Android Project: Event Attendance Management System (EAMS)

SEG 2105 [A] – Intro to Software Engineering

Fall 2024

University of Ottawa

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Group 19
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Introduction

The Event Attendance Management System (EAMS) is an Android app developed with Java and Android Studio, allowing users to post or register to events and track attendance. The app uses Firebase, a real-time database system, to store information about user logins and event registrations.

There are three types of users: Administrators, Attendees, and Organizers. Attendees and Organizers must register for the app and can only begin using it once their registration has been approved. An Administrator is a pre-registered user that can view, approve, and reject these app registration requests from Attendees and Organizers. Once approved, an Attendee can search for events, register to or cancel registration to an event, and view the list of events they have registered to, with an indicator reflecting their event registration approval status. Once approved, an Organizer can create and view upcoming and past events, accept or reject Attendee registration requests, and view the list of registered Attendees to an event.

The general Firebase structure is as follows:

```
{
  "events": {
    "eventKey": {
      "city": "",
      "databaseKey": "eventKey",
      "date": "",
      "description": "",
      "endTime": "",
      "postalCode": "",
      "province": "",
      "registeredAttendees": {
        "attendeeKey1": "approved",
        "attendeeKey2": "pending",
        "attendeeKey3": "rejected"
      },
      "startTime": "",
      "street": "",
      "title": ""
    }
  },
  "users": {
    "administrators": {
      "adminKey": {
        "email": "",
        "password": ""
      }
    },
    "attendees": {
      "approved": {
        "attendeeKey": {
          "city": "",
          "databaseKey": "attendeeKey",
          "email": "",
          "eventsRegisteredTo": {
            "eventKey1": "pending",
            "eventKey2": "approved",
            "eventKey3": "rejected"
          },
          "firstName": "",
          "lastName": "",
          "password": "",
          "phoneNumber": "",
          "postalCode": "",
          "province": "",
          "street": ""
        }
      },
      "pending": {
      },
      "rejected": {
      }
    },
    "organizers": {
      "approved": {
        "organizerKey": {
          "city": "",
          "databaseKey": "organizerKey",
          "email": "",
          "firstName": "",
          "lastName": "",
          "organization": "",
          "password": "",
          "phoneNumber": "",
          "postalCode": "",
          "province": "",
          "street": ""
        }
      },
      "pending": {
      },
      "rejected": {
      }
    }
  }
}
```

Figure 1: Updated UML Diagram

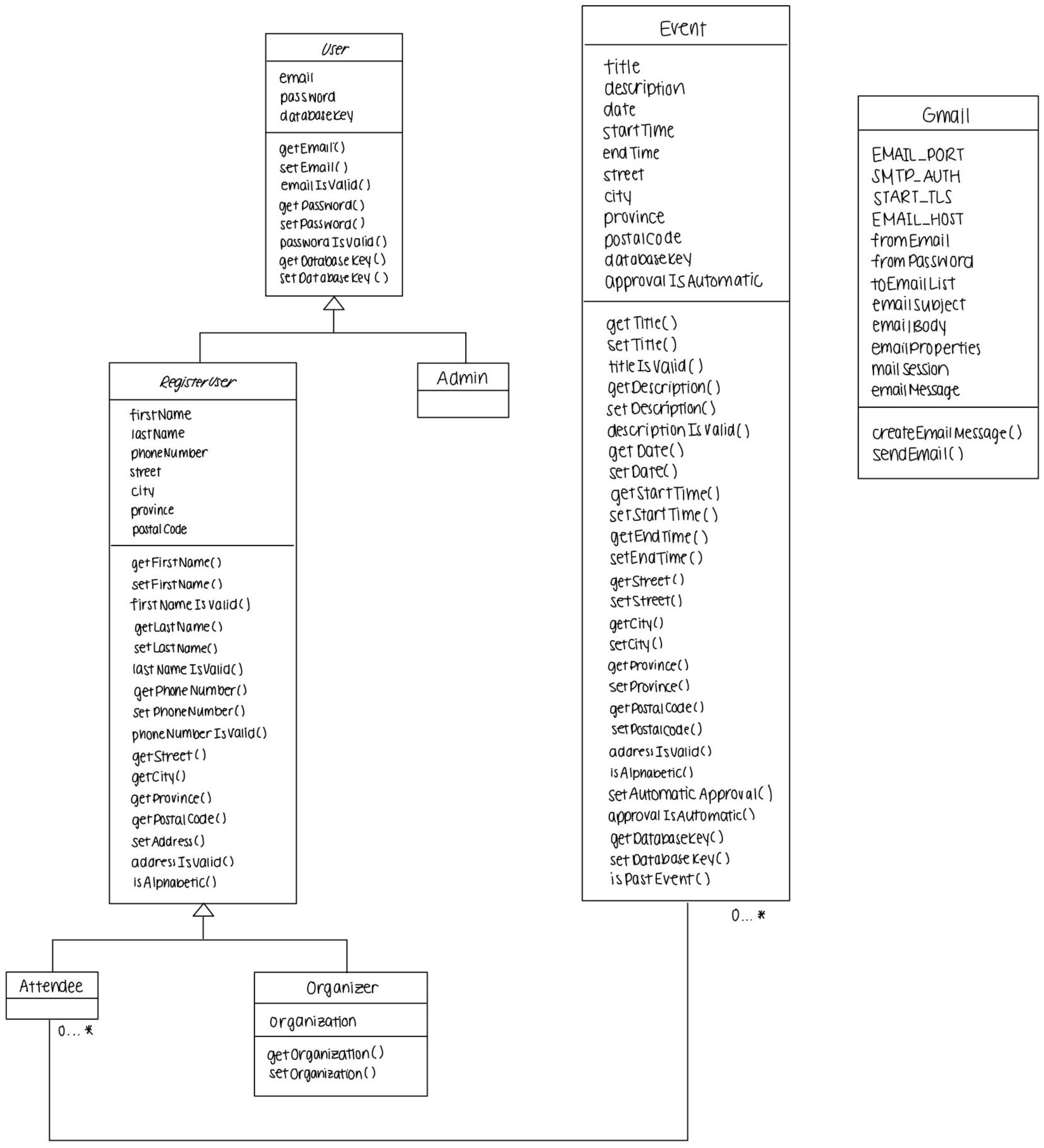


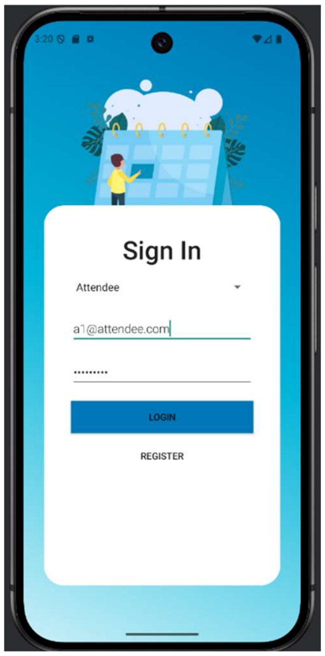
Table 1: Table Specifying the Contributions of Team Members for each Deliverable

Name	Deliverable 1	Deliverable 2	Deliverable 3	Deliverable 4
Alex Ajersch	• GitHub Classroom Setup • Created User Classes and Class Hierarchy • Field Validation	• Administrator Features (view list of requests & user info) • Registration Request Management (functionality for accept/reject) • Rejected Registration Requests (approve previously rejected) • Database Storage for Registration Requests • Comments Addition	• View Past & Upcoming Events • Field Validation and Error Messages • Attendee Registration Management (view list of requests & user info) • Firebase Structure Update	• Search Events • Request Event Registration
Brooklyn McClelland	• Account Creation (Attendee) • Field Validation • APK Submission • Demo Video Submission	• Created Admin Inbox and List UI • Retrieval of User Info from Database	• Created Event Classes • Event Creation • View Past & Upcoming Events • Rachel's Emotional Support <3	• Conflict Prevention • Event Deletion • Cancel Registration
Moïse Kenge Ngoyi	• Account Creation (Organizer)	• Bonus: Notifications • Demo Video Submission (showcasing bonus)	• Date Validation	• Bonus: Notifications
Naomi Braun	• Welcome Screens • Log Off Functionality	• Rejected Registration Requests (view list of rejected requests) • Demo Video Submission (showcasing app)	• Manual and Automatic Registration Approval • Attendee Registration Management (view list of requests & user info; approve (all) /reject) • Event Deletion • Demo Video Submission	• View Registered Events • Registration Status Indicator • Cancel Registration • Demo Video Submission
Rachel Qi	• Welcome Screens • Log Off Functionality • UML Class Diagram	• Rejected Registration Requests (view list of rejected requests) • UML Class Diagram • APK Submission • JavaDoc Addition	• Attendee Registration Management (view list of requests & user info; approve (all) /reject) • Manual and Automatic Registration Approval • Event Deletion • UI Overhaul • Firebase Structure Update • UML Class Diagram • APK Submission	• View Registered Events • Registration Status Indicator • Cancel Registration • UML Class Diagram • Final Report • APK Submission
Steven Wu	• Bonus: Database Usage	• Login Functionality Based on Registration Status (redirection to welcome screen or message)	• Attendee Registration Management (view list of requests & user info) • Firebase Structure Update • Refactoring/Debugging	• Circle CI Integration • Unit Test Cases • Instrumentation Tests • Refactoring/Debugging

Note: The majority of Naomi Braun and Rachel Qi's contributions are identical because they coded together.

App Screenshots

Figure 2: Welcome (Sign In) Screen



a1@attendee.com

Figure 3: Organizer Registration

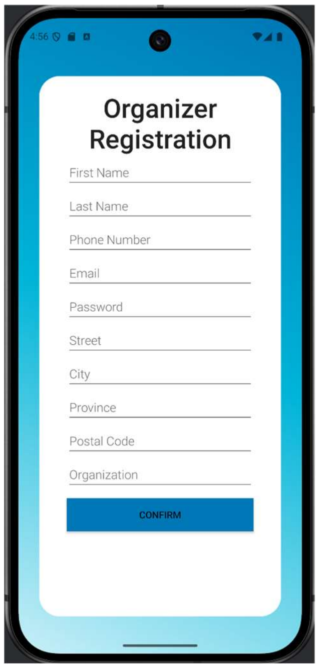


Figure 4: Attendee Registration

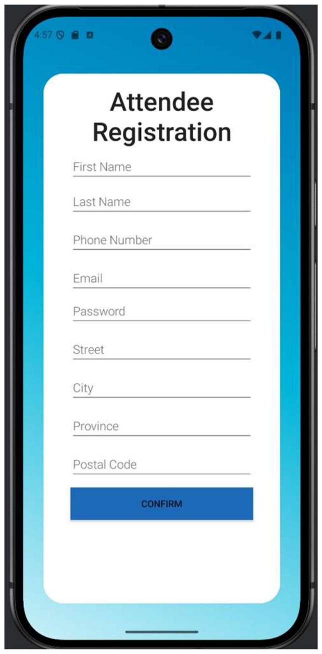
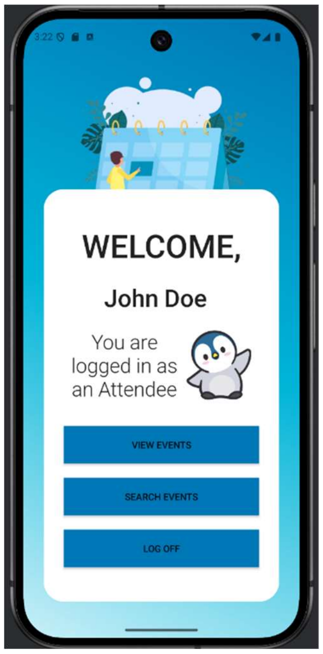
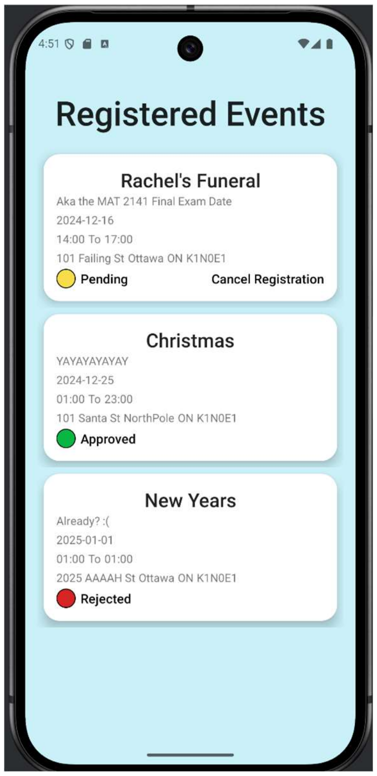


Figure 5: Attendee's Welcome Page



WELCOME,
John Doe
You are logged in as an Attendee

Figure 6: Attendee's View Events



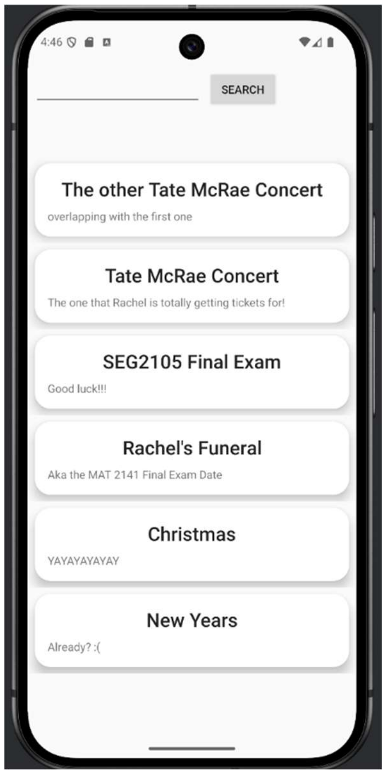
Registered Events

Rachel's Funeral
Aka the MAT 2141 Final Exam Date
2024-12-16
14:00 To 17:00
101 Failing St Ottawa ON K1N0E1
🟡 Pending

Christmas
YAYAYAYAYAY
2024-12-25
01:00 To 23:00
101 Santa St NorthPole ON K1N0E1
🟢 Approved

New Years
Already? :(
2025-01-01
01:00 To 01:00
2025 AAAAH St Ottawa ON K1N0E1
🔴 Rejected

Figure 7: Attendee's Search Events



The other Tate McRae Concert
overlapping with the first one

Tate McRae Concert
The one that Rachel is totally getting tickets for!

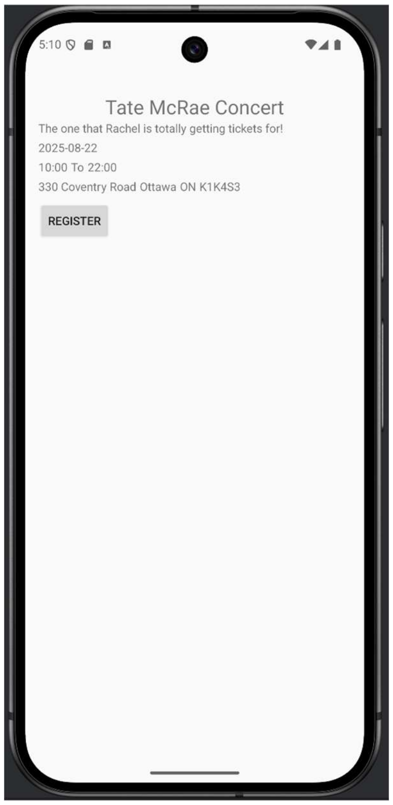
SEG2105 Final Exam
Good luck!!!

Rachel's Funeral
Aka the MAT 2141 Final Exam Date

Christmas
YAYAYAYAYAY

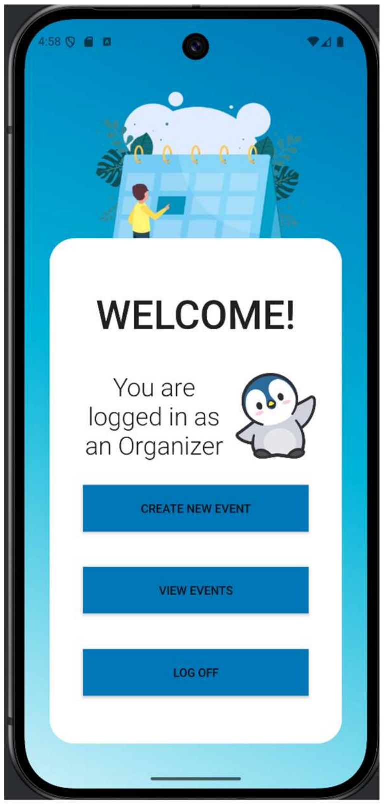
New Years
Already? :(

Figure 8: Attendee's Event Details



Tate McRae Concert
The one that Rachel is totally getting tickets for!
2025-08-22
10:00 To 22:00
330 Coventry Road Ottawa ON K1K4S3

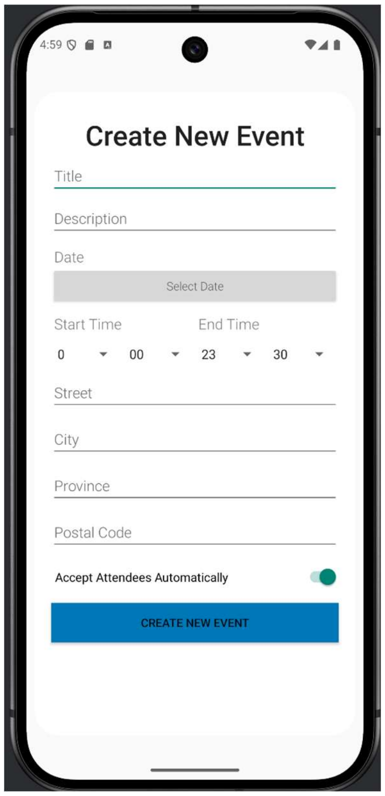
Figure 9: Organizer's Welcome Page



WELCOME!

You are logged in as an Organizer

Figure 10: Organizer's Create New Event


Create New Event

Title

Description

Date

Select Date

Start Time | End Time

0 | 00 | 23 | 30

Street

City

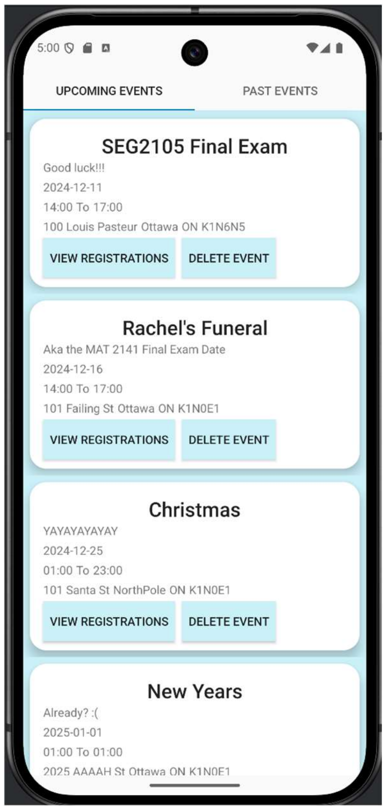
Province

Postal Code

Accept Attendees Automatically

CREATE NEW EVENT

Figure 11: Organizer's View Events


UPCOMING EVENTS | PAST EVENTS

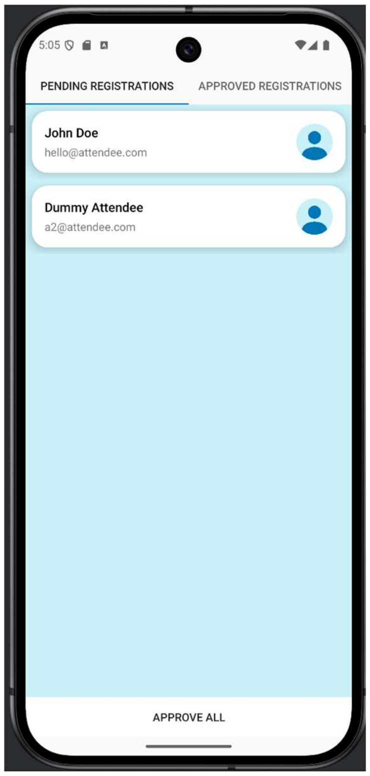
SEG2105 Final Exam
Good luck!!!
2024-12-11
14:00 To 17:00
100 Louis Pasteur Ottawa ON K1N6N5
VIEW REGISTRATIONS | DELETE EVENT

Rachel's Funeral
Aka the MAT 2141 Final Exam Date
2024-12-16
14:00 To 17:00
101 Failing St Ottawa ON K1N0E1
VIEW REGISTRATIONS | DELETE EVENT

Christmas
YAYAYAYAYAY
2024-12-25
01:00 To 23:00
101 Santa St NorthPole ON K1N0E1
VIEW REGISTRATIONS | DELETE EVENT

New Years
Already? :(
2025-01-01
01:00 To 01:00
2025 AAAAH St Ottawa ON K1N0E1

Figure 12: Organizer's View Event Registrations

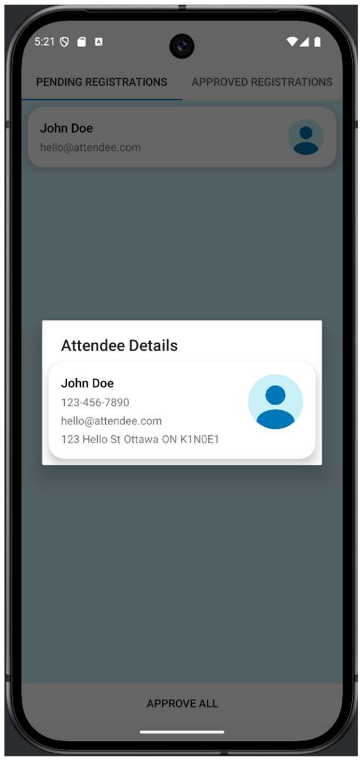

PENDING REGISTRATIONS | APPROVED REGISTRATIONS

John Doe
hello@attendee.com

Dummy Attendee
a2@attendee.com

APPROVE ALL

Figure 13: Organizer's View Registration Info


PENDING REGISTRATIONS | APPROVED REGISTRATIONS

John Doe
hello@attendee.com

Attendee Details

John Doe
123-456-7890
hello@attendee.com
123 Hello St Ottawa ON K1N0E1

APPROVE ALL

Figure 14: Admin Welcome Page

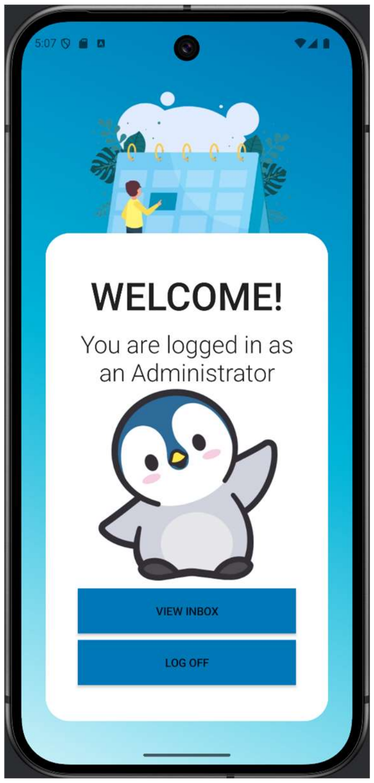
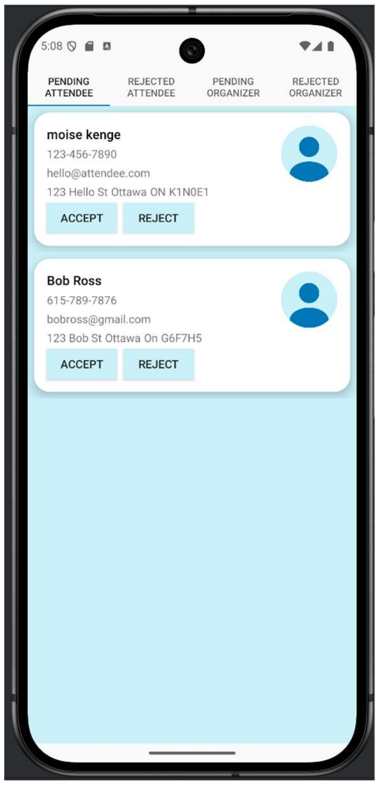


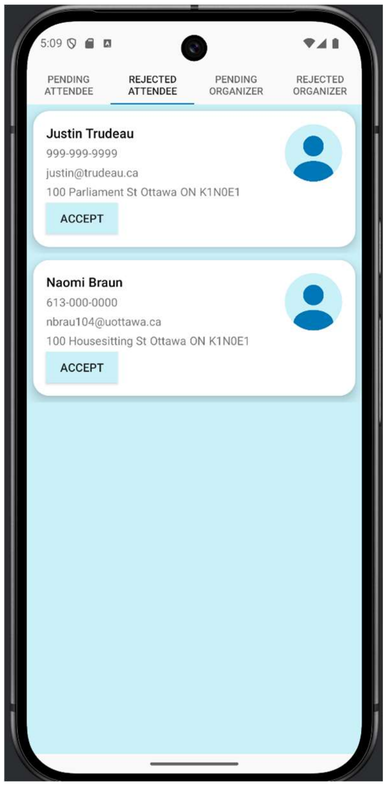
Figure 15: Admin Inbox (Pending)



moise kenge
123-456-7890
hello@attendee.com
123 Hello St Ottawa ON K1N0E1
ACCEPT REJECT

Bob Ross
615-789-7876
bobross@gmail.com
123 Bob St Ottawa On G6F7H5
ACCEPT REJECT

Figure 16: Admin Inbox (Rejected)



Justin Trudeau
999-999-9999
justin@trudeau.ca
100 Parliament St Ottawa ON K1N0E1
ACCEPT

Naomi Braun
613-000-0000
nbrau104@uottawa.ca
100 Housesitting St Ottawa ON K1N0E1
ACCEPT

Lessons Learned

This project taught us how to code in collaboration with others. From splitting tasks, to solving merge conflicts, we faced many challenges that stemmed from having to work as a group. At first, it was difficult to split the workload when the functionality of the app was so complex and often intertwined with other behaviour. For example, testing Deliverable 3 was difficult without the completion of Deliverable 4 to register Attendees. However, we learned to split tasks by a specific function of the app, rather than between front-end and back-end. This greatly improved our efficiency, as team members were less reliant on others to begin their parts of the project.

Deliverable 3 also taught us to approach coding with a plan and be adaptable to change. The association between Attendees and Events was initially designated to a third class, EventRegistration. However, we quickly realized that this was overly complicated to implement with Firebase and Android Studio, but failed to develop a concrete plan before re-approaching the code. This resulted in multiple Firebase structure changes between Event and Attendee, with each change requiring that we update all the associated code. After many failed attempts, we conceptualized the plan to have Attendees and Events have a double-sided association in Firebase. Once we had this plan in place, we were able to effortlessly overhaul the code and implement the required features. This effort could also have been avoided by separating the Firebase methods into another class, limiting the changes to one file each time the Firebase structure changed.