USC RecApp Implementation Doc

By Group 14

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Preface

According to the Covid-19 policies of the University of Southern California, users must reserve a spot before entering a recreation center.

USCRecApp is an Android mobile application that helps USC students to make reservations online for USC recreation centers during the pandemic.

All USC students can register for USCRecApp and manage their accounts on it. This design document will elaborate on the exact underlying contents of the USCRecApp.

Introduction

This documentation aims for explaining the difference between our actual implementation and the design document we wrote before.

We will specify which changes are made to the architectural design, detailed design, as well as changes to the requirements. This will include which class design we decide to change, which component in architectural design we decided to abandon or add, and what we have changed in regards to the requirements.

Architectural Design Changes

Map:
- Nothing specific has changed compared to the original map design. The implementation still achieves having a google map interface in the app with all rec centers marked. When users click the marker on the map, it will take them to the booking page of that recreation center.

Booking Page:
- The booking page remains the same. It serves the usage of showing the booking page of a location once the user clicks on that location on the map.

Timeslot Detail Page:
- This is a new page that we added to the system. This purpose of this page is to have two buttons, which are the 'reserve' button and the 'remind me' button. This additional page was added because fitting these two buttons into the listView of the booking page will decrease the readability. Having this new page not only made the application more user friendly, but also gave some space to show snack bars indicating whether the operation was successful or not.

Detailed Design Changes

- In general, our previous design diagram didn't fully demonstrate the role of the database in our application. For the implementation, we chose firebase firestore as our cloud database. And some of the communication between classes was no longer necessary because of that. Specifically, the insertAppointment method was not useful anymore because the reserve button will update the firestore data directly.

- Also because we now take the interaction with the cloud database into account, the functionality of adding appointment and deleting appointment will be carried out by the TimeSlot class instead of the RecCenter class. We deleted repeated functionality here so our logic is clearer and simpler. This follows the single responsibility principle of classes.

- We also eliminated and simplified the inner logic of the application, the remind method in the Appointment class was eliminated because it has duplicate functionality with the notifyUserInWaitingList() method in the TimeSlot class.

- TimeSlot.class: There are several changes to the class variable of TimeSlot:
    - Using java.util.Date for time tracking instead of using int hour, int day, etc.
    - Using int duration instead of specifying the end time.
    - remove boolean available, instead implement isAvailable().
    - Adding int currentRegistered for keeping track of registered number.
    - Instead of using List<User> which could cause a dead loop, we decided to use List<String> to store the USCID of people in the waitlist.

- For Display abstract class and the Inherited Display classes, we decided to change all of them to Activity class for Android app. Since they are basically the same, which is to control the activity of a page. The current application contains this following activities: MainActivity,

ProfileActivity, SignUpActivity, , GMapsActivity, SummaryPageActivity, BookingPageActivity, and TimeSlotActivity.

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Requirements Changes

In general, we followed the requirement document strictly, and implemented all of them. Only slight modifications were made.

Map:
- Despite what we wrote on 2.1 deliverable, we exclude the functionality that shows the user's location on the map. It was unnecessary.
- Instead of showing a list of appointments on top, we instead create a button to the user's summary page.