Winter Progress Report
Capstone Project

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Abstract

For the Campus Event Mobile Application program, the client David Vasquez want to make life more convenient for each students, instructors or even residents live in Corvallis since there are lots of events happen everyday. A great mobile application is useful for every user and improve the quality of life. The mobile application will be developed in two forms: one developed for the Android mobile platform, and the other developed for the iOS mobile development. For the ease of development, these two forms of the mobile application will be developed with a framework called React Native which support cross platform development, they will be using the same methods of providing campus events to users. The mobile application will display current events and group events by loading data from MySQL database. In addition, the mobile application will allow users discover different events from different sections, follow and unfollow events, and edit user profile.

Mar 17, 2018

Contents

1 Xiaoli Sun's Winter Progress Report

1.1 Purpose and Goals

Various organization holds multiple events every year in Oregon State University. To let the Corvallis community more involved, Evently will display multiple group events to the public. The mobile application will provide user interact calendar as a view to keep track of all the events that they want to see. Users will also available to find new events according to different categories. Moreover, users have access to discover all groups that they interested and can participate with. The mobile application will have secure login to further protect user information. The application is developed under React Native.

1.2 Current status

Currently, I am working on the backend of the mobile application. I finished implementing user interface of our project in midterm. Now I will recap what I did, what I am doing and what's left for this project. The application contains 4 main screens: Events, Discover, Following and Profile. Three additional screens will be embedded in the Events screen to show contents in different views including calendar view, list view and box view. First, I created a new folder called src in root directory of the mobile application. Inside this folder, I created couple sub folders to store files for different screens. After that, I created a file called index.js. In this file, I made a tab navigator with footerbar which holds the 4 main screens: Events, Discover, Following and Profile. Most of time that I spent on this screen was to find how to change the background color of footerbar and add icons. In Events screen, I created a tab navigator to hold three screens which are used to display contents in different view. A stack navigator was also created to hold the tab navigator to let the screen to be displayed at the top. In Discover screen, I made 4 touchableOpacity objects with images to represent different categories of events. After the basic user interface was implemented, our group met together and assigned tasks to every group members. My job was to add details to list view and grid view. Because database was not set at that time, I manually added some texts to both list view and grid view. For list view page, I used a feature called List Thumbnail which is provided in native base. List Thumbnail is created by nesting Thumbnail component and Text within ListItem component. For grid view page, I installed a package called react-native-super-grid which provided a simple way to layout the whole page as a grid view. After each of group member finishing assigned tasks, we decided to set up the local database and finish the backend of our application. Our group met up on Saturday in 9th week and Sung taught Zijian and I how to use Wampserver to set up local database. After creating 3 tables in local database, I began to implement backend of the mobile application. First, I created a file called DBConfig which is used to store basic information of local databse including host name, database name, user name and password. The second file is called EventsList.js which is used to convert data retrieved from database to JSON strings. To test whether EventsList.js works or not, simply put EventList to the folder of local server and call corresponding address in web browser. If the function works perfectly, the browser will display a list of JSON string. If not, nothing will be showed. After that, I updated list view and grid view. The main function that I added was called componentdidMount, which is used to fetch data from local server so that I can render these data later. Then I created a FlatList and render the data retrieved from database. I also created some view in FlatList to hold images and text. I did almost same thing when developing grid view page except I set 2 column in FlatList so that the page layout looks perfectly as a grid view.

Although most functionality of the mobile application is implemented. We still need to add secure login to the application. After login to the application, user could then subscribe favorable events, manage groups and change personal profile. After that, we must make sure there's no obvious bug in the mobile application before attending the expo. I believe our group can finish doing these in next term.

During the development of using React Native, the major problem is that the only experience that I have for JavaScript development is in CS 290 class. Although I took CS 496 (Android mobile application development) before, developing in React Native is totally different than Android. Moreover, because React Native is a pretty new framework, some wired problems could be found during development. The second problem that spent me a lot of

time to fix was how to customize theme to footerbar which was created in index.js. The third problem is that I have no experiences of how to setup local database. The last one is that I totally have no idea about how to convert data from database to JSON and how to fetch JSON string to application.

To have a first and quick impression of how to implement application using JavaScript, I made a lot of researches about React Native on Internet before implementing the project. The first thing that I looked over was React Native documentation. React Native documentation provides basic installing set up tutorial, tons of APIs and brief description and codes of these APIs to developers. I followed the tutorial in the documentation to create a new project and learned how basic components are created by using React Native. After an empty project was created, I searched online to find out how to handle navigation in React Native, fortunately I found two packages: React Navigation and Native Base. A full example of React Navigation can be found at Native Base website which gave me a lot of help. After reading documentation of Native Base, I found a way to customize themes for footerbar which means I can add icons and change background color of footerbar. A wired problem was occurred during implementing tab navigator in Events screen. The content couldn't be displayed correctly on tab navigator in Events screen. After spending long time online searching for solution, I finally fixed this problem. The solution was simply to change both animationEnabled and swipeEnabled to false. The solution for the 4th problem is quite simple. It's fortunate for our group that Sung understand and be familiar with database. On week 9's Saturday, Sung taught Zijian and me how to use Wampserver and setup local database. To solve the final problem, I found very useful tutorial online about how to link database to application. Then I applied what I learned from tutorial to the mobile application and worked perfectly.

1.3 Retrospective Table

1.3.1 Weekly blogs

Weeks	Retrospective
Week 1	Plan: Meet with team members in class and discuss when to begin our program and how to do it. Progress: Discussed with Sung after class on Tuesday and decided to begin our project soon. Problems: None. Summary: In this week, I met with my teammates and conduct a plan for our project.
Week 2	Plan: In this week, we plan to meet with David and begin to do project. Progress: Meeting with David on Sunday, 2:00 pm. Sending him the design document for verification. Problems: No problems so far. Summary: In this week, we met with David on Sunday and sent him the design document for verification. During the rest day of this week, I doing research online for react natvie tutorial.
Week 3	Plan: In this week, we plan to begin implement our project Problem: I contacted OSU developer portal stuff for asking about if there is API for retrieving campus event data. But unfortunately, they didn't provide that kind of API. Progress: I told David this issue when on regular meeting. We decided to do other things first and then deal with that problem. Summary: In this week, I searched OSU developer portal and find no API that can be used in our project. I told to David and we decided to finish other part first like setting up the database and create a backup website.
Week 4	Plan: In this week, we will begin to set up the database and make the basic framework of our app. Progress: Start implementing basic user interface of the project. Created couple screens and learning how to handle react navigation. Problem: Failed styling the tabnavigator with footerbar tab. I couldn't add icons and change background color to footbar. Summary: I began to implement user interface and learn react navigation to handle navigation problems.
Week 5	Plan: I plan to continuing implementing project by adding screen to the application. PProgress: Adding tab navigator to Events screen and trying to combine Events screen to main screen. Created 4 touchableOpacity objects in Discover screen with no contents. Problems: If adding Events screen to main screen, the content failed to display. Summary: In this week, I continue adding components to Events and Following screen and trying to fix the problem which lead contents fail to display.
Week 6	Plan: I plan to fix problems that I had before. Then I will write progress report with team members. Once problems are fixed and problem reports are finished, I will begin to implementing and finishing user interface. Progress: Finished fixing problems on tab navigator and writing progress reports. Problems: None. Summary: In this week, I fixed the problem that calendar view can't display correct on tab navigator. Our group also finished and uploaded progress report on time.
Week 7	Plan: In this week, I panned to finish implementing user interface with teammates. Progress: Added new screen for grid view and list view to the application. Problems: If checks in one checkbox, all other checkboxes will all be checked. Summary: In this week, I finished adding screen for grid view and list view. Once David satisfied with the interface, we will start backend development.
Week 8	Plan: I begin to find a way to implement secure login in our application. Progress: Find a package named react-native-oauth which may be helpful for implementing our application. Problems: Have no idea about how to handle oauth in application because there's not much information online about this. Summary: In this week, I begin to research for oauth 2 and find a package. Hopefully I can implemented this function to our application successfully.

Weeks	Retrospective
Week 9	Plan: Continue working on implementing secure login. Plan to implement database on Saturday and backend on Sunday and next week. Hopefully our application could successfully link to database before end of the term. Progress: We decide to implement backend first and then make login works. Problems: We have to find a method to link our application to database. Summary: In this week, our group work together to begin to implement backend of our application
Week 10	Plan: In this week, I plan to finish my part of final progress report. Also our group hope we could finish all functionality of the project. Progress: Inserted several rows to local server and successfully link database to application. Problems: Need to figure out how to add data from application to database. Summary: In this week, I finished writing individual progress report. For application development, I created backend of the application and successfully link database to application

1.3.2 Retrospective Table

Positives	Deltas	Actions
-Communication between team has been frequent and precise. -Each team member has their own individual jobs clearly and the skill each members have are fit perfectly in this project -Finished most functionality of the mobile application	-We didn't finish secure login, and leave some minor functions and details to be implemented	-We will continue working on developing and optimizing the application in next term before expo. Then we will display our project on the expo.

1.4 Evaluation

1.4.1 Roles

Xiaoli Sun: List view and grid view page of User Interface and backend functionality of the mobile application.

Zijian Huang: IOS development and the following page of the user interface.

Sung Kim: Database and profile page of the user interface.

1.4.2 Contribution

From beginning of this term to the end, I have to say that every group member contributes equally. Each team member knows their own jobs clearly and has their own skills. For example, Zijian has a MacBook so that he is the best option for iOS development because both Sung and I don't have an Apple device. Sung is knowledgeable on database, he helped both Zijian and me a lot when we set up database on week 9. I have some experiences on Android development before. Comparing to Sung and Zijian who don't have mobile development experiences, I'm more familiar with mobile development. Due to this advantage, I first created basic user interface of the project and added some screens with dummy data to it. After we created database, I implemented the backend of the application and successfully link our application to the database. Zijian and Sung sometimes have questions about implementing code and ask me about it. I always glad to help them.

1.4.3 Connection of groups

Our group is using text messaging and email to contact each other. Via text messaging, every group member can discuss and determine the position and time for group meeting. We have a weekly group meeting and also have a weekly meeting with David. During group meeting, we show our current progress to each other, discuss problems and solutions. During meeting with client, we will mainly show David the progress of our project and tell him the plan for next step. During the whole term, all group members attend all meetings. This is a pretty good phenomenon for group working. As I mentioned in above section, every group member is glad to help each other which help solving problems and reducing workloads of group members. I really enjoy working in group 48.

1.5 Other Information

The interesting piece of code is index.js. In this file, I used getTheme and material to customize themes for footerbar rather than creating a stylesheet directly in this file because stylesheet didn't work for customize footerbar.

1.6 JavaScript code

1.6.1 JavaScript code for HomeScreen

```
import React, { Component } from "react";
import Events from "./Events.js";
import Discover from "./Discover.js";
import Following from "./Following.js"

import getTheme from 'CampusEventApp/native-base-theme/components';
import material from 'CampusEventApp/native-base-theme/variables/material';
import { TabNavigator, DrawerNavigator } from "react-navigation";
import {
  Button,
  Text,
  Icon,
  Item,
  Footer,
  FooterTab,
  Label,
  StyleProvider
} from "native-base";
const HomeScreen = TabNavigator(
  {
    Events: { screen: Events },
    Discover: { screen: Discover },
    Following: { screen: Following }
    //Profile: { screen: Profile}
  },
  {
    tabBarPosition: "bottom",
    tabBarComponent: props => {
      return (
        <StyleProvider style={getTheme(material)}>
        <Footer>
          <FooterTab>
            <Button
              vertical
```

```
              active={props.navigationState.index === 0}
              onPress={() => props.navigation.navigate("Events")}
            >
              <Icon name="globe" />
              <Text>Events</Text>
            </Button>
            <Button
              vertical
              active={props.navigationState.index === 1}
              onPress={() => props.navigation.navigate("Discover")}
            >
              <Icon ios="ios-paper" android="md-paper" />
              <Text>Discover</Text>
            </Button>
            <Button
              vertical
              active={props.navigationState.index === 2}
              onPress={() => props.navigation.navigate("Following")}
            >
              <Icon ios="ios-add-circle" android="md-add-circle" />
              <Text>Following</Text>
            </Button>
             <Button
              vertical
              active={props.navigationState.index === 3}
              onPress={() => props.navigation.navigate("")}
            >
              <Icon ios="ios-person" android="md-person" />
              <Text>Profile</Text>
            </Button>
          </FooterTab>
        </Footer>
        </StyleProvider>
      );
    }
  }
);

export default HomeScreen;
```

1.6.2 PHP script for converting data to JSON

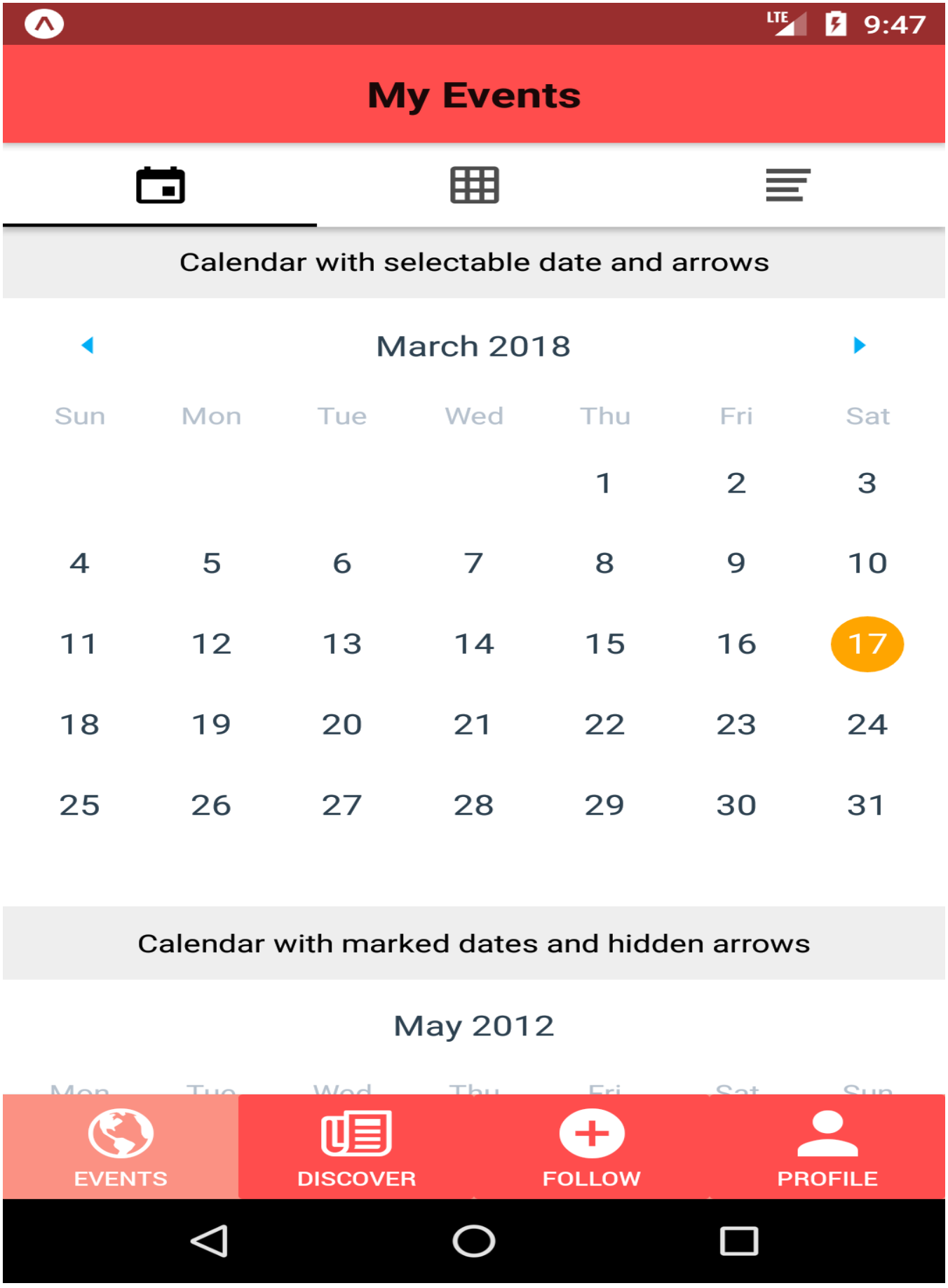
```
<?php
include 'DBConfig.php';

$conn = new mysqli($HostName, $HostUser, $HostPass, $DatabaseName);

if ($conn->connect_error) {

 die("Connection failed: " . $conn->connect_error);
}

$sql = "SELECT * FROM events";

$result = $conn->query($sql);
```

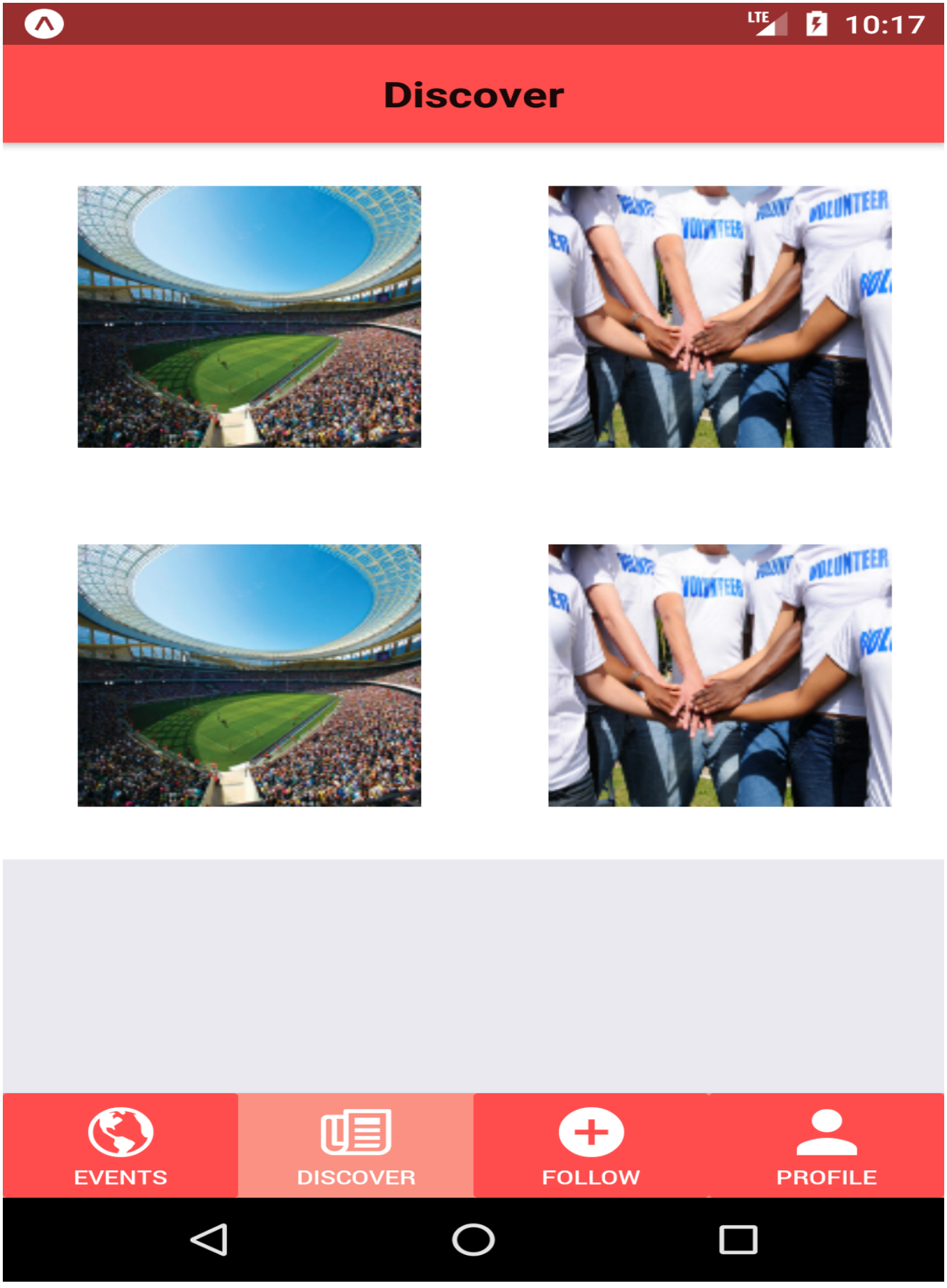
```
if ($result->num_rows >0) {


 while($row[] = $result->fetch_assoc()) {

 $tem = $row;

 $json = json_encode($tem);


 }

} else {
 echo "No Results Found.";
}
 echo $json;
$conn->close();
?>
```

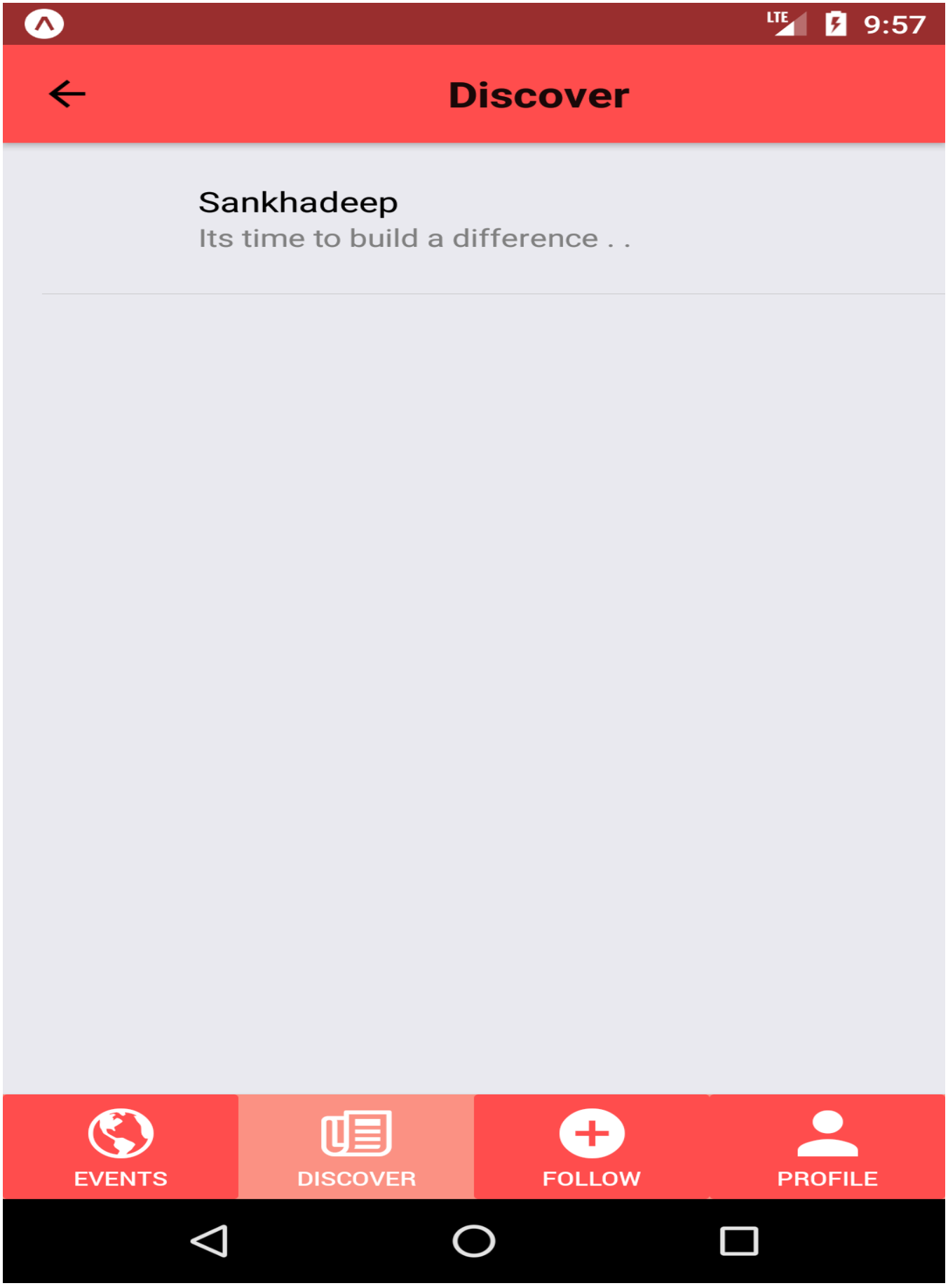
1.7 Conclusion

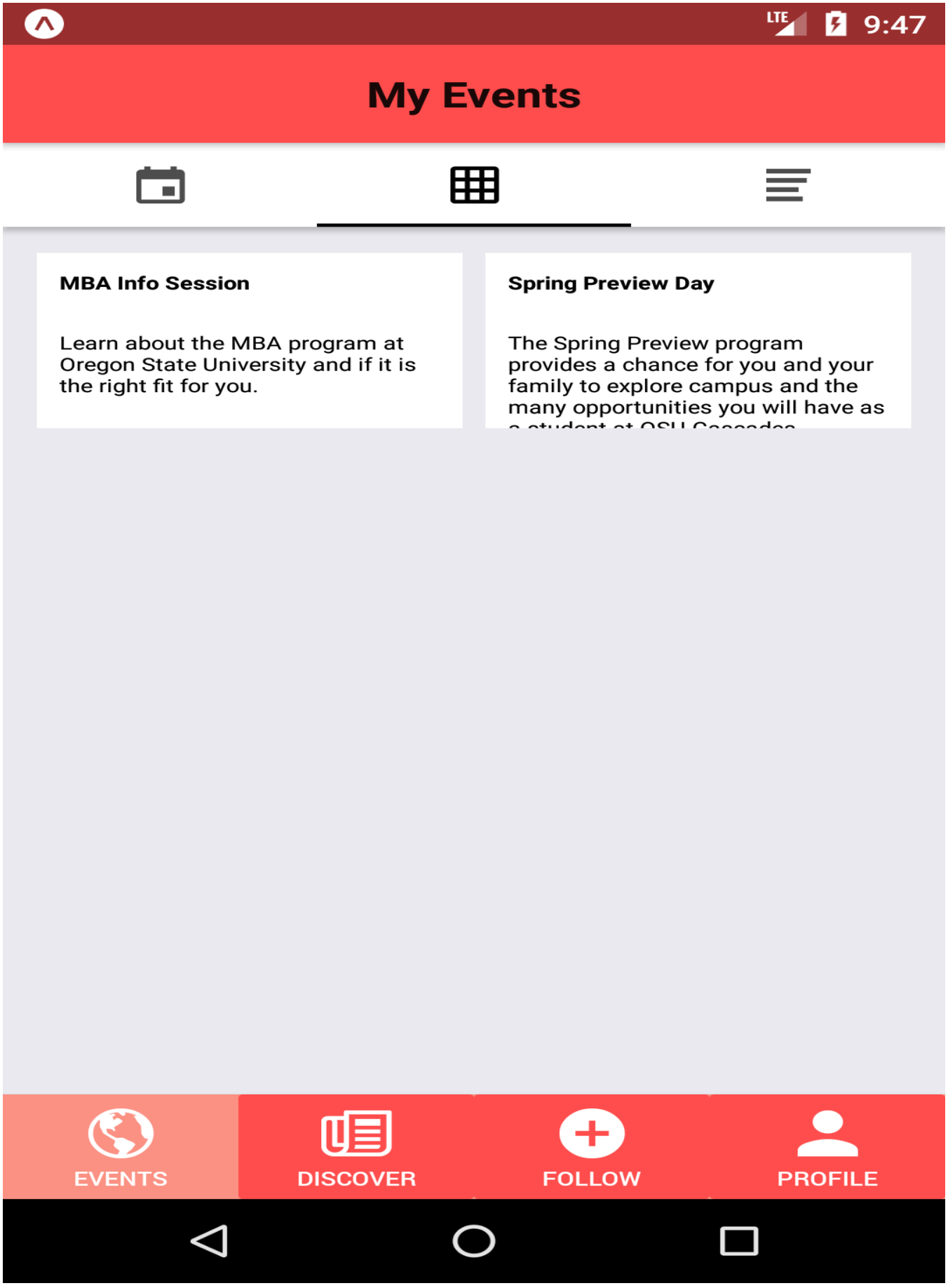
Overall most functionality of the mobile application is already implemented. Our progress has already showed some results. The user interface and backend of the mobile application all are coming along nicely. In next term, we will certainly implement secure login to the application. After all functionality is implemented, we will attend expo and show our projects to visitors.

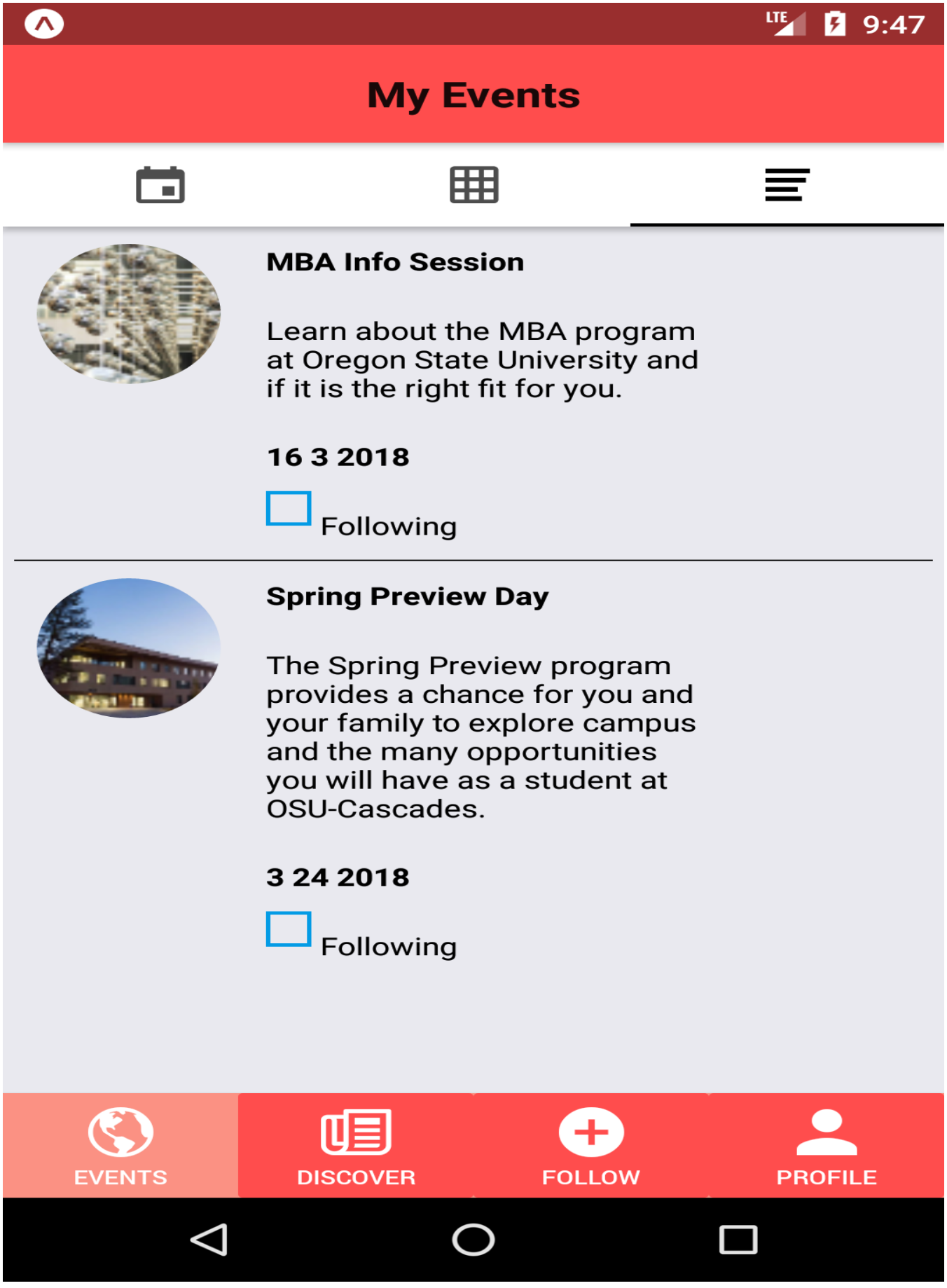
1.8 Screenshots


9:47
My Events
Calendar with selectable date and arrows
March 2018
Sun Mon Tue Wed Thu Fri Sat
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31
Calendar with marked dates and hidden arrows
May 2012
EVENTS
DISCOVER
FOLLOW
PROFILE


10:17
Discover
EVENTS
DISCOVER
FOLLOW
PROFILE


9:57
Discover
Sankhadeep
Its time to build a difference . .
EVENTS
DISCOVER
FOLLOW
PROFILE


LTE
9:47
My Events
MBA Info Session
Learn about the MBA program at Oregon State University and if it is the right fit for you.
Spring Preview Day
The Spring Preview program provides a chance for you and your family to explore campus and the many opportunities you will have as
EVENTS
DISCOVER
FOLLOW
PROFILE


LTE
9:47
My Events
MBA Info Session
Learn about the MBA program at Oregon State University and if it is the right fit for you.
16 3 2018
Following
Spring Preview Day
The Spring Preview program provides a chance for you and your family to explore campus and the many opportunities you will have as a student at OSU-Cascades.
3 24 2018
Following
EVENTS
DISCOVER
FOLLOW
PROFILE