RecCenter Slot Booking iOS Application Documentation

ABSTRACT

Now a days, the process of booking a court at a recreation center was a manual process that required students to either check the timings or visit it in person to make a court availability to play. This process was time-consuming and inconvenient for students, who had to navigate busy schedules and long wait times to secure a court booking to play a game.

By developing the ReCenter Slot Booking application, the students can easily book a court at a recreation center through their mobile devices. The app provides real-time information on court availability and allows customers to select a time slot that best fits their schedule. Customers can also pay for their booking through the app, eliminating the need for in-person transactions. The ReCenter Slot Booking application streamlines the court booking process, making it more convenient and accessible for students while reducing wait times and increasing revenue for recreation centers.

INTRODUCTION

The main purpose of developing an application for a recreation center for booking a court to play games is to provide convenience and ease of access to users. With the application, users can easily book a court to play their favorite games at their preferred time, without having to go through the hassle of making a phone call or visiting the recreation center in person. The application can also help the recreation center manage bookings more efficiently and keep track of availability, ensuring a better experience for all students.

BACKGROUND INFORMATION

Our Project is named "Rec Center Slot Booking" as there are limited courts for games like Basketball, Volleyball, Badminton, Tennis and Racquetball to play for each. The App Development Main Goal is to create an online booking system for booking the courts based on Game willing to play at a period slot with a duration limit of 4hours/student. If a non-student mail is used like *name@gmail.com* or *name@outlook.com* or other mail domains, then the user must pay an amount of $10 per hour but he can only use the app to book up to a duration limit of 2 hours/day. The Target Users for this Application are students at Northwest Missouri State University who hold a *919# number* and *S######@nwmissouri.edu.*

TECHNICAL REQUIREMENTS

This a sample application demo which is built for a limited number of users for testing purposes only which can help to perform modifications in the future.

The Minimum iOS version required to run the application.

- iOS 11.0 and later
- Development Xcode version 14.0 and later
- Works on iPhones and iPads

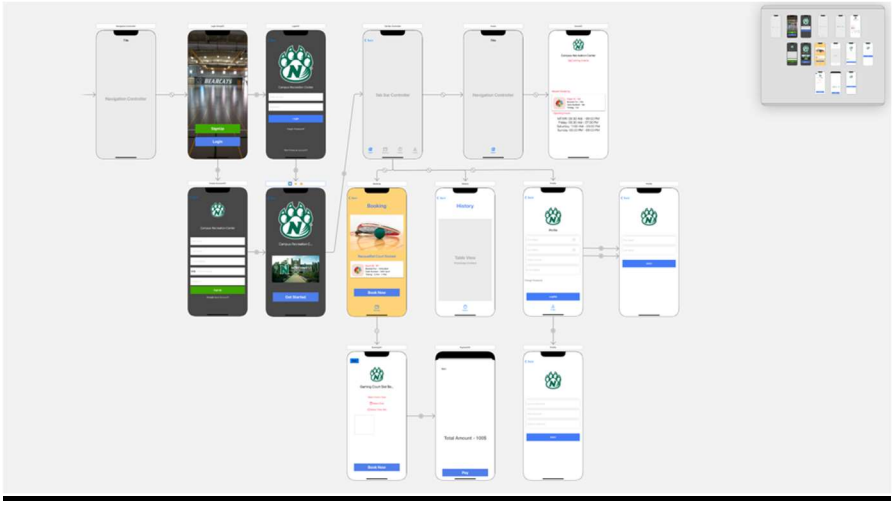
As a developer, if you want to add more features to the ReCenter Slot Booking Application, you should replace the current database with FireCloud to increase the scalability and user-friendliness of the application. This will allow the application to handle a larger user base and provide a more efficient and reliable system for data management. The replacement of the database with FireCloud, we can do the addition of push notifications, rating system, and user-friendly design are key improvements that will take the application to the next level, providing users with a more efficient, reliable, and enjoyable experience.

iOS FEATURES

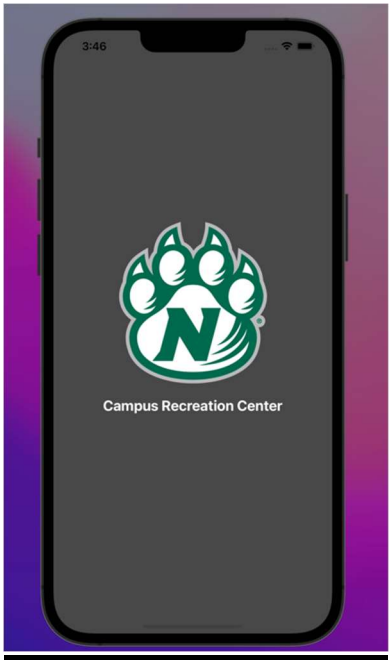
As Notifications are the basic features for the booking kind of applications. We are adding these features for more information and security details.

1. Face ID unlock for Security Confirmations
2. Table View for Checking the Slot Availability
3. Calendars Feature that contains Booking Court events in it.
4. Payment for Booking Confirmation using Card Details.

ARCHITECTURE



#Launch Screen–*Showing the Recreation Center LOGO with Title Below it*



DATAMODEL

The data model used in the application defines the structure of the data stored in the application databases which is CoreData. It consists of the entities and relationships between them and the attributes and properties of each entity.

Initially, the model file consists of the list of games in an array, the student who are issued the 919 and holding the Student ID their Student Emails are placed in another array.

As the Time Slots Duration for the Students holding 919# are separately placed in an array excluding the non-students timings which are placed in another one.

Finally, the list of games and number of courts are placed in a nested array to use for picker form.

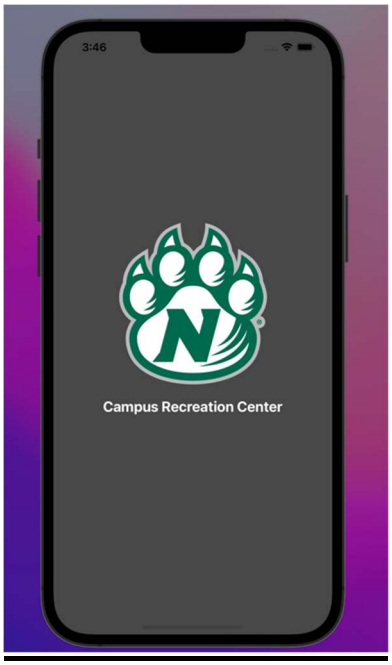
We have two entities present in the database for the application working

1. User Entity which consists of the particular user attributes of properties
    a. Email – String
    b. Firstname – String
    c. Lastname – String
    d. Password -String
    e. 919# Number - String
2. Booking Entity which consists of the following attributes of properties
    a. CourtID – String
    b. Date – String
    c. Game - String
    d. Slot -String
    e. TimeStamp – Double
    f. userEmail - String
    g. username – String

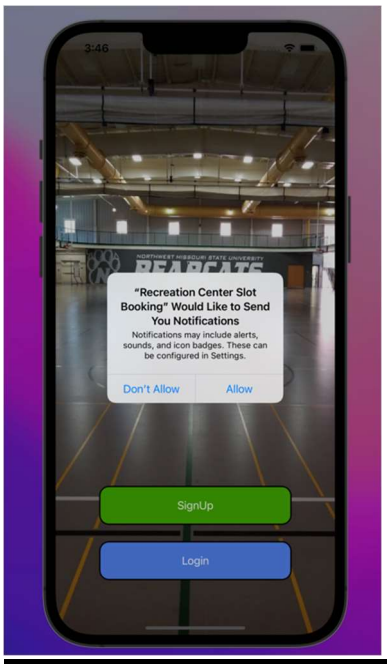
We are using a function from Firebase to perform an action of sending mail that user registered with the password previously which is linked with CoreData Model .As, the courts are booked we are using the Calendar Manager to show the events of booked courts at a particular day with timings and the Gaming Court details in it.

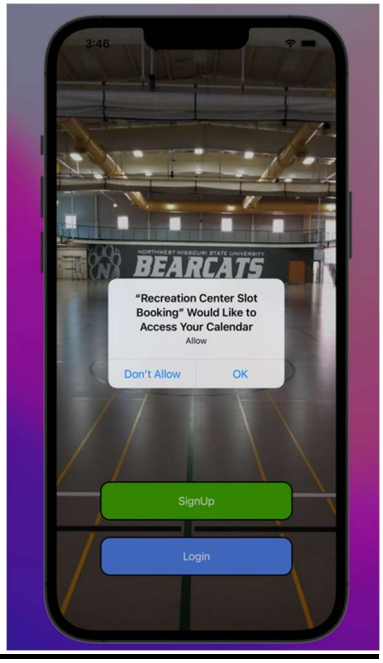
WORKING VISUALIZATION

#Launch Screen– *Showing the Recreation Center LOGO with Title Below it*

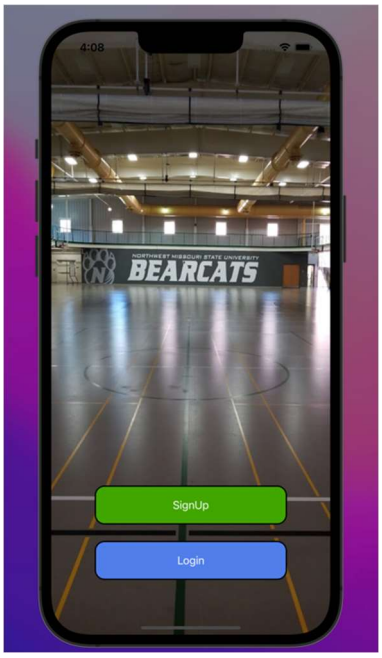


Permissions– *Allows to access Notifications Features and Calendar Features*

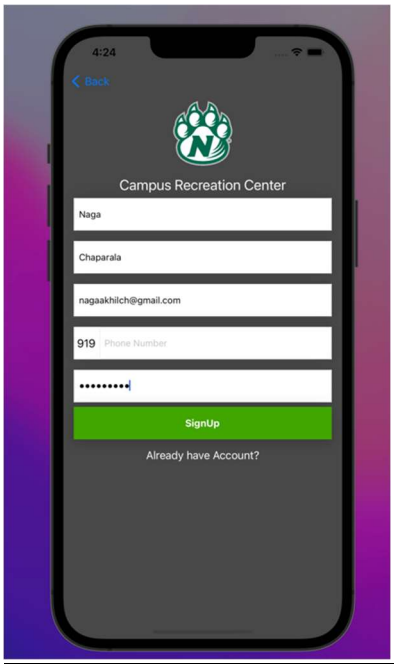


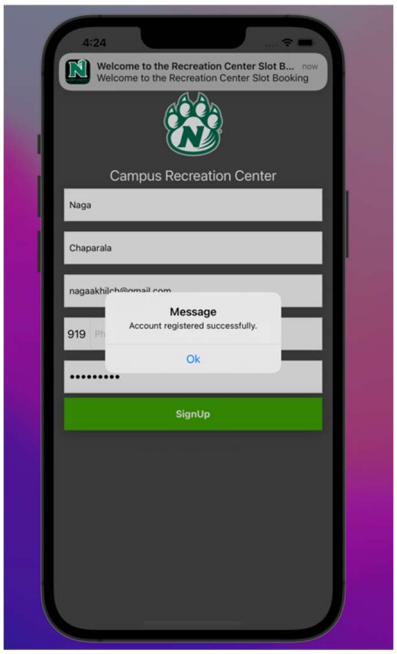


#Login and Signup Screen- ***leads Login and SignUp Screen on clicking***

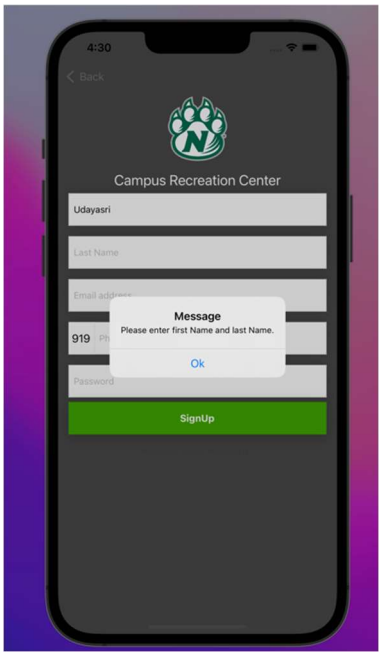


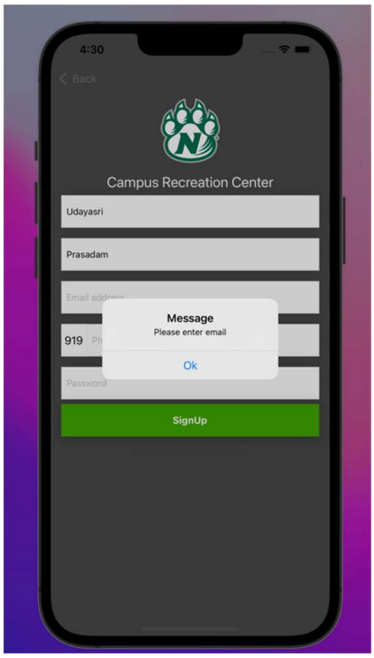
#Signup Screen – ***When a user is not student who is having a S#####@nwmissouri.edu Email then the 919# Field is disabled to fill.***



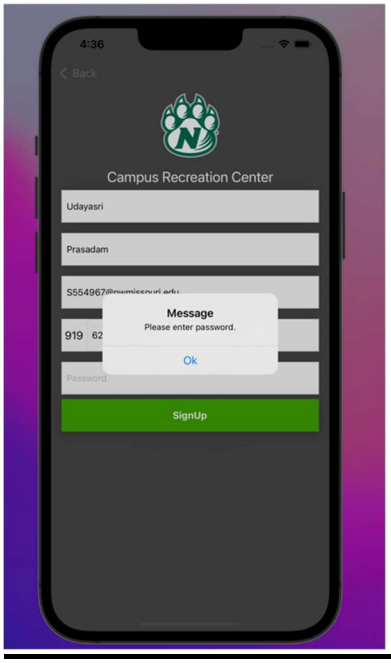


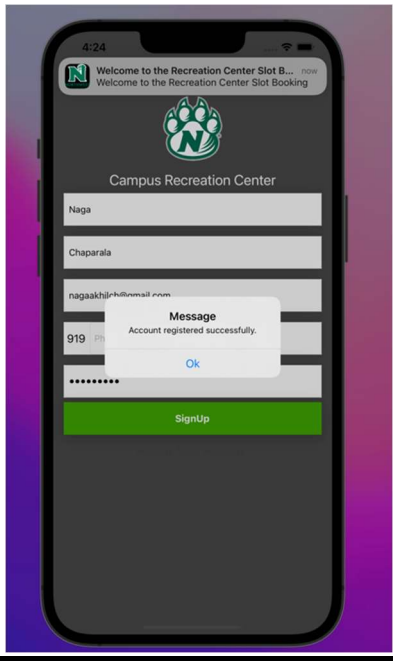
When there is no data entered in the fields then an alert will be triggered.



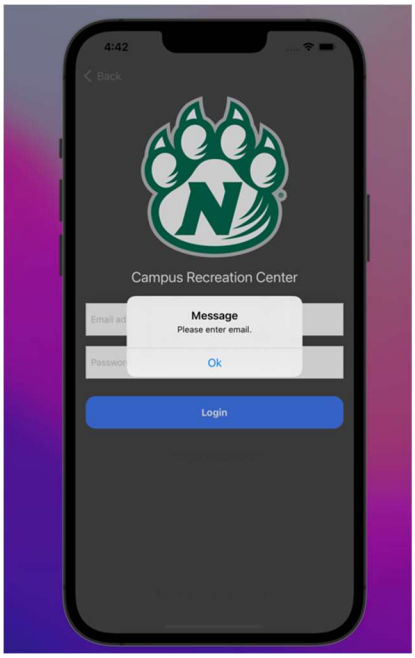


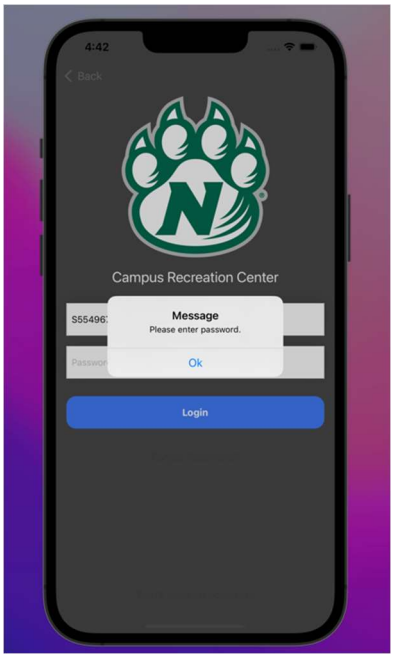
If the user enters all data fields in appropriate form then a notification is triggered stating Welcome to Recreation Center Slot Booking and a message will be triggered.





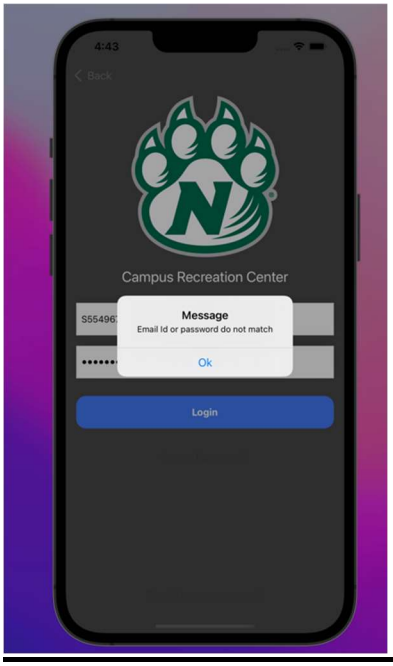
#Login Screen- ***When a user want to login he need to enter the email address that he had account with if not an error alert will be triggered even if didn't fill it.***

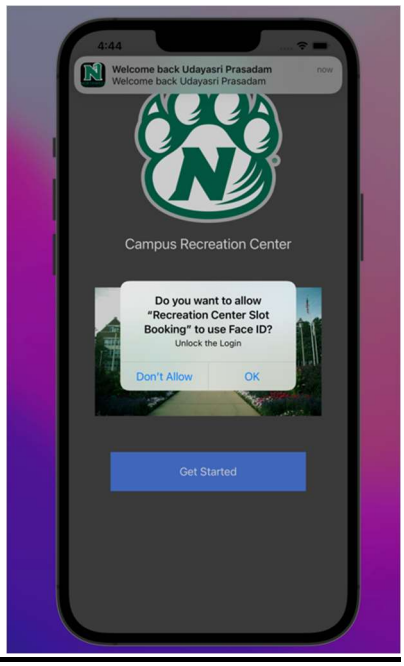




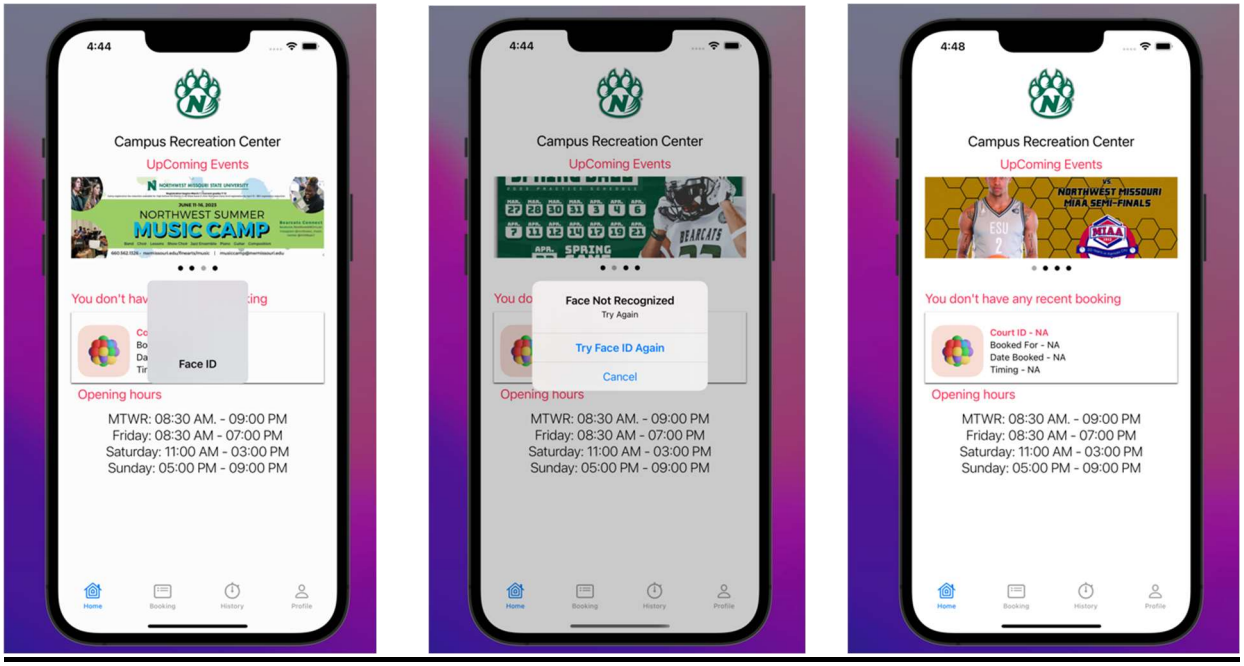
If the user enters the Email address and password he registered with then he will be directed to the Welcome page where

The user will be asked to allow the FaceID permission if he wants. And a notification will be generated saying *Welcome back to the user.*

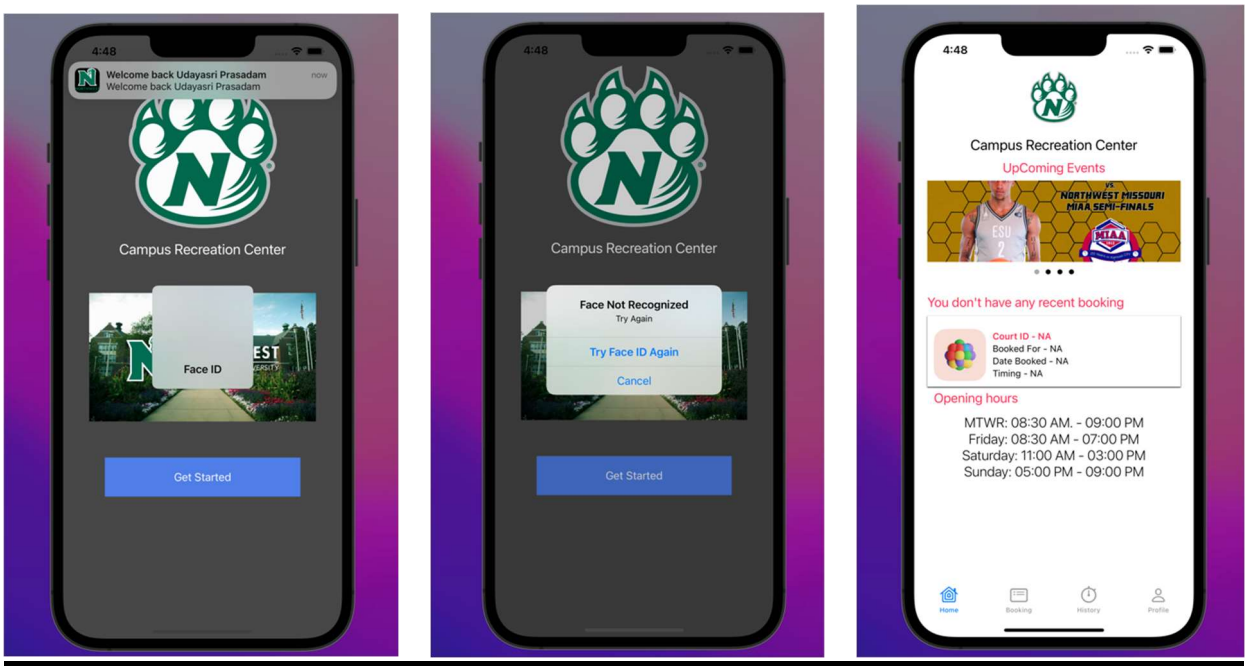




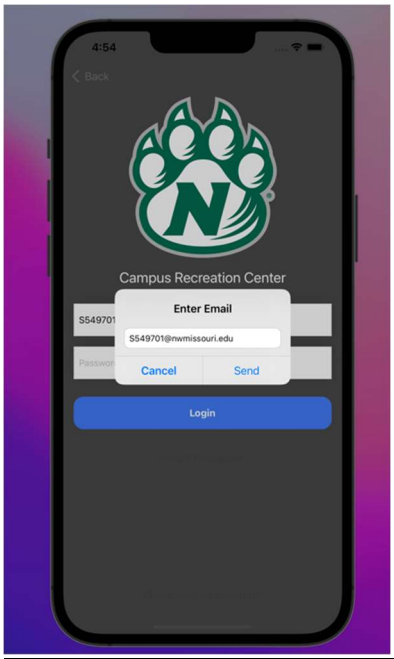
If the user clicks allow for FaceID then the user face is verified before he leads to the Home Page else, he must enter the phone passcode to proceed.

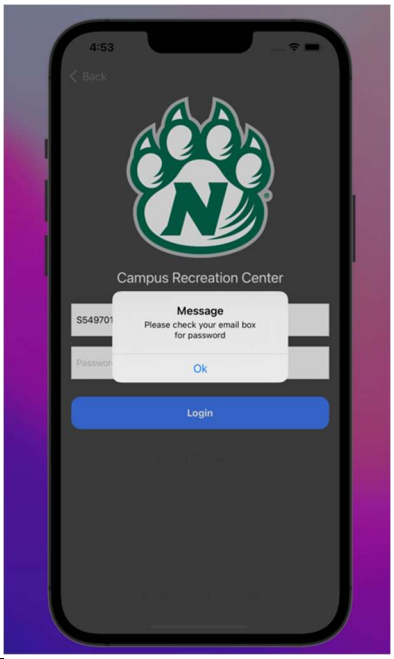


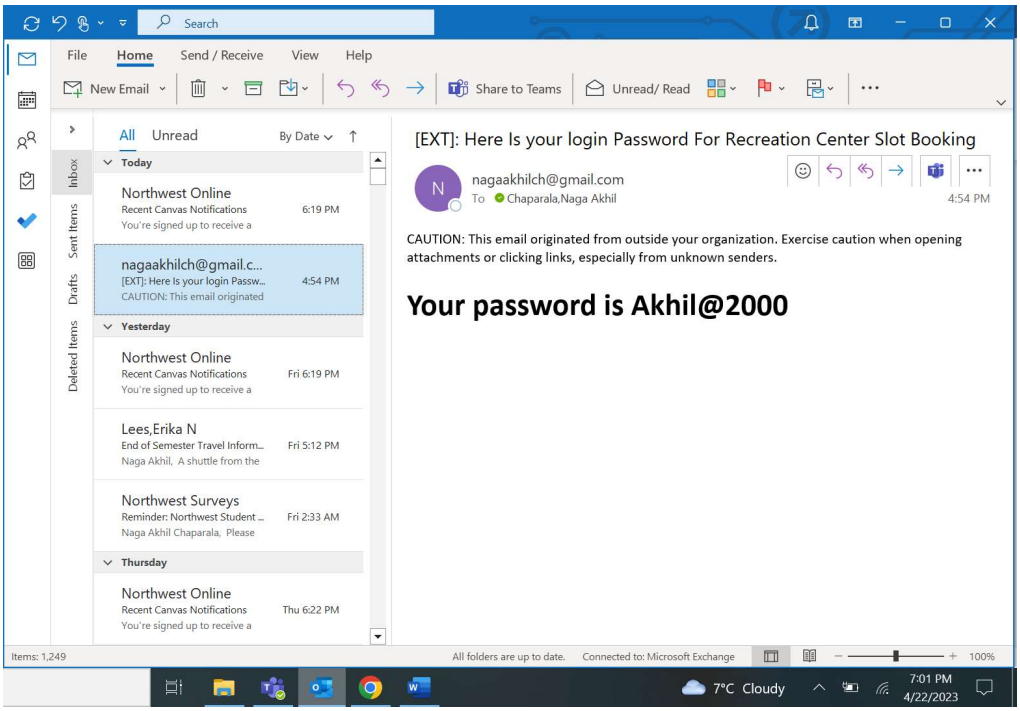
If the user logs out of the app with the FaceID permission active, then after each login he must give his facial verification using FaceID and use the app until he is logged out.



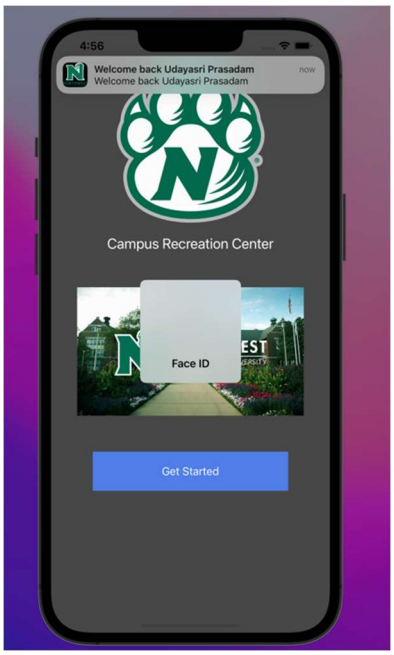
#Reset Password Screen- ***If the user forgot his password an alert text box is shown to enter the Email address, he registered with to get his old password. When he clicks on send button, the mail will be sent if he registered using that Email address.***

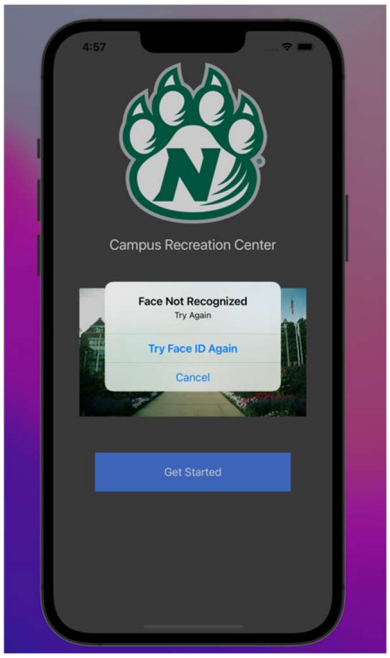


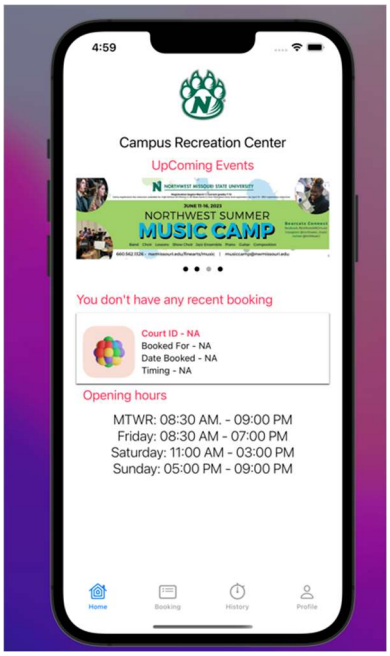




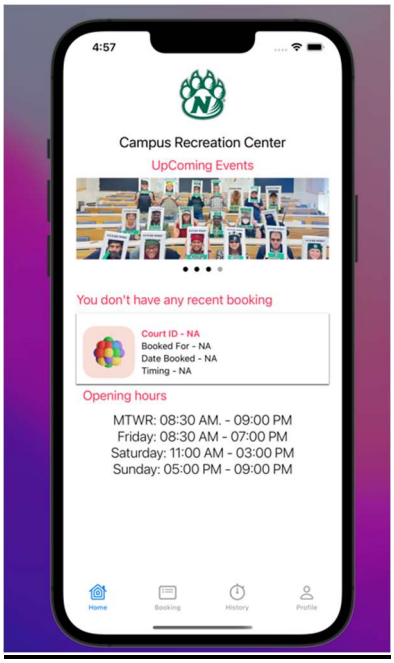
#Welcome Screen- ***The FaceID is activated, and the user face is verified here after Login Successfully and SignUp successfully is performed.***



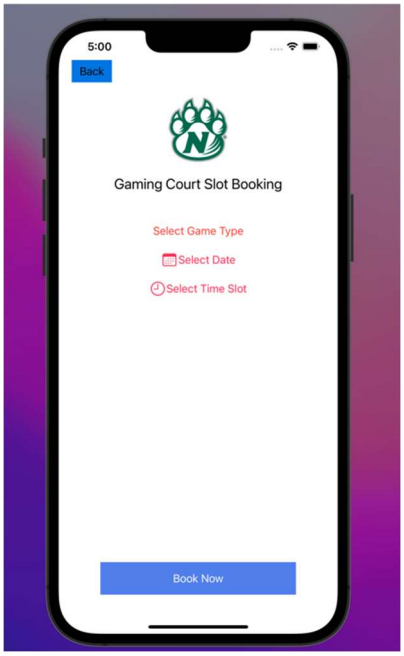




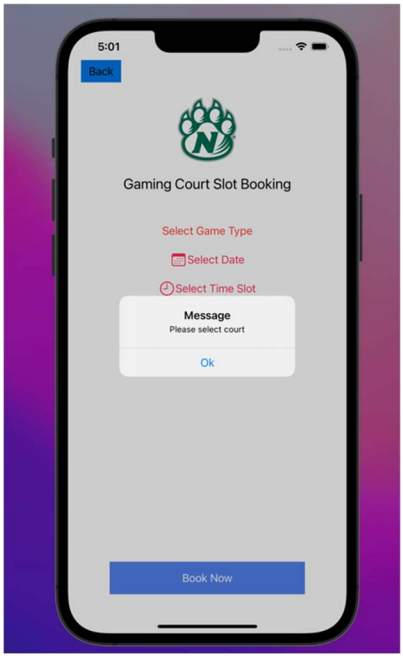
#Home Screen- ***It presents a Slideshow of upcoming events and recent booking including the Opening Hours of the Recreation Center in the NWSU Campus.***

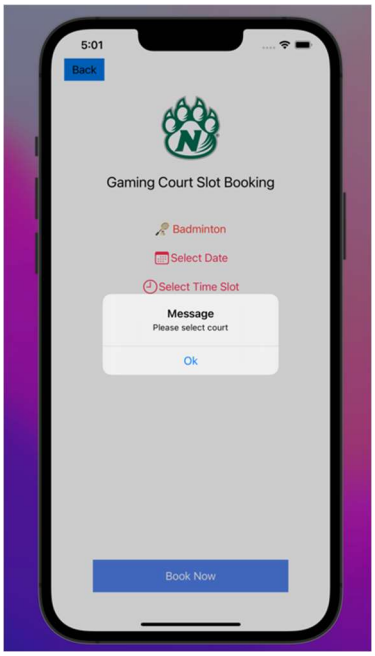


#Gaming Court Slot Availability Screen- ***When the user clicks on the booking icon in task bar, he will be led to this page which shows his recent bookings. If the user clicks on the Book Now button, then we must choose the select the course, date and time including the game he is willing to play in the Recreation Center.***



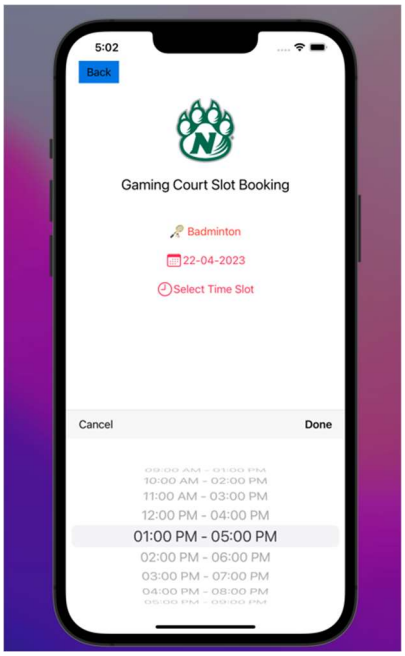
If the user didn't select any game or date or time and clicks on the Book Now Button, then an alert message is triggered.

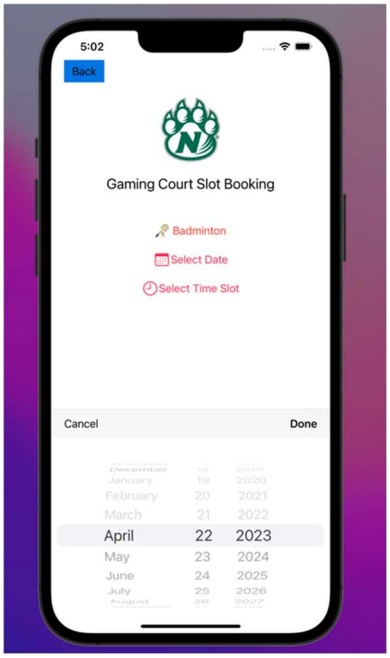




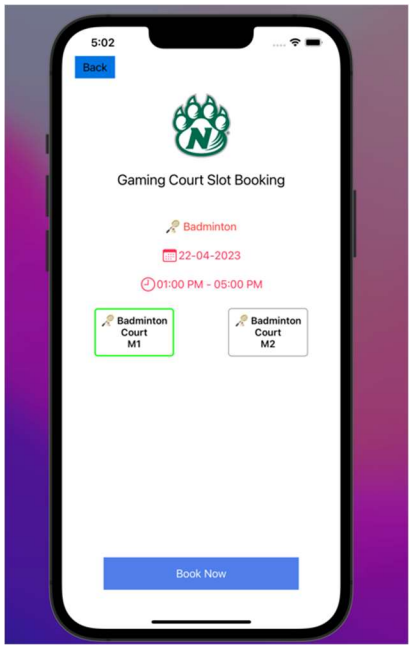
A Student can book any Timeslot which contains a duration upto 4hours if he holds a 919# number and Student ID Email Address without any cost but only once per day.

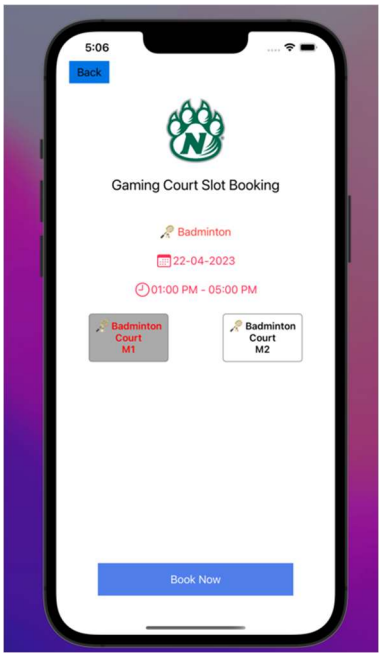
The Court selected by the user is represented in Green Color and if its already booked for that time slot then if will be represented disabled in Red Color.



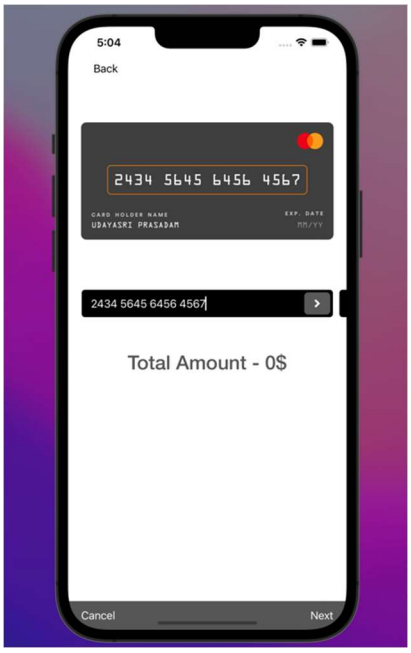


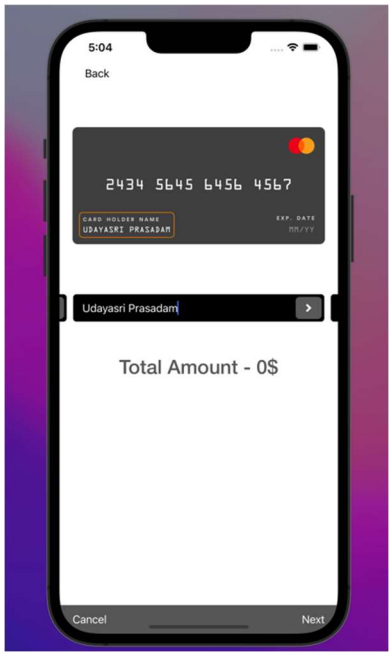
#Gaming Court Slot Booking Screen- *You can book the Court after this.*

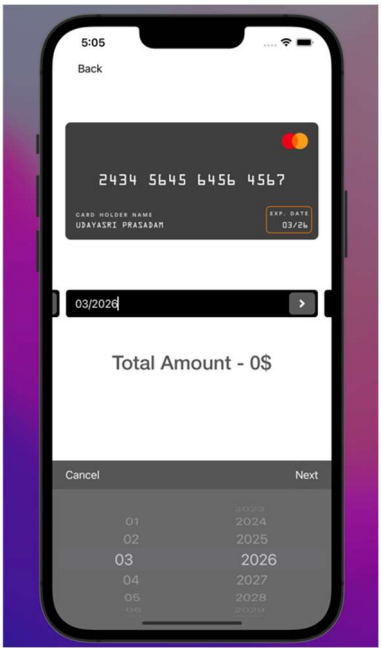


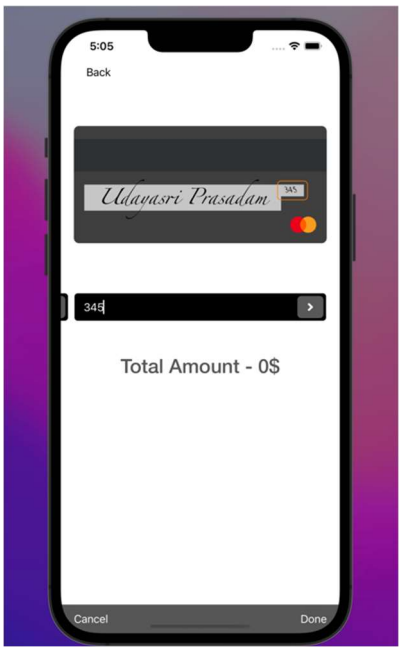


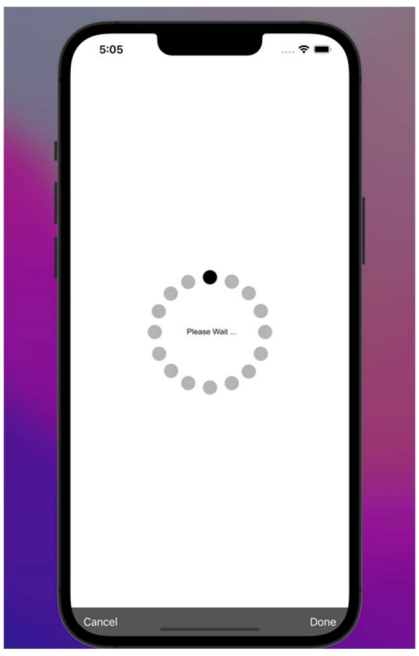
The User can enter debit/credit card details to perform the booking action to play.

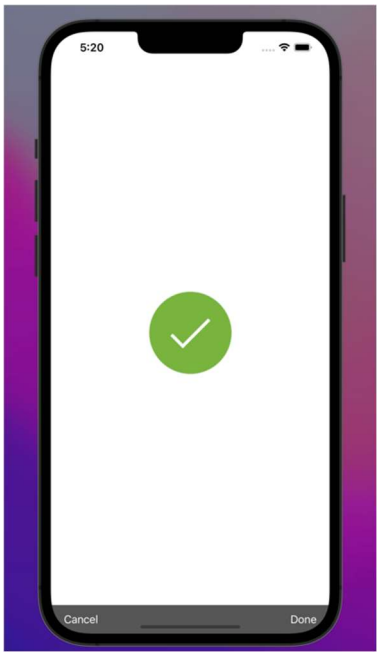




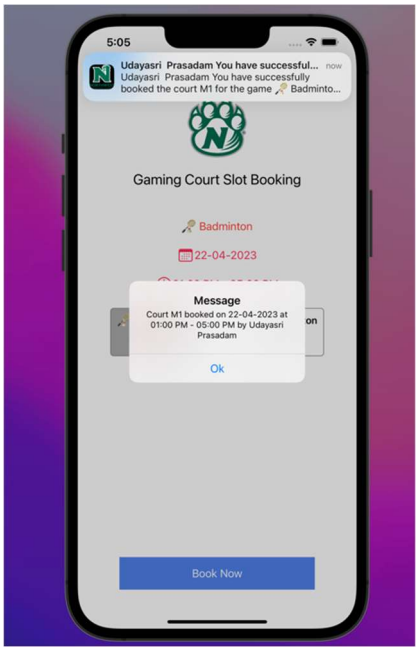


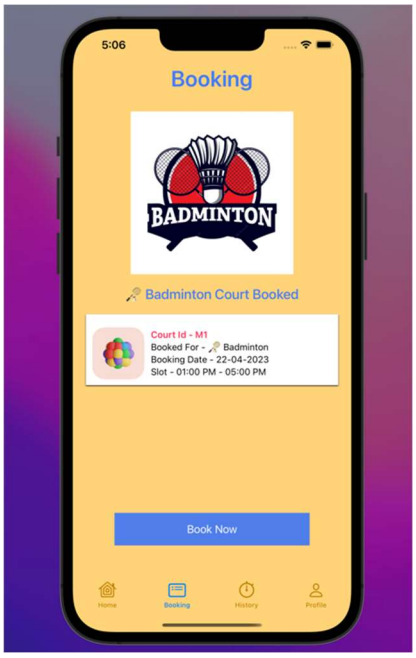






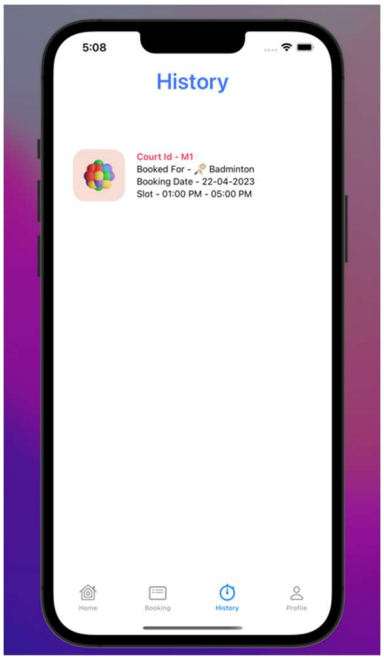
#Booking Confirmation Screen- ***A notification is triggered when the booking successfully completed with an alert message that is triggered consisting of the CourtID, Date & Time with the Game you're willing to play in it.***

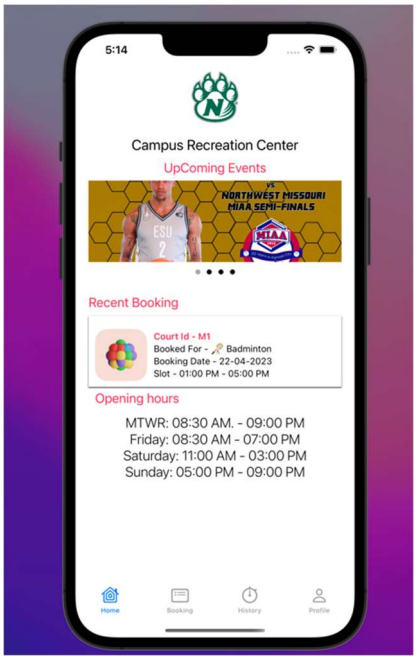


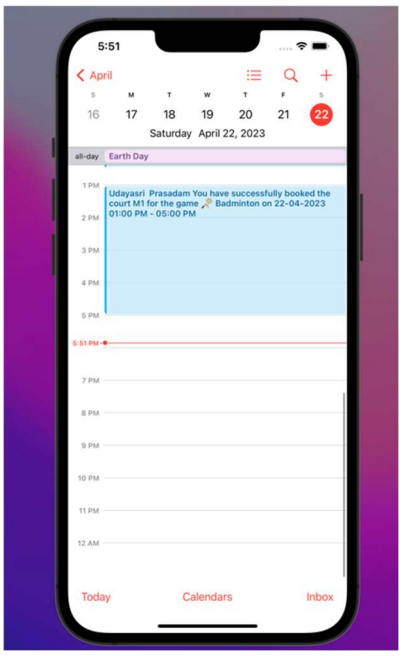


#Booking History Screen- ***The Latest Booking is placed in the first place of the history, and it is also added to the Recent Booking Section displaying on Home.***

An event will be created in the Device Calendar stating the Booking on that date.

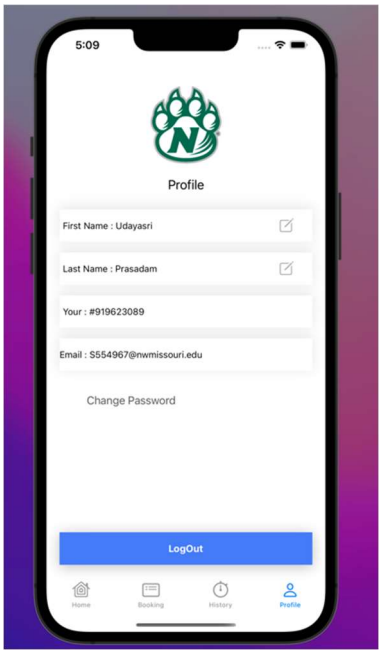


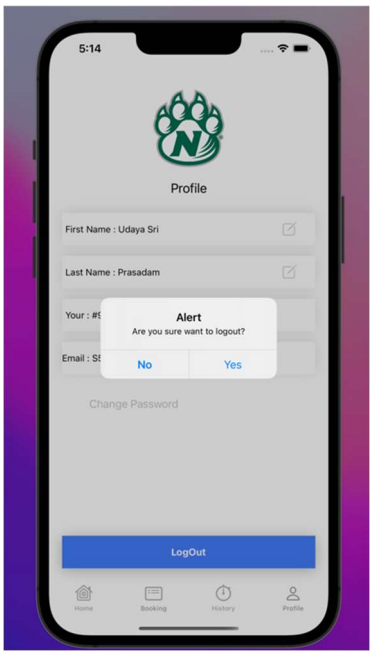




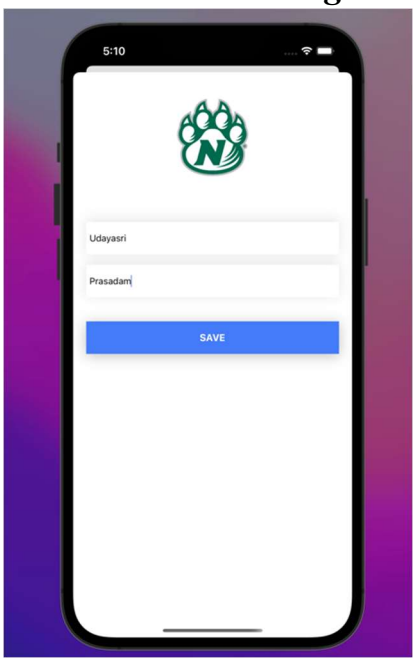
#Profile Screen- ***The Email addresses and the 919# Number cannot be changed here. The Fields that can be changed are FirstName, LastName and Password.***

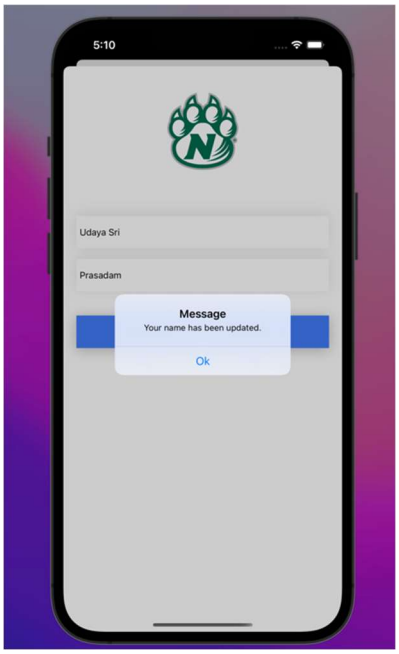
When the user clicks on logout an alert is triggered asking for confirmation.



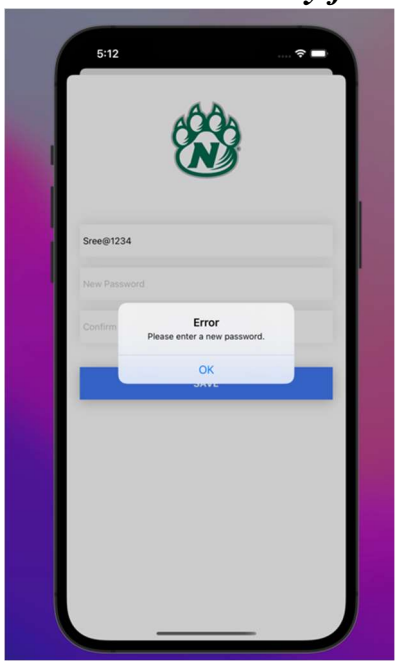


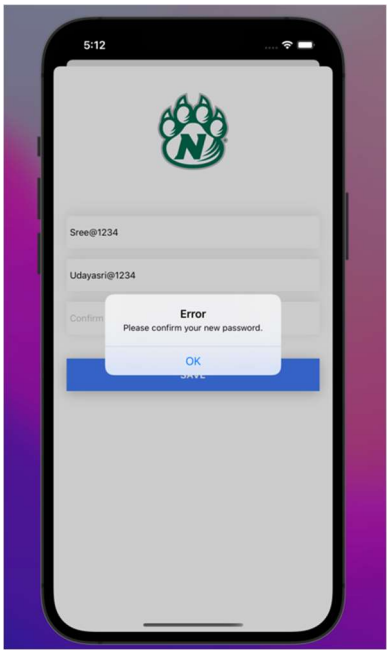
When the user changes the FirstName and LastName this happens.

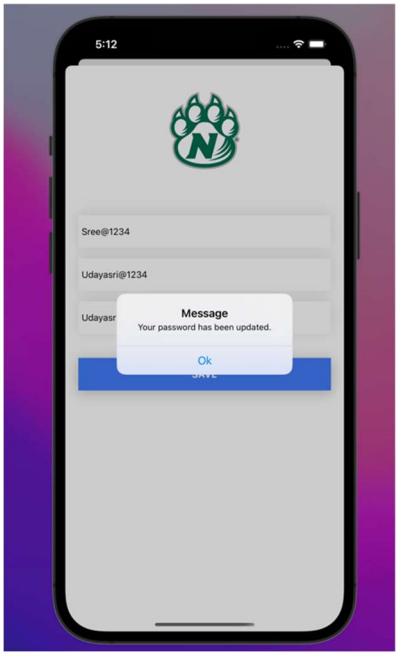




When the user wishes to change his password then this is the process and if the user didn't enter any field, then an alert is triggered notifying the user to fill it.

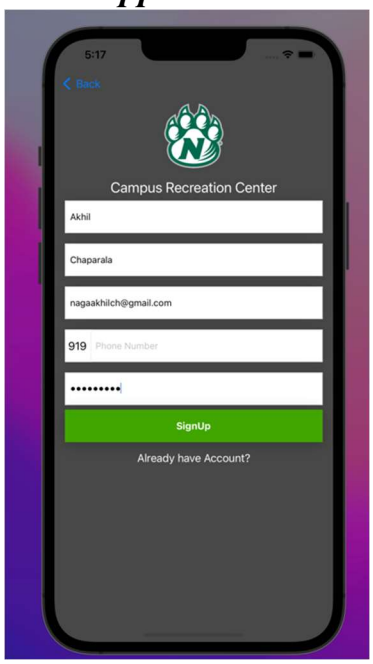


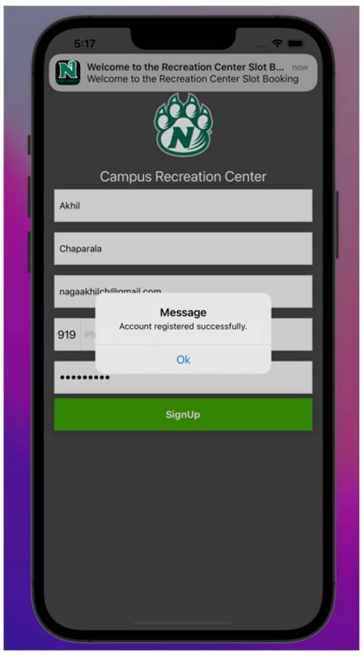


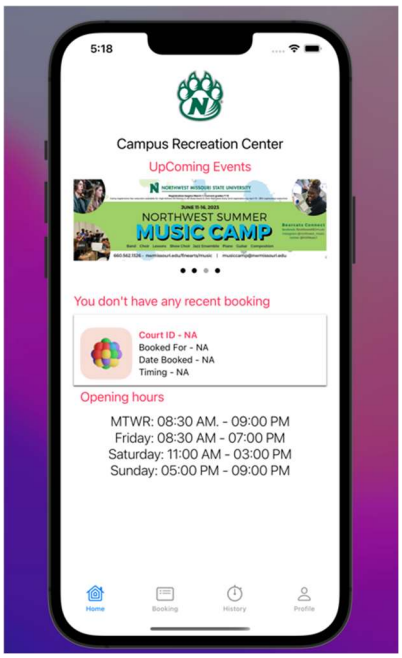


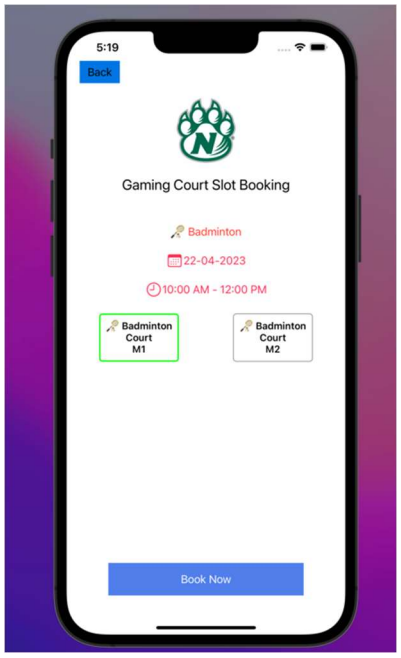
Process for the User without a StudentID and 919# Number:

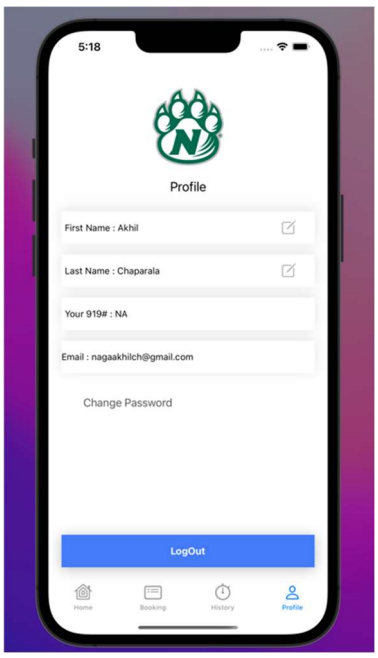
If the user is not a student and doesn't possess any Student ID and 919# number, then this will be the process of Booking including all screens which are presented in the application.

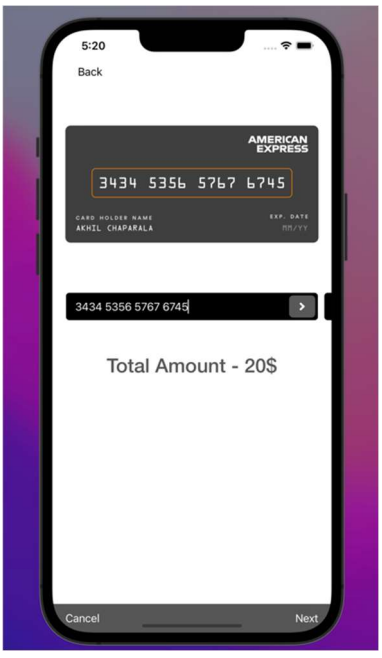




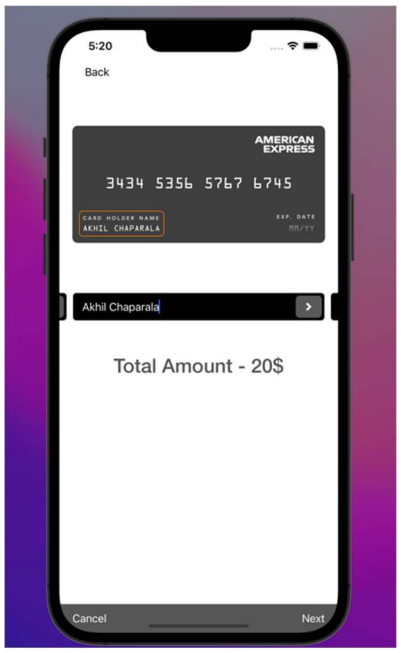


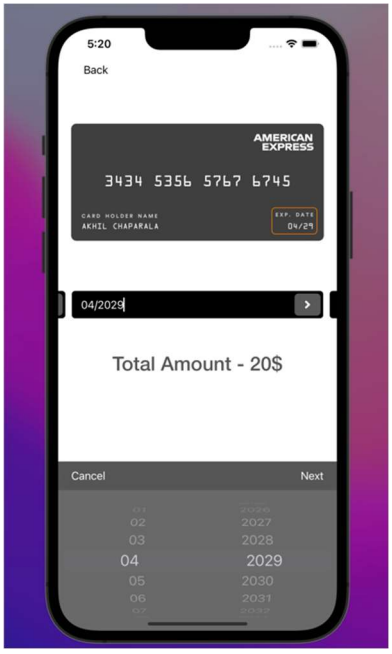


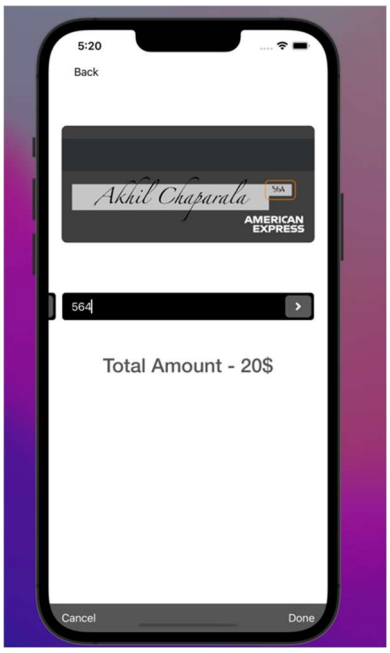


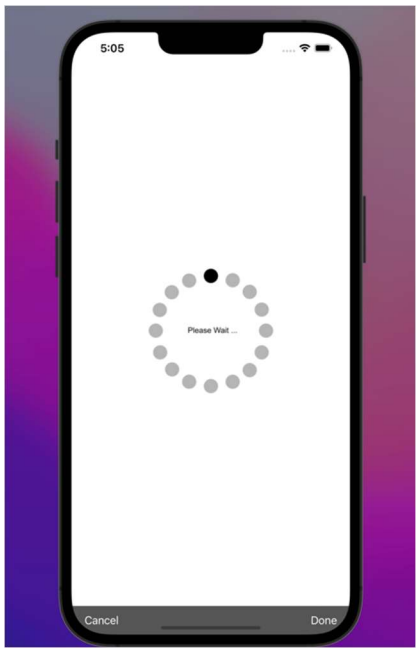


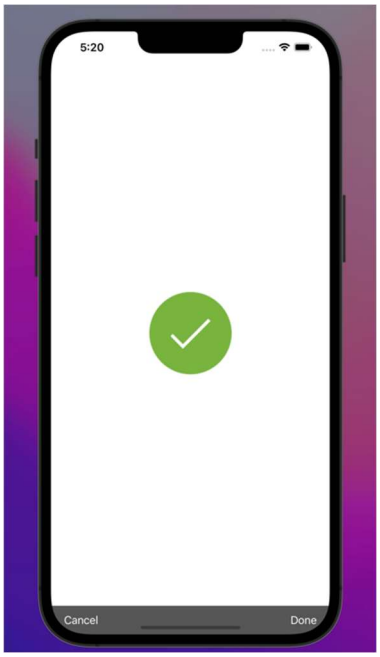
The Payment for a non-student is 10$ per hour and the user can book only once per day with a time duration of 2 hours.

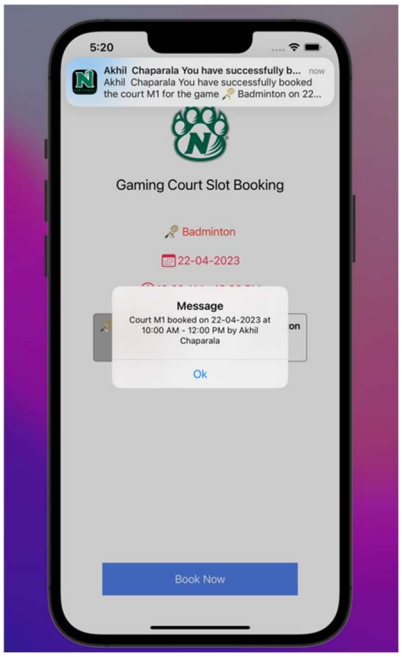


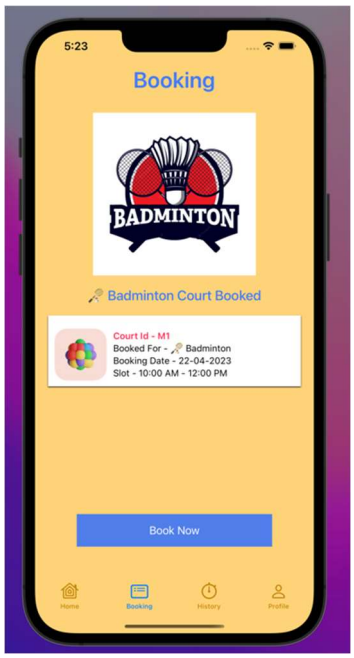


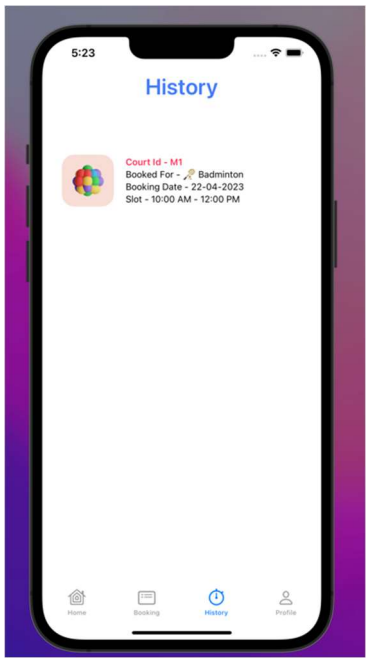


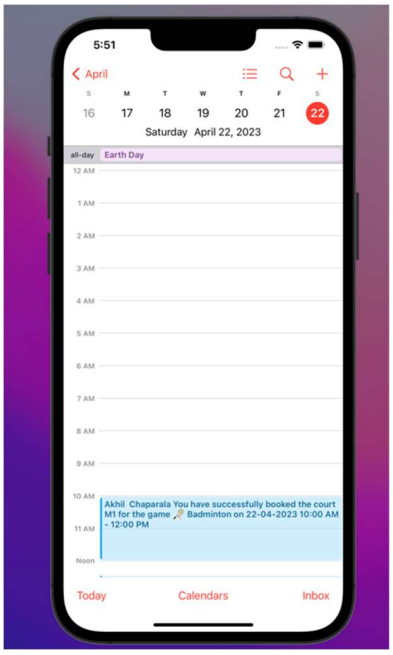

5:05
Please Wait ...
Cancel
Done


5:20
Cancel
Done


5:20
Akhil Chaparala You have successfully b... now
Akhil Chaparala You have successfully booked the court M1 for the game Badminton on 22...
Gaming Court Slot Booking
Badminton
22-04-2023
Message
Court M1 booked on 22-04-2023 at 10:00 AM - 12:00 PM by Akhil Chaparala
Ok
Book Now


5:23
Booking
BADMINTON
Badminton Court Booked
Court Id - M1
Booked For - Badminton
Booking Date - 22-04-2023
Slot - 10:00 AM - 12:00 PM
Book Now
Home
Booking
History
Profile


5:23
History
Court Id - M1
Booked For - Badminton
Booking Date - 22-04-2023
Slot - 10:00 AM - 12:00 PM
Home
Booking
History
Profile


5:51
April
16 17 18 19 20 21 22
Saturday April 22, 2023
all-day Earth Day
Akhil Chaparala You have successfully booked the court M1 for the game Badminton on 22-04-2023 10:00 AM - 12:00 PM
Today
Calendars
Inbox

CONCLUSION

In the future, we aim to enhance the user interface of the application to make it more intuitive and user-friendly for all devices. We also plan to add new features such as the ability to see court availability in real-time and to allow users to book multiple courts in a single session. Furthermore, we will explore the possibility of integrating the app with social media platforms to enable users to share their bookings with friends and to receive alerts about upcoming games and events. Overall, we are committed to continuously improving the app to provide our users with the best possible experience when booking courts at the Recreation Center.