An Android Homepage Widget

SEM2220 Assignment 3

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1 Introduction

This report details the process undertaken to produce an Android widget based on the existing code to load sessions from a SQLite database. This widget had several requirements, including the ability to select different days from the database as well as provide notifications read from a remote URL.

2 Design

The widget was designed in accordance with the Android App Widget Design Guidelines[1], which define guides for design constraints like the minimum and maximum size of the widget, layouts and backgrounds, etc.

To help conform to these guidelines, the template design pack[2] provided by the Android Open Source Project under the Apache 2 License was used to design the widget.

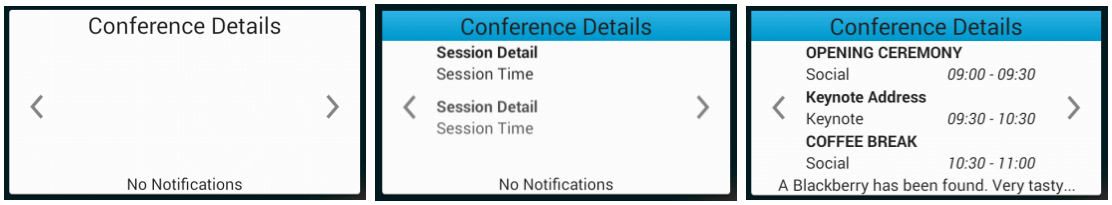
A mock version of the widget was created to view how it would appear on a device. From this is became obvious that the widget would need to be four cells wide (the maximum) by at least two cells tall.

This size would allow a view with the following information on it:

- A title for the Widget
- Two buttons, one to move backwards through days and one to move forward through days
- A list of the sessions available for the specified day.
- The notification loaded from a remote site.

To keep the buttons accessible, they were made such that their minimum size was a single cell each and surrounded the list of sessions to make the flow of data natural. To conform to the iconography standards[3], another resource was used from the Android Open Source Project; the Action Bar Icon Pack[4].

The notification display was kept small so that it would not obstruct the view of the data, but so that it would be easy to see at a glance. Finally, the title was given colour, based on the recommended colours[5], a purely aesthetic element.



(a) Initial Widget Design (b) Improved Widget Design (c) Final Widget Design

Figure 1: Evolution of the Widget Design

Figure 1 shows the evolution of the design for the widget.

3 Development

Most of the development was based on the documentation of Android App Widget[6]. Following this resource, the API and some examples from both the Android Open Source Project and

textbook codes samples[7]. With these resources it was a fairly simple matter to implement the basic widget.

All the development for the widget was kept in a separate Android project. The first action was to import the `DataAccess` class provided into this project. The next step was to create a class which implemented `AppWidgetProvider`. This used the layout shown in the previous section and a `RemoteViews` object to manipulate the elements in that layout.

4 Testing

5 Evaluation

Breaking down the mark scheme the author has predicted the grade which should be given for each part, this is shown in table 1.

Therefore, the author feels a mark of 82% should be awarded. The values chosen were based on the following reasons:

Documentation

Implementation

Flair

Testing

Part	Worth	Predicted Grade
Documentation	30%	25%
Implementation	50%	45%
Flair	10%	5%
Testing	10%	7%
Total	100%	82%

Table 1: Break Down of Marks

References

[1] App Widget Design Guidelines. Android Open Source Project. Accessed 10/12/2013. [Online]. Available: http://developer.android.com/guide/practices/ui_guidelines/widget_design.html

[2] App Widget Templates Pack for Android 4.0. Android Open Source Project. Downloaded 7/12/2013, Apache 2 Licensed. [Online]. Available: http://developer.android.com/shareables/app_widget_templates-v4.0.zip

[3] Iconography. Android Open Source Project. Accessed 10/12/2013. [Online]. Available: http://developer.android.com/design/style/iconography.html

[4] Action Bar Icon Pack. Android Open Source Project. Downloaded 7/12/2013, Apache 2 Licensed. [Online]. Available: http://developer.android.com/downloads/design/Android_Design_Icons_20131106.zip

[5] Colour. Android Open Source Project. Accessed 10/12/2013. [Online]. Available: http://developer.android.com/design/style/color.html

[6] App Widgets. Android Open Source Project. Accessed 10/12/2013. [Online]. Available: https://developer.android.com/guide/topics/appwidgets/index.html

[7] M. L. Murphy, *The Busy Coder's Guide to Android Development*. CommonsWare, 6th Febuary 2009, vol. 5.4, code Samples available: https://github.com/commonsguy/cw-advandroid.