CSC 120: Proximity Flashlight

Classes and Methods

1 Introduction

In this lab you will create a flashlight application that activates when an object is in close proximity. In creating the application, you will learn how to construct proper classes and methods. You will reinforce what you have learned about classes and learn how to create intuitive and efficient classes and methods.

2 Objective

This lab reinforces proper class and method construction. You will take what you have learned about classes and methods and apply it to a real world application. The hands on approach will help reinforce the theory learned in class. This lab will give you the basic knowledge of Android development to enable you to complete future labs.

3 Activity

3.1 Research

Read through the Hello World tutorial at http://developer.android.com/resources/tutorials/hello-world.html and any other tutorial you might be interested in. The Android framework fundamentals is also good information on the basic components of an Android application. http://developer.android.com/guid

We will be working with the `Camera` class because the LED flashlight is part of the camera. Look at the `Camera` class, specifically `Camera.open()`, `Camera.getParameters()`, `Camera.setParam` `Camera.startPreview()`, and `Camera.stopPreview()`. http://developer.android.com/reference/an We will also be using the `Camera.Parameters` class using the `Camera.Parameters.setFlashMod` method. http://developer.android.com/reference/android/hardware/Camera.Parameters.html#setFlashMode(ja

3.2 Explore

Open the FlashlightActivity.java file and familiarize yourself with the code provided. Read all the comments and note the parts of the code you will be writing. The parts you will be writing will be clearly marked.

3.3 Import

3.4 Flashlight Off Method

First, locate the flashlightClicked method of the FlashlightActivity class. This method will run whenever you touch the screen. It gets called by the onTouch method. More on the onTouch method later. Back in the flashlightClicked method, notice the if statement. If the flashlight is on, it runs the turnOffFlashlight method. This method is empty and will be created by you. Likewise, if the flashlight is off, it runs the turnFlashlightOn method. You will create this as well.

Inside of the turnOffFlashlight method, first you will need to set the flash mode to off. Do this by calling the setFlashMode() method of camParams. You will pass it a string of value off. Next, we will pass the camParams object to the setParameters() method of the camera class variable. Finally, you will close the camera preview that was started in turnOnFlashlight(). To do this, call the stopPreview() method of the camera class variable.

3.5 Flashlight On Method

Copy and paste Off Method code, change little things.

3.6 OnTouch Method

Locate the onTouch method inside the FlahslightActivity class. You will edit this method to check if the MotionEvent parameter is touch down action. To acopmlish this, call the getAction() method of the MotionEvent parameter and check if this is equal to the MotionEvent.ACTION_DOWN integer. If these are equal, you will call the flashlightClicked() method and pass it the View variable as the parameter.

4 Conclusion

You should have now successfully programmed your first application for this class. You have learned how to make proper methods and classes in the Android framework by making a flashlight application. Now you are able to take this knowledge and build on what you have learned to complete the future labs.

5 Deliverables

To submit your application, export your Eclipse project (File -¿ Export... -¿ File System -¿ Check the root folder to include all the files -¿ Select a directory to export -¿ Make sure Create directory structures for files is checked -¿ Finish). You can zip the file containing all of the files and submit them online.