CS478: Software Development for Mobile Platforms

Project #2

Due time: 11:59 pm on 10/9/2022
Submit using Blackboard web site
Total points: 100
Instructors: Ugo Buy

For this project you will design and code a new Android app that implements the following functionality. The main activity in the app displays a collection of wild animals (e.g., lions, tigers, cheetas, zebras, giraffes, etc.). The colection is organized either as a list or as a 2-column grid, depending on the user's preference. The display of each animal is a cell containing two items, a thumbnail picture of the animal and text giving the animal's name. When the first activity is configured as a grid the thumbnail picture of an animal should be displayed on top of the text giving the animal's name. When the activity is configured as a list, the thumbnail picture should be displayed on the left side of each list item, and the text shoud appear on the right side, both with appropriate margins relative to their container (i.e., the list item).

When the user clicks on an animal cell, the main activity is stopped, and a browser window is displayed instead. The browser window shows a browser page discussing the animal (e.g, the Wikipedia page will do, among others). A user would return to the main activity by pressing the device's "back" soft key.

The main activity of the app must support an "option menu" with two options allowing the user to select between viewing the animals in the main activity as a list and as a grid. Selecting one of the two options only shows a toast message if that option (e.g., the list) is already shown in the activity. However, if the other option is selected, the current display is reconfigured according to the user's choice. (The first activity's display is initially configured as a grid.)

In addition, each animal item should support "long click" functionality. A long click on any item will bring up a "context menu" showing the following two options for the animal under consideration: (1) View a web page for that animal (similar to a simple click); and (2) View a display-sized image of the animal on a different screen.

The design of your project is subject to the following main constraints.

1. Each cell in the list or grid should display the same 2 items: (1) a thumbnail image of the corresponding animal, and (2) the name of the animal (e.g., "Giraffe"). In the list view, the image should appear on the left-hand side of the item, be centered vertically and have roughly a square shape. The name should appear to the right of the thumbnail, and centered vertically in the cell.

2. You must use Android's *RecyclerView* to implement the list and the grid. Switch between the list and the grid display by changing the *LayoutManager* associated with the *RecyclerView*. You may use predefined Android layout managers in the *RecyclerView*.

3. When launching the browser activity, your app should use the OS to find an appropriate browser, rather than choosing a specific browser hard-wired in your app.

4. Use images available in the web and not copyrighted for the thumbnails and the full views of the animals. Save the images in the appropriate *res* folder of your app.

5. The collection of animals should contain no less than six items. When displayed as a list, the list should be long enough to exceed the height of a Pixel 5 display, thereby requiring the use of a vertical scrollbar in order for the user to view all the items.

Implementation notes. For this project use a Pixel 5 device running the usual Android platform (API 33—Android 13). Design your list view in such a way that it will display optimally in portrait mode, and reasonably well also in landscape mode. You are not required to provide backward compatibility with previous Android versions.

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