CS478: Software Development for Mobile Platforms

Project #3

Due time: 9:00 pm on 3/16/2016

Total points: 100

Instructor: Ugo Buy

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For this project you will design and code two new Android apps meant to work together on an Android phone or tablet running Kitkat. 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 first show a short toast message, then broadcast two different intents (e.g., Chicago vs. Indianapolis) depending on the button pressed. The text views describe the meaning of the buttons to the device user.

2. Application A_2 receives the intents. Depending on the kind of intent that was received, A_2 will launch one of two activities. The first activity displays information about 12 points of interest in the city of Chicago, Illinois (e.g., Millenium Park, the Museum of Science and Indutry, the Art Institute, the Willis Tower, the Lincoln Park Zoo, etc.) The second activity shows at least 4 points of interest in the city of Indianapolis, Indiana (e.g., the Indianapolis Motor Speedway, the Children's Museum). Both activities consist of two fragments, whose behavior is described below. In addition, application A_2 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 cities. This menu should be clearly accessible from the overflow area.

Each of the two activities in A_2 contains two fragments. The first fragment displays a list of points of interest (scrollable, if necessary). The device user may select any point of interest from the list; the currently selected item is highlighted. The second fragment shows the official web site of the highlighted item using a browser stored on the device. This browser could be Firefox, Chrome or any other, depending on installed applications and the preferences of the device's user.

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 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_2 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_2 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.

Implementation notes. For this project use a Nexus 5 device running the usual Android platform (API 19—Kitkat). 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_2.

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