Mobile App Development Group Project

Ashesi Class Attendance System Report (ClassApp)

Group B.O.A

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Tools Used: Android studio

Local Resources:

Splash screen, push notifications, camera, caller

Code Storing: Github

Libraries:

- splash_screen_view: ^3.0.0
- flutter_phone_direct_caller: ^2.1.0
- validators: ^3.0.0
- encrypt: ^5.0.1
- cloud_firestore: ^3.1.11
- firebase_auth: ^3.3.12
- firebase_core: ^1.14.0
- fluttertoast: ^8.0.9
- mobile_scanner: ^1.0.0
- elegant_notification: ^1.5.2
- flutter_screenshot_switcher: ^2.1.0
- awesome_notifications: any
- qr_flutter: ^4.0.0

Framework: Flutter

API's: Firebase

Programming language: Dart

Database: Firestore

Team Allocations:

Omeibi – Login System, Major error fixing and database

Bethel- Caller component and documentation

Ayeyi- UI and attendance component

For the time we have been in Ashesi, before the pandemic, the attendance system has been a manual based system in the sense that we signed a piece of paper to mark attendance. During the pandemic, we type our names in zoom chats to mark attendance. Ashesi has resumed in-person classes and is still using a paper system to take attendance. Ashesi is a well-renowned institution and has digitized most of these systems. For over 4 years, the attendance system in Ashesi has been pen and paper and this has brought about some unethical cases of people signing for each other. We have come up with a digitized system to allow Ashesi students to log their attendance, to make it more secure and create less room for unethical cases thus upholding the integral values the school aims to uphold. The current target market for this app is Ashesi students and lecturers. Team B.O.A sought out to create an app to aid the school in promoting a culture of professionalism by ensuring that teachers and students are able to keep track of their attendance to classes through a QR code system app being ClassApp.

HOW THE APP(S) WORKS

Main Applications

ClassApp targets two main users being the students and the faculty, be it lecturer or FI (Faculty intern) therefore, two apps are required for full functionality. ClassApp (Teacher) and ClassApp (Student). With ClassApp (Teacher) this app enables the lecturer to generate a unique QR code for students to scan using their own version of the app being ClassApp (Student).

Class App (Student)

Login & Database

For the login system we used this in conjunction with firebase storage feature. Also, we choose firestore because it has an additional authentication feature that prevents any individual not stored in the database to access the system content. We made use of some frontend regex to validate the input from the user. This was another level of security we added to define what information we would be accepting in the database. For connecting to the database, we need to use the firestore pub dev package to access the Firebase console.

With regards to the database being used, we utilized the firebase database system with the main component being the Firestore component. This system also enabled us to store students under attendance, specifically Ashesi students since we do not have access to the official Ashesi database

Caller

For the caller section, we used the ListBuilder widget to display a list of Computer science lecturers with their names, courses they teach and contacts. The phone direct caller package has also been utilized which enables the user to call each lecturer directly from the app by tapping on the call icon next to their names. For now, we don’t have each and every lecturers’ contact within the system until the contact management system is fully set up

Attendance

With the attendance feature, the user will be able to click on the attendance button on the landing page which will direct the user to QR scanner that enables the user to scan the unique QR code generated by the lecturer and once scanned, a push notification should pop up to indicate that the student’s / users’ attendance has been recorded. Once recorded, the info is reflected on the lecturer’s end being ClassApp (Teacher).

Finally, screenshots have been disabled on the app to avoid the QR code being shared by students

ClassApp (Teacher)

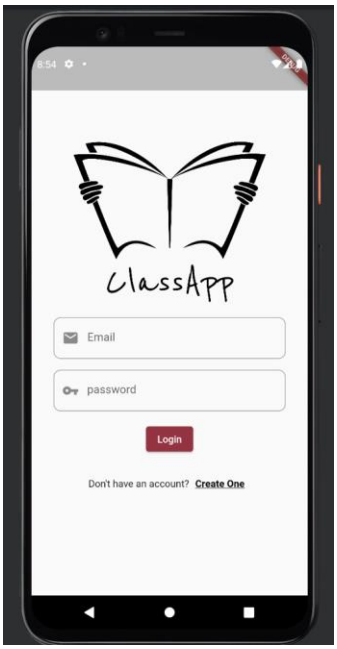
QR code Generator

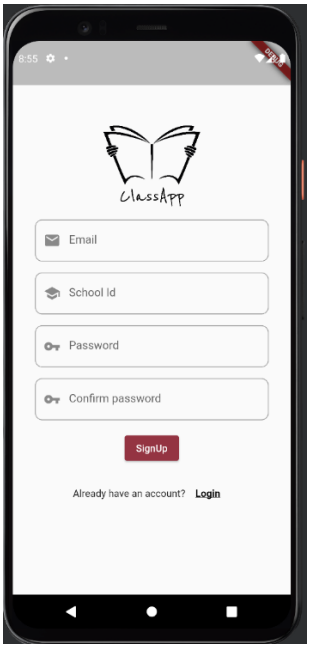
Now for the ClassApp Teacher version, it has two main components being the QR Code generator and the student management list. For the QR code generator, the package utilized is the Mobile scanner package. With the QR code generator component, this allows the lecturer to generate a unique QR code based on the unique code entered by the lecturer which can be anything from a phrase to numbers etc. and is stored in the firestore database. For the validation, when the student scans the QR code, the unique code is pulled from the firestore database and is compared with the interpreted data of the QR code scanned, if they're the same, then the student's email is pushed into firebase which can be seen by the lecturer in the ClassApp teacher app. If they're not the same, no action will be taken

Student management list

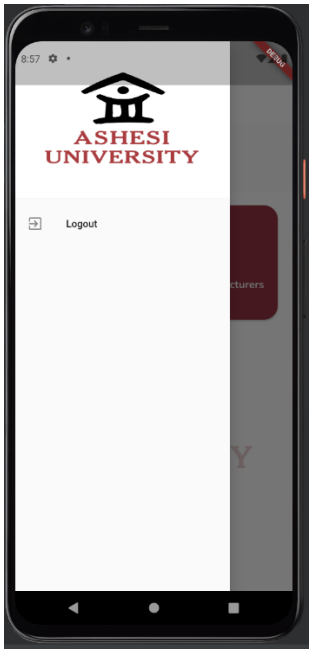
With the student management list, this utilizes the ListBuilder widget to create a list of students in attendance which is displayed by pulling students in attendance from the database and displaying for the lecturer to view.

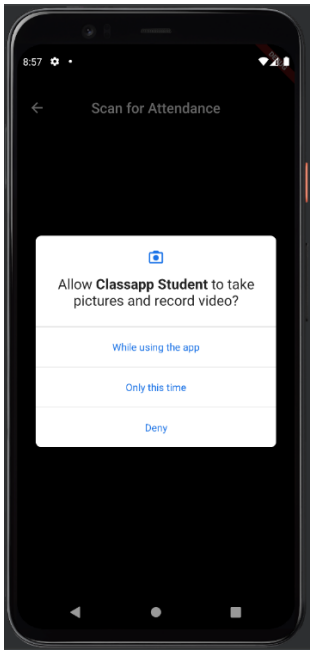
Appendix

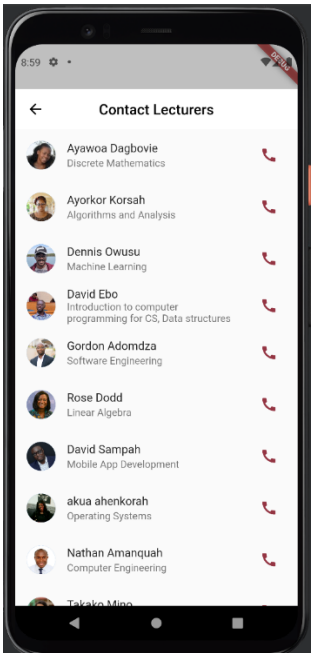

ClassApp
Email
password
Login
Don't have an account? Create One

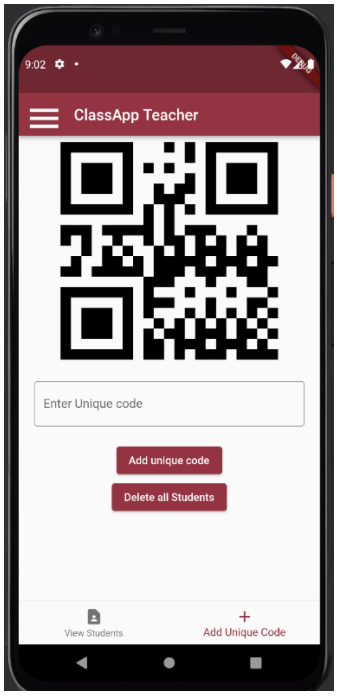

ClassApp
Email
School Id
Password
Confirm password
SignUp
Already have an account? Login


Explore
Ashesi University ClassApp
Attendance
Contact Lecturers
ASHESI
UNIVERSITY


ASHESI
UNIVERSITY
Logout


Scan for Attendance
Allow Classapp Student to take pictures and record video?
While using the app
Only this time
Deny


Contact Lecturers
Ayawoa Dagbovie
Discrete Mathematics
Ayorkor Korsah
Algorithms and Analysis
Dennis Owusu
Machine Learning
David Ebo
Introduction to computer programming for CS, Data structures
Gordon Adomdza
Software Engineering
Rose Dodd
Linear Algebra
David Sampah
Mobile App Development
akua ahenkorah
Operating Systems
Nathan Amanquah
Computer Engineering


9:02
ClassApp Teacher
Enter Unique code
Add unique code
Delete all Students
View Students
Add Unique Code