register separately to record the entries. Here the entries will be done in the hand written register. It is a hectic process to map the Absentees with their respective mentors. The Information Retrieval from the hand written records is a tedious process. These processes have to be repeated number of times in a day and to be carried on infinite times in the academic year.

### 4. Proposed System

In order to overcome the shortcomings of the existing system, e Chief attendance is developed in such a way that the solutions are obtained by following a smarter approach.

- **Authentication** – Separate User Login is provided for the faculties
- **Checkbox Facility** – For recording the absentees easily tick able checkboxes are provided
- **Distinct Mapping** –Mentors will be mapped with appropriate absentees and can be easily informed.
- **Digital Report** – Verification process can be fast tracked with the help of Digital Report
- **Smart Analysis** – Thanks to the Firebase with advanced analytic tools to monitor Student's performance.
- **QR, Barcode Scanner** – The attendance recording can be rapidly by the use of these tools.
- **Cross Platform Share** – The Reports will be shared with wide variety connectivity platforms like SMS, E-Mail, Whatsapp, Telegram etc...
- **Communication** – Intimation can be done to the respective Parents easily
- **Sleek UI** – Ease up the process of Attendance taking with the better User Interface
- **Eco Friendly Approach** – Reduced the dependency of the Pen & Paper. Contribution towards greener environment.

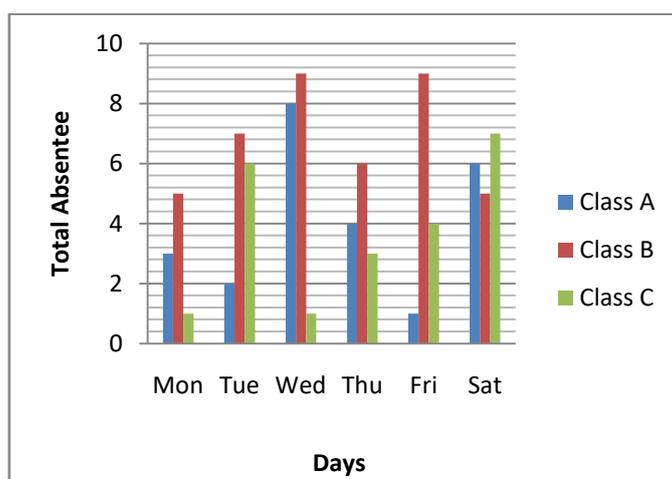
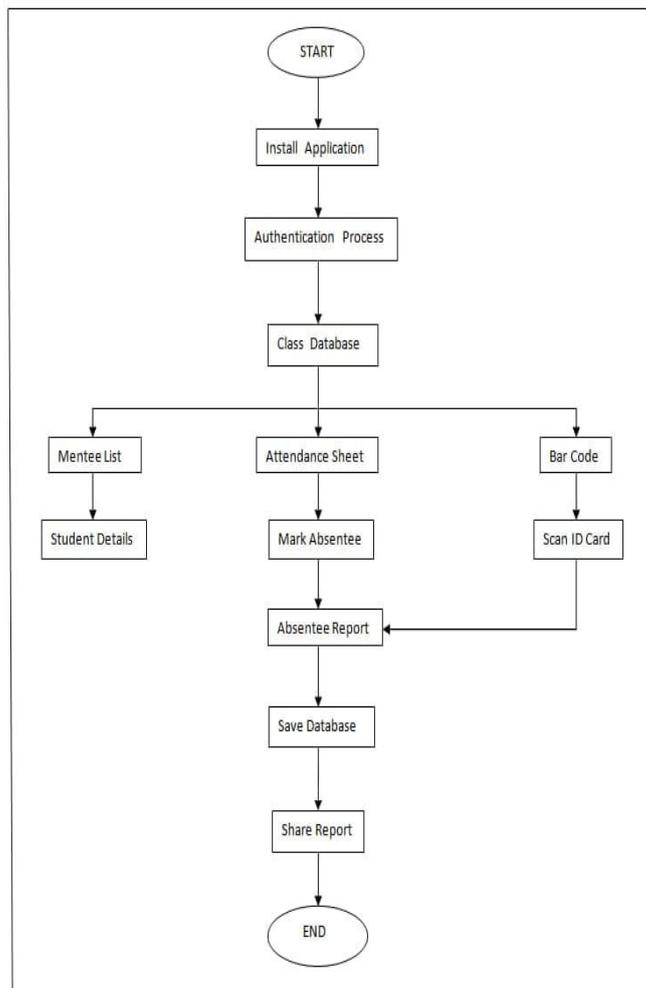


Chart -1: Proposed Attendance Analysis

## 5. Block Diagram

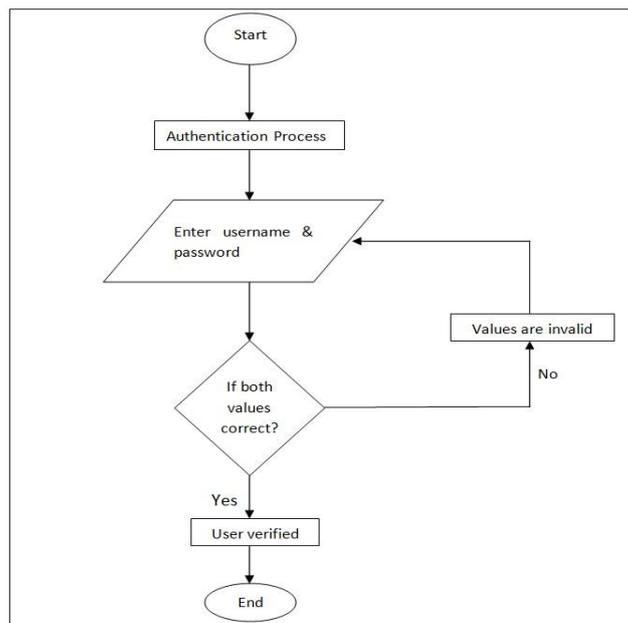


**Fig -1: Block Diagram**

Based on the Block Diagram in Fig-1, the mentor can take the attendance through mobile phone itself and save the report in the database. It all starts with the installation of application in the mobile phone, then the user has to go through the Authentication Process by entering their username and password. The desired class database will be presented on the screen, and then user has to choose any one of the mode to take attendance through attendance sheet or through barcode. If it is the former then the user has to tick the checkbox of the absentee otherwise the user has to scan the identity card of the student, both process will lead to same destination that's the Report. After the verification of the report it will be saved in the database. For immediate review the user can share the report via different connectivity platforms such as e-mail, telegram, whatsapp & other platforms. The basic structure of the project is depicted in the block diagram. The proposed attendance analysis is presented in the Chart-1, where the attendance of the three classes for one week is depicted in the chart. Each class has varied absentee in each days, it is smartly analyzed for the absentee review.

### 5.1 Authentication Process

The purpose of the authentication process is to provide security. The flowchart of the authentication process is showed in Fig-2. The user mentioned here are mentors, chief Mentors, subject faculty, HOD, Principal & Admin Department. The user has to go through the login process by entering their username and password, then the system will ensure whether the provided username & password are valid, if it is positive then it moves to class database otherwise it will present the pop message that the provided username and password are invalid and it stays in the same page itself.

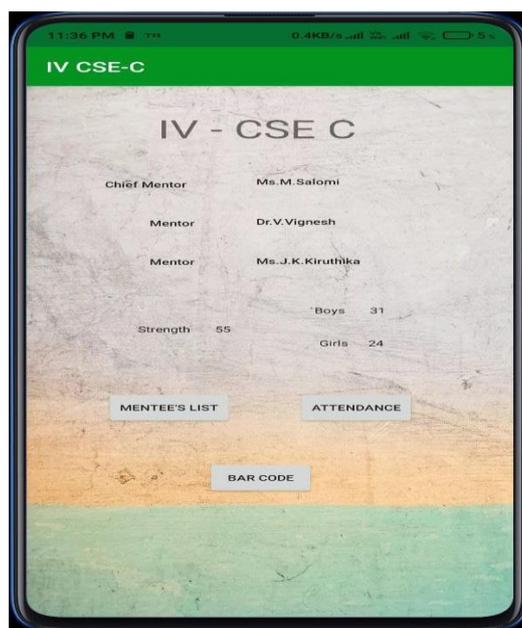


**Fig -2:** Authentication Process Flow Chart

## 5.2 Class Database

The Class Database consist basic details of the class such as its Year & Section in the top of the screen, it is followed by the name of the mentors & Chief-mentor of the class. The total strength and the subsidiary boys and girls strength of the class will be viewed in the screen. The User has an option to select one from the three buttons in the screen, they are Attendance Sheet, Mentee's List and Barcode. Fig-3 presents the Mobile Application view of Class Database Screen.

The User Interface of the class database is presented in a manner which gives pleasure to the user, the background color and theme gives the classic style to the screen which makes the user to work continuously with any strain. Each class has its own database and they are presented in elegant manner which makes to feel free to work.



**Fig -3:** Class Home Page

### 5.3 Mentee’s List

The Mentee’s List page will be presented if the user clicks this button. The Mentor and their respective mentees of the entire class will be showed separately. The Mentees coming under each mentor will be viewed separately and it is easy for the user to locate the particular student and his mentor for his attendance performance analysis. Each Mentee List will be presented in a vertical fashion in order to know the strength of the each mentor.

The Chart-2 presents the analysis of absent mentees of each mentor respectively; the presentation clearly shows the attendance performance of students coming under each mentor for one week. It is also easy for the institution to know the performance of each mentor distinctly. Smart analysis provides the institution to reach their goal efficiently. Analysis can be saved in the database and will be viewed in the future.

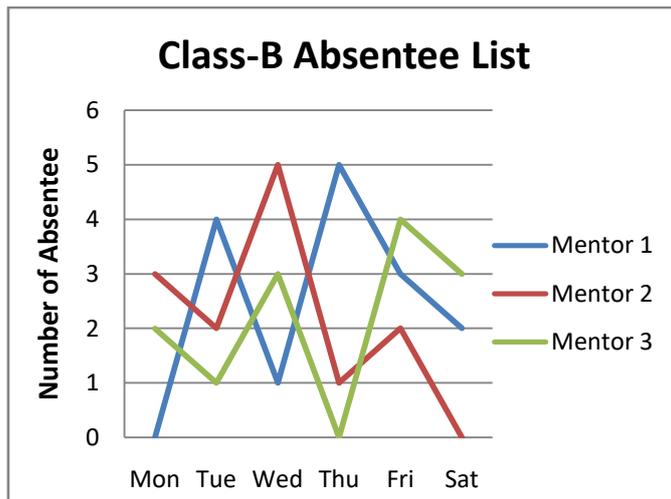


Chart -2: Mentee’s Absent Analysis

### 5.4 Attendance Sheet

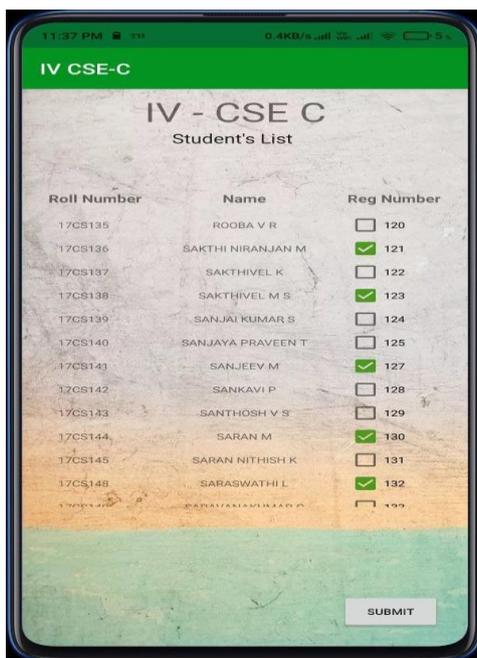
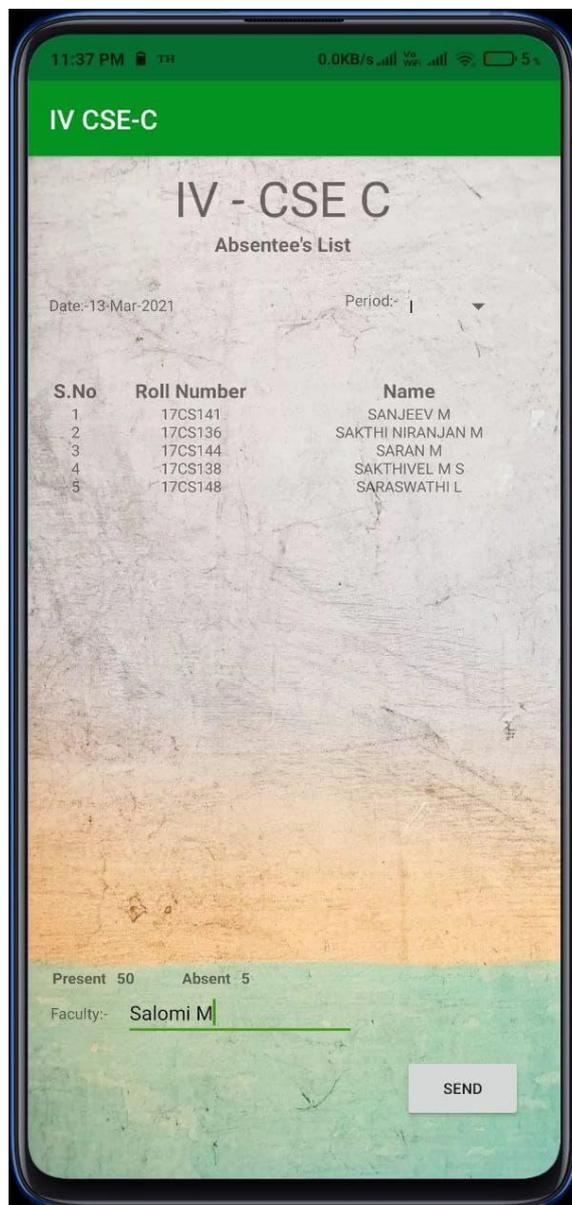


Fig -4: Attendance Checkbox

Attendance Sheet module provides the user to make entry of Absentee. Fig-4 represents the Attendance checkbox of the class. It presents the name, roll number, register number of the students in the vertical fashion. The Checkbox is placed adjacent to register number of the each student. The user has to mark the checkbox of the students who are all absent in the particular session of the class. Once the entry is marked then the user has to click the submit button which is present at the right bottom of the screen.

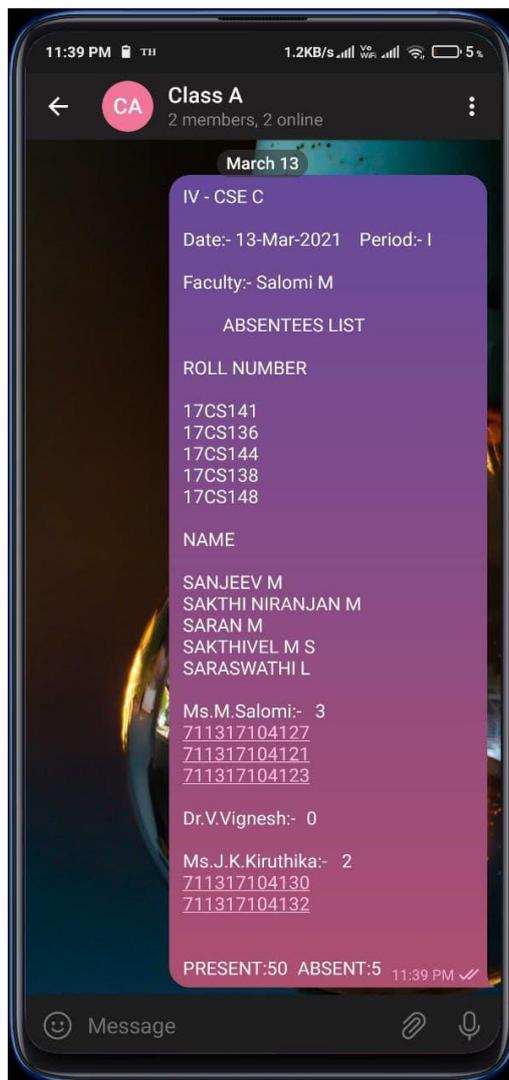
### 5.5 Absentee Report



**Fig -5:** Absentee Report

Fig-5 represents the absentee report of the class. Report of the absentee list will be generated automatically by the system and it is presented to the user in the absentee report module. The Report contains the absentee Student's name & Roll number. The total count of the students present in the class will be generated automatically and showed in the left bottom of the screen, the count of total absentee is placed adjacent to it. The date is placed at the left top for reference. The user can enter the name in the edit text and select the particular period of the class from the period scroll view. The user can click the send button to share the report & it is automatically saved in the database.

## 5.7 Share Report



**Fig -6:** Shared Report

The Report will be shared across multiple connectivity platforms like Whatsapp, Telegram, e-mail, Message, Bluetooth, etc... Fig-6 represents the shared report format in whatsapp group. The Report contains the class & section, date and period, faculty name, list of absentee roll number & absentee name, mentor name & mentees absentee count, total present and absentee count of the class. The values are presented in vertical fashion. The Detailed report can be shared to various groups and absentee list will be viewed by Higher Authorities.

## 6. CONCLUSIONS

In this paper we have proposed an attendance management system where the attendance can be taken in the digitalized way by simple using the mobile application. By the proposed system we can overcome the shortcomings of the manual entry. In terms of performance and efficiency, the proposed system has provided a convenient method of the traditional way of attendance taking mechanism. It will reduce the usage of pen and paper. In addition, it is also user friendly system as it is easily used by the layman, making it as a universal friendly attendance registering system and it is also adaptive for implementing in any educational system.

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