

CS478: Software Development for Mobile Platforms

Project #3

Due time: 7:00 pm on 10/29/2016

Total points: 100

Instructor: Ugo Buy

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For this project you will design and code three new Android apps meant to work together on an Android phone or tablet running Marshmallow. Here is a short summary of the apps:

1. Application A_1 consists of a single activity containing two read-only text views and two buttons. The buttons, when selected, will broadcast two different intents (e.g., Hotels vs. Restaurants) depending on the button pressed. The text views describe the meaning of the buttons to the device user. Both broadcasts are *ordered broadcasts*.
2. Application A_2 just receives the intents sent by A_1 ; A_2 does not contain any activities. Whenever an intent is received, A_2 displays a toast message on the device's display. The toast message indicates whether the broadcast sender was selecting Hotels or Restaurants.
3. Application A_3 also receives the intents. Depending on the kind of intent that was received, A_3 will launch one of two activities. The first activity displays information about at least 6 hotels in the city of Chicago, Illinois. The second activity shows at least 6 restaurants in Chicago. Both activities consist of two fragments, whose behavior is described below. In addition, application A_3 maintains an *options menu* and an *action bar*. The action bar shows the name of the application (your choice) and the overflow area. The options menu allows a device user to switch between hotels and restaurants. The options menu should be clearly accessible from the overflow area.

Each of the two activities in A_3 contains two fragments. The first fragment displays a list of hotels or restaurants (whichever applies). The device user may select any point of interest from the list; the currently selected item is highlighted. The second fragment shows a picture of the selected hotel or restaurant.

When the device is in portrait mode, the two fragments are displayed on different screens. First, the device will show only the first fragment. When the user selects an item, the first fragment disappears and the second fragment is shown. Pressing the “back” soft button on the device, will return the device to the original configuration (first fragment only), thereby allowing the user to select a different point of interest. When the device is in landscape mode, application A_3 initially shows only the first fragment across the entire width of the screen. As soon as a user selects an item, the first fragment is “shrunk” to about 1/3 of the screen's width. This fragment will appear in the left-hand side of the screen, with the second fragment taking up the remaining 2/3 of the display on the right. Again, pressing the “back” button will return the application to its initial configuration. The action bar should be displayed at all times regardless of whether the device is in portrait or landscape mode.

Finally, the state of application A_3 should be retained across device rotations, e.g., when the device is switched from landscape to portrait configuration and vice versa. This means that the selected list item (in the first fragment) and the page displayed in the second fragment will be kept during configuration changes.

As for the order of execution of A_2 and A_3 's receivers, you should configure all three apps in such a way that the receiver in A_2 is *always* executed before a receiver in A_3 , after A_1 sends a broadcast.

Implementation notes. For this project use a Nexus 5 device running the usual Android platform (API 23—Marshmallow). You are not required to provide backward compatibility with previous Android versions. Use method `setRetainInstance()` to prevent fragments from getting deleted when a configuration change occurs, resulting in the destruction of the containing activity. Check out the app *Fragments Static Config Layout* from Adam Porter's Coursera course to see how to work fragment retention in A_3 .

You must work alone on this project. Submit the three Studio projects as a zip archive using the submission link in the assignment's page on Blackboard. No late submissions will be accepted.