CSE 535 Spring 2019 Mobile Computing Assignment 1
Due Date: 3/1/2019
Points: 100
Group Submission

In this assignment we will provide you with a pre-compiled android application (and the source code).

Part I

First you have to use your android phone, or find one you can use (we have some phones in the Impact lab if you can't find a phone at all) and install the application. As part of the application, you will learn some very common American Sign Language (ASL) words.

The application comes pre-packaged with 25 different words for ASL, which you will view and learn. Then you will record yourself performing the signs using the application. You will have to complete at least three repetitions for each sign. After all of this done, you will review all the signs you have collected data for on the review screen and then submit.

Then go into the source code and thoroughly understand how the app functions. You will use this understanding for Part II of this assignment.

Note about timer:
When you are ready to record the signs, you will have to put your phone on a table and stand close but far enough so that your upper body is completely in the recording frame. Then you will set a timer on your video stream so that you are able to get to your position after hitting, record on the phone.
**It is very important to get the entire video with proper framing because you will be using the data you collected in later assignments (we will build a recognizer) and the performance of your recognizer will might dip if this recording does not go well.

Part II
For this part, you will build a 'practice module' in the sign language application 'Learn2Sign' that you interacted with before. The purpose of this module for you to understand and implement how to record a video, set a timer and save the video to disk as well as make additional activities and interact with a server.

The 'practice' module of your application should first check if the user has 'learned' enough signs. You do this by checking if at least three of each of the 25 signs were recorded, reviewed and accepted for upload. Then you will randomly show the name of a sign from the list of learned signs and ask the user to record the sign.

We have not built the actual machine learning model to accurately identify the sign yet, so for now you will just ask the user herself to grade her performance. You will do this by showing yet another screen where you will show the learning video from signsavvy (we used in 'Learn screen' and the user's version of the sign on the same screen. If satisfied with what is shown, the user can then accept the sign or reject it and try another word.

You should keep a log file of this interaction by logging clicks.

Finally, if the user accepts a sign you should upload the video and the name of the sign the video was for to the server. You can look into the source code we provide in the other part of the application to learn how to do this.

Skills learned from this assignment:

1. Interacting with github and getting the base application and the source code.
2. Android:
    a. Installing an .apk on a phone
    b. Interacting with an application
    c. Making an activity and other UI design elements
    d. Displaying media
    e. Recording and saving data to an SD card
    f. Interacting with remote servers

The best code for the 'practice module' will be uploaded in the github and will receive extra credit.

Grading:

1. Installing the app, putting it in Android Studio, recompiling and installing on the phone again. Change the application name to [groupname] and change the icon to a suitable icon. Submit the new .apk and a demo video .------ 10 points
2. For each correct sign uploaded (we will test this) you get 2/3 points. So total 25 signs * 3 repetitions * 2/ 3 ---------- 50 points
3. Practice module. Submit demovideo and final .apk -----40 points