CS 646 Android Mobile Application Development
Spring Semester, 2017
Assignment 4

San Diego State University -- This page last updated 3/21/17

Assignment 5 - SDSU Hometown With Chat

Due April 9 23:59

Goals

Database
Caching data
Firebase
Tablet

App Description

Assignment 4 does not scale well. As the the number of user records on the server grows so does the time the app takes to load the data and the app keeps downloading the same data multiple times. Already some students are seeing slow response times with only 2000 records. What happens when there is 200,000 or 2,000,000 records.

To help the app scale we will do several things. First when you download data from the server put the data in an SQL database on the device. When it is time to display the data first check the local SQLite database for the data. This will be faster, particularly if you do the geocoding before you enter the data into the database. Second when you display a list of data fetch the data from the server in pages in reverse order so the user is getting most recent data first. Only fetch more data when the user scrolls down the list and the local database does not have the data. Third in the map view only display the most recent N records. Give the user the ability to fetch another N records. Of course the user can do this multiple times. Select a reasonable value of N.

Chat

We are going to add chat to the application. You app needs a way to start a chat with someone, a chat view (window) for a chat with another user, and a list of chats with other users. To start a chat with another user either select them from a list of users or by clicking on the marker on a map view. This will open the chat view (window) one can use to send a message to the other user. There is only one chat view with a particular user. In the chat view you see the history of the chat. You can enter text and send it to the other user. To make this easy for you to test allow a person to log off the app and log on as another user.

We will use Firebase for this feature. Normally we would want all the data for the app to be on the same server. But for this assignment we will use two different servers. The current server on Bismarck and Firebase. Bismarck will continue to hold the users location data. Firebase will

be used for the data related to chat. Using two servers is being done to make it easier to grade different parts of the assignment and allow you to reuse the network code from assignment 4.

When your app registers a new user it needs to do so on both servers: Bismarck and Firebase. While all students in the class will see users registered on Bismarck only your app will see the users you register on Firebase.

Target Device

For this assignment the target device is a Nexus 9 tablet running SDK 22 in landscape. You do not have to support portrait views or a phone size screen. The interface used in assignment 4 will not make much sense on a tablet. There is enough screen space to show more than one view at a time.

Grading

Points	Item
5	Can enter required data for new user & send to both servers
5	Can successfully get list of countries & states from server
10	Log off and log on
20	Store data in SQLite database
10	Read existing data from SQLite database instead of fetching it from server every time
10	Fetch data in pages from server to maintain responsive UI
10	Send/receive messages between users via Firebase
5	Start a chat from list of other users
5	Start a chat from map view
10	Chat view maintains history of chat, sends messages
10	List of chats with other users, can reenter chat from the list

What to Turn in

Create a zip file of your entire android project. Please no rar files. Turn in your assignment at: http://bismarck.sdsu.edu/CoursePortal. Don't forget to reduce the size of your project before you turn it in.