CS478: Software Development for Mobile Platforms

Project #3

Due time: 9:00 pm on 3/23/2015
Submit using Blackboard web site
Total points: 100
Instructor: Ugo Buy

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For this project you will design and code a new Android app containing two fragments. The first fragment contains a 3-item list of topics of your choice to be displayed (e.g., animals, flowers, cars, landscapes, people, etc.) and a *status* button. The second fragment is initially empty. When a user selects one of the items in the first fragment, your app must download at least 6 pictures in the selected topic. For instance, if the topic is "flowers" the app should download six pictures of flowers from the web. The status button displays a short toast message indicating the current status of the application (e.g., "idle", "downloading pictures", "showing downloaded thumbnails", and "showing selected picture"). This button should not be blocked (it should still be responsive) while the pictures are downloaded.

Once the six pictures are downloaded, appropriately scaled (and possibly cropped) versions of the pictures are displayed in a table layout contained in the second fragment. The user may select one of the six pictures, by clicking on the picture, in which case the entire fragment display is replaced with the picture.

The two fragments should be displayed on top of each other (with the list fragment above the picture fragment) when the device is in portrait mode and side-by-side (with the list fragment to the left of the picture fragment) when the device is in landscape mode. Configuration changes should be handled seamlessly (i.e., the picture fragment should not "lose" its pictures while it is rotated.) Finally, fragment events (e.g., switching from the table view of thumbnails to the full view of a single picture) should be recorded in the back stack. Either way, the first fragment should take about 25-35% of the device's display with the picture fragment taking the remaining portion of the device's display.

As with the Project 2, you are at liberty to choose the pictures from pictures publicly-available (and not copyrighted or otherwise protected) on the Internet. You are also at liberty to choose how to fit the pictures into thumbnails appearing in your table layout (e.g. whether to scale the picture or not, etc.) Make sure that thumbnails are separated by thin spaces uniformly on all four sides. Also, size the thumbnails appropriately, using 2 columns in both portrait and landscape mode.

Hints. There different ways for you to download pictures programmatically from a web site. One way is to create a *Bitmap* object using static method *decodeStream()* of class *BitmapFactory*. To get the input stream you can instantiate class *URL*, which will create the URL of a picture file (e.g., a *png* or *jpg* file) available on the Internet from an input string. This class's instance method *getContent()* allows you to retrieve the picture's content, which can then be passed as an argument to *decodeStream()*.

Implementation notes. For this project use a Nexus 5 device running the latest Android platform available (API 21—Lollypop). Design your table layout in such a way that it will display optimally in landscape mode, and reasonably well also in portrait mode. You are not required to provide backward compatibility with previous Android versions.

You must work alone on this project. Submit the entire Eclipse project as a zip archive using the submission link in the assignment's page on Blackboard. Alternatively, you may submit an Android Studio project.

No late submissions will be accepted.