



# Mobile Based Attendance System Using QR Code

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**Abstract**—The mobile attendance systems are used to reduce the time and effort wasted in taking attendance in the colleges. Our research focuses on the creating mobile attendance system using Android studio and database to avoid lots of paper work and prevent data loss. This system applies QR code for each subject, so each faculty member shows the QR code to the students to scan it and make them self-present. The other option is that the faculty member takes attendance by calling the name of the students in class. If the student attends, the faculty member will pull the button and it will change to green (the student is presence), if the student absent the button remain the same without pulling it. Faculty members can manage and check absences of students. Student can only make attendance for each subject and check their absence hours. The output will be the number of students' absences weekly or monthly. The developed system helps faculty members to manage attendance easily and efficiently.

**Keywords**-Mobile App; Android; Attendance; QR code; Faculty.

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## I. INTRODUCTION

The student's attendance tracking is a vital issue to assess students' performance in the classroom [1]. The traditional way of attendance using paper and pen is, recording manually and then converting into desktop application [2]. The desktop application is standalone application installed in the desktop or laptop. The drawback of this system is that the computer systems are not portable hence it cannot be kept anywhere to do attendance task [3]. Therefore, managing the attendance using traditional approach is really a cumbersome process [4]. To make it more efficiency in managing student's information, a smartphone like Android Technology could be applied to make this process easier and more beneficial in every way. Attendance management System is software developed for daily student attendance information of a student in a particular-class [5]. Some of Android technology for this application includes PHP in server-side language, MySQL and PHP as back-end design and HTML, CSS and JavaScript as front-end tools [2]. Managing the attendance using mobile phones provide easy and interactive access to the attendance records of student. It consumes not only less energy but also helps in reducing the wastage of paper. Mobile being portable can help instructors or any other users to take attendance on their mobiles and view the various statistics to analyze the attendance record of the student [4].

## II. RELATED WORK

Authors in [6], The application for taking daily attendance provide minimal error in report generation re-place the traditional pen and register system and generate the report automatically. This application implements Android system using Java, XML and SQLite. The application takes into consideration some characteristics such as user friendly, easy

and fast report generation, minimal paperwork and Time Saving. This attendance system operated at a high level of efficiency and the report generation becomes easy.

Authors in [3], the management and maintenance of student information is a key task for any institution. efficient Web-based application for attendance management system designed to track student's activity in the class. This application takes attendance electronically and the records of the attendance is storing in a database. The system design using the Model, View, and Controller (MVC) architecture, and implemented using the power of Laravel Framework. The application implemented JavaScript for improving the system and MySQL for the Application Database. This system facilitates access to attending of a student in a particular class. It also helps in generating reports and evaluating the attendance eligibility of a student. The benefit of this system is improving the work efficiency and saving human and material resources.

Authors in [7] presents a mobile-based application for student attendance and mark management system. This application designed for the colleges to maintain information about students' attendance and marks regularly. This mobile application developed using Sun Java Wireless Toolkit with Java Platform, Micro Edition (J2ME). This system enables both login modes for student and staff members. The student login allows him to view the student mark and attendance. The staff member login allows them to edit and update the marks and attendance.

### III. THE PROPOSED SYSTEM ANALYSIS AND DESIGN

The proposed system explains the mobile application environment for attendance using use case diagram as shown

in figure 1. This figure shows actors: student and instructor or faculty members communicates with many use cases. Each faculty member enters username and password to access the course information and attendance of students. The students only have QR Code to scan it and can check his/her absence.

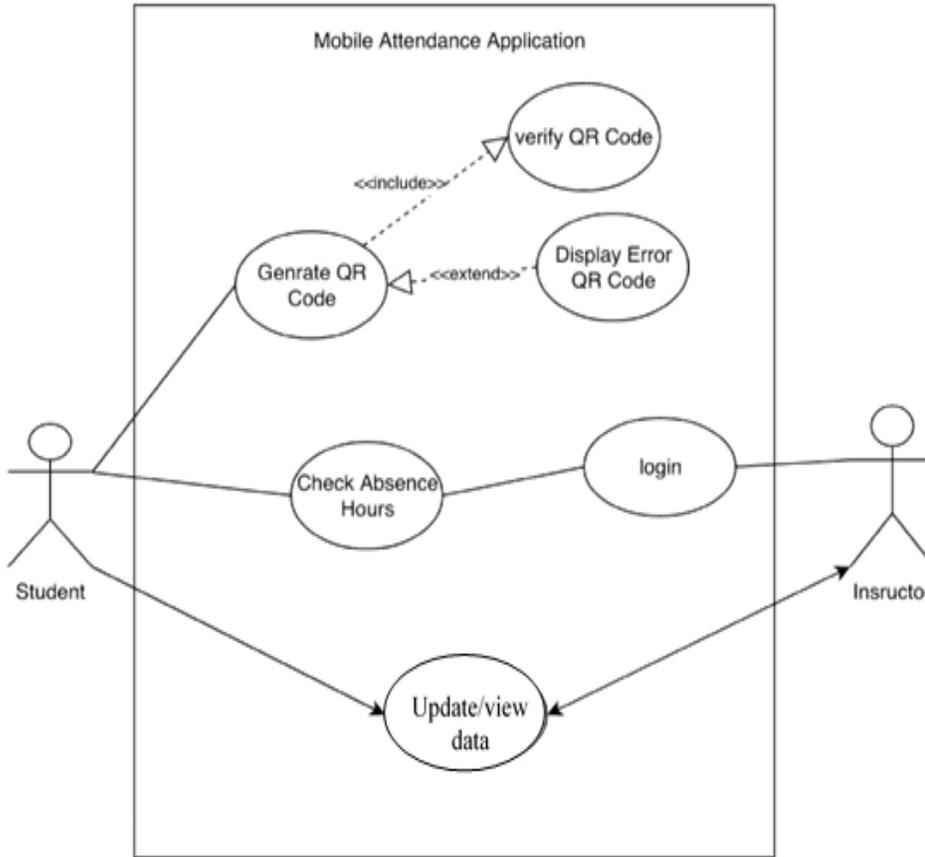


Figure 1: Use Case for the proposed system

The flowchart of the system includes faculty member/instructor and student. Both student and faculty member login to the system to do some tasks as shown in Figure 2. After the instructor login, he/she can view his/her courses and see the sections for each course and can see the registered students and their absence hours. The student can

sign in then scan the QR code to attend the course, the student can also see the total absence and the date of each absence.

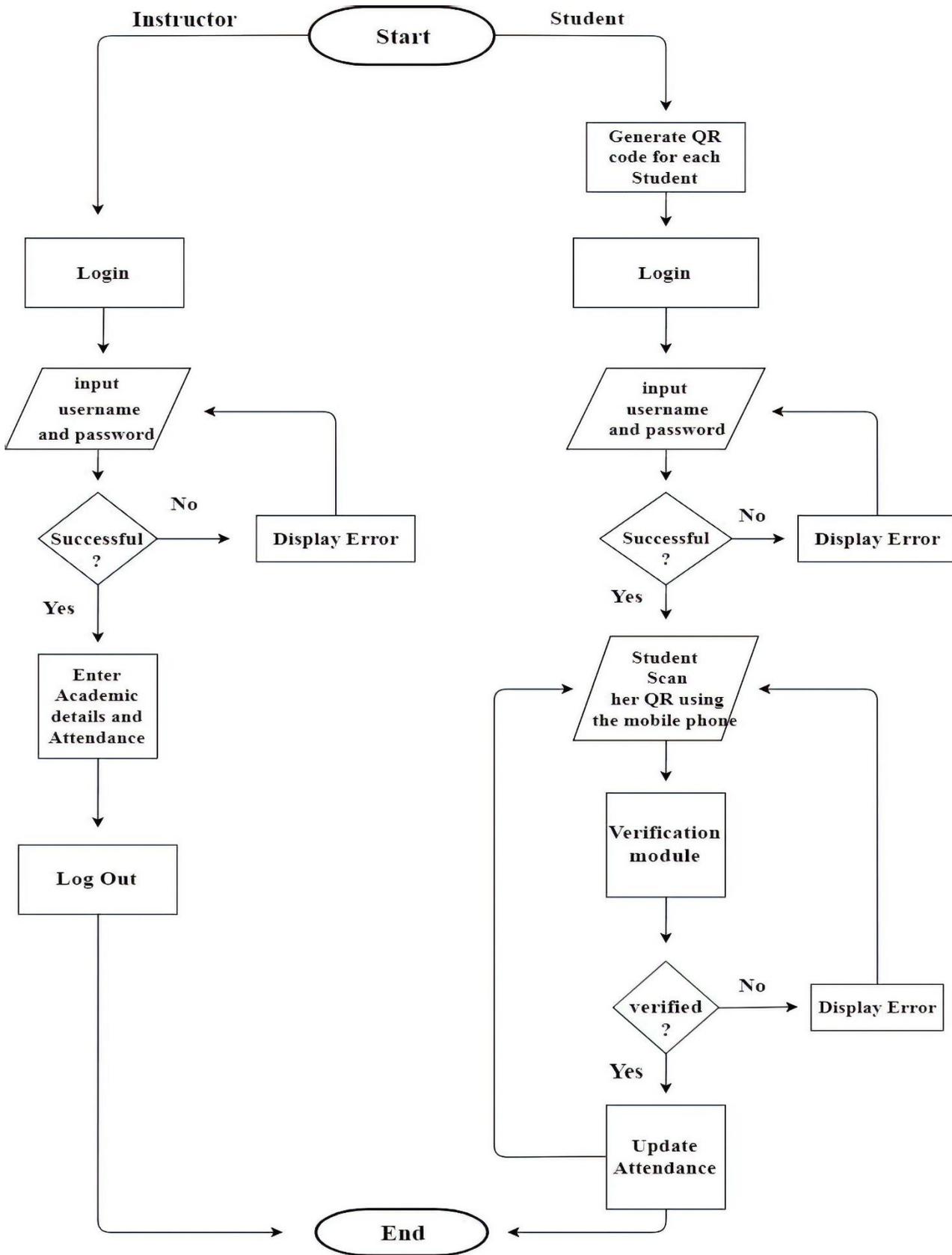


Figure 2: Flowchart for the attendance system

#### IV. IMPLEMENTATION OF ANDROID ATTENDANCE SYSTEM

The system developed using Android studio, PHP to connect with MySQL database, XAMPP, and Java SE Development Kit (JDK). The computer system includes latest processor and RAM 8 or 16 GB with Windows 10 operating

system. The mobile device is Android OS version 8.0.0 Oreo. The GUI for the developed system is android SDK. Figure 3 shows login screen for student or doctor and screen for all subjects and sections that the doctor or faculty member are responsible for them. Figure 4 shows the screen, if the faculty member wants to change the password to a new one.

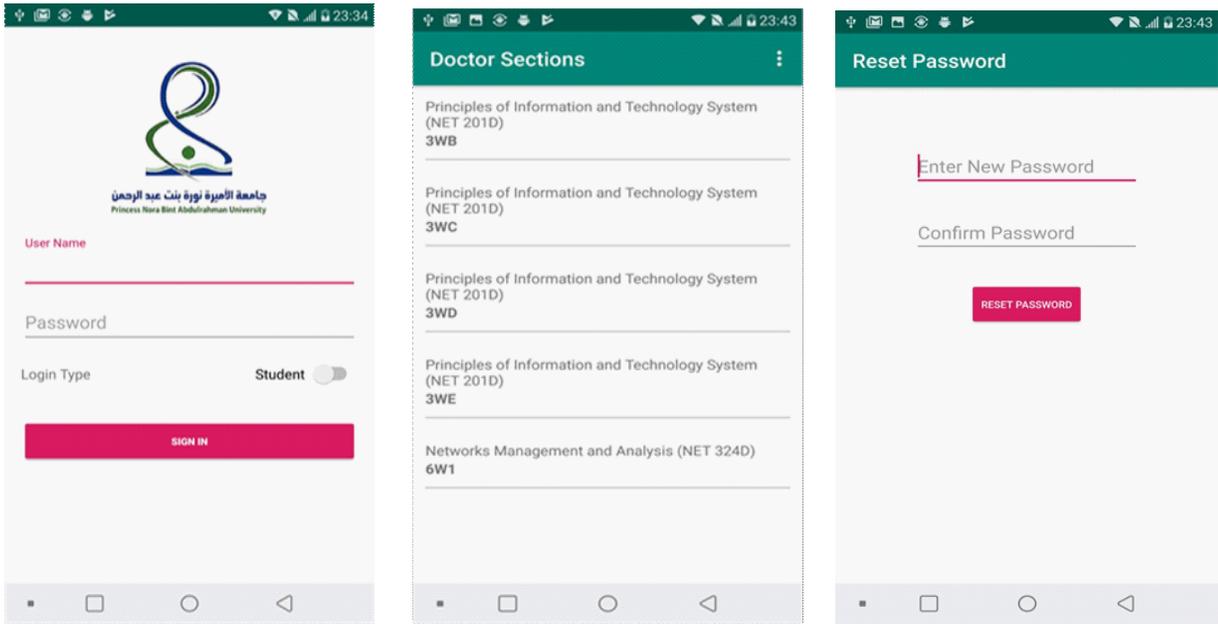


Figure 3: (a) Login screen (b) List of subjects & Sections

Figure 4: Change the password

In this application the faculty member can take the attendance using two ways. First, he/she can determine the subject and then take the attendance for the student without using QR code by just press just press absent or present bottom as shown in figure 5. Second, the QR code is another way to

take the attendance as shown in figure 6. This way is an automatic attendance, which shows the QR code for students to make them absent or present. There is different QR code for each course or subject that the students should take in the semester.

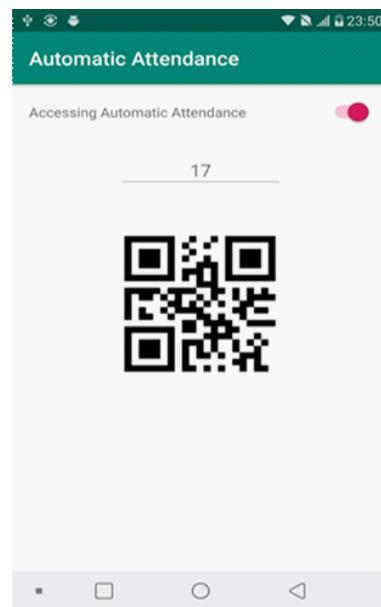
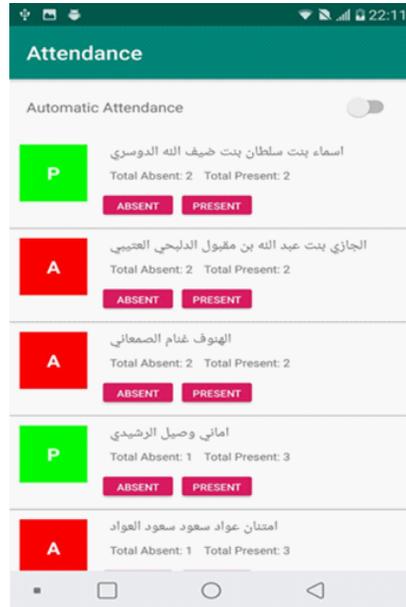
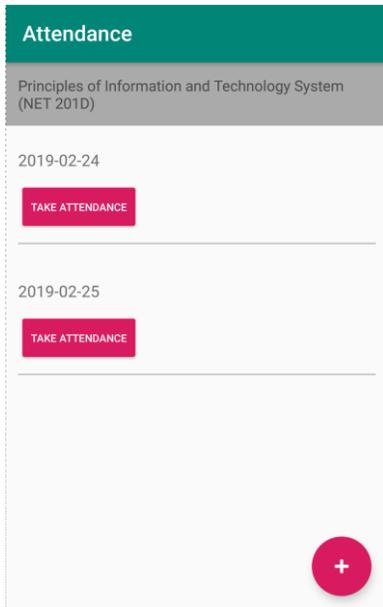


Figure 5: (a) take attendance (b) List of students names

Figure 6: The QR code of a course

## V. CONCLUSION

The developed attendance system using mobile devices is very effective tool and easy to use. This application helps faculty members easily taking attendance and calculate the students absents. The system is portable and can use on any mobile phones. The use of this system can cut several hours spent in feeding the attendance details in the database. It also provides an interface that is easy to understand by both students and faculty members.

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