Gerontechnology II

Spring 2018

Homework Assignment

Due date: *Wednesday, February 7th, by 9am*

Description

The purpose of this homework assignment is to give you hands-on experience building, modifying, and running mobile apps. Your homework assignment will allow you to work specifically with an iOS app on a computer and on a smart phone.

There will be three phases of this project: 1) building a sensor collection app by following the steps given in class, 2) modifying the app to change one interface component and one logic component, and 3) writing a report detailing your experiences.

1. Sensor App Creation

You may recall the "Activity Learning" (AL) app that you used in Gerontechnology I to collect sensor data and learn to recognize activities. A critical component of that, and other health-assistive apps, is to collect sensor data from mobile devices for analysis on the phone or at a remote site.

In class, we will guide you through the steps to build an app from scratch that collects phone sensor data and shows the values on the phone screen. The first step in this homework assignment is to complete all of the component given in class. These include collection and display of the 3-dimensional acceleration and 3-dimensional rotation values. These also include creation of alerts when the user reaches an exercise goal (total acceleration value).

To verify that you were able to implement these components, you will need to run your app on either your own iPhone or one that is provided in class for you. You can capture the screen with the changes, email the picture to yourself, and include the picture in your report. To capture the screen press and hole the Sleep/Wake button then quickly press and release the Home button. You will find the screenshot in the Photos app from which you can select the picture to email or text to yourself. You will want three pictures for this step: one of the main screen display sensor values, one of the exercise alert, and one of the wave alert.

2. Sensor App Modification

In the second phase of the homework assignment, you will need to make two modifications to the app. The first modification is to change the change the look of the interface to make it more user friendly for older adults. Try to make at least two changes or additions. When you do this, take into account the insights you have learned in class about the type of information, the size,

the colors, and the interactions that will be valuable and usable for older adults. Capture pictures of each of the changes you made and include them with your reports.

The second modification is to write code in your app that generates a message to provide to older adults. This would replace the "Message" string on the interface. You will see in class how we write code to replace the sensor values, the same approach can be used to replace the Message string. One suggested string to put here is the total movement value generated so far (total acceleration) with the string "Total movement is 1000.0" (the actual value will be generated by the program. You may, however, generate a different message if you think there is another insight that will be valuable for older adult users. Another option to consider is to generate another alert instead of a message, perhaps based on rotation instead of acceleration. Capture a picture of this change to include with your report.

3. Report

To complete the homework assignment, create a report detailing your app creation, modification, and experimentation process. The report should be between 3-10 pages. The length of the report does not affect the grade so try to be complete and clear without being too wordy. The report should include the following information.

- Documentation of the app that you built in phase 1 with pictures to document that the app is complete and runs successfully on an iPhone.
- A description of the modifications you made to the app interface with pictures to document your changes.
- An explanation of why you made the specific changes to the app interface. Motivate your choices with respect to class discussions and related literature.
- A description of the modification you made to the "Message" string with a picture to document your change.
- An explanation of why you made the specific change to the Message string.
- A discussion of additional changes to the app that would enhance visibility, usability, or value for older adults. Motivate your suggestions with references from the literature or from class discussions.
- A discussion of the Xcode programming interface. How easy / difficult was it for you to make changes? What insights did you gain on app development from this exercise?
- Conclude with observations on insights you gained for designing apps. Offer suggestions for new types of apps that could be valuable for older adults.

Turning in Your Homework

If you have questions, please direct them to Reanne Cunningham (reanne.cunningham@wsu.edu). The final homework should be emailed as a pdf file or uploaded to Blackboard no later than 9am on *Wednesday, February 7, 2018*.