

ITIS/ITCS 4180/5180 Mobile Application Development
In Class Assignment 8

Basic Instructions:

1. In every file submitted you **MUST** place the following comments:
 - a. Assignment #.
 - b. File Name.
 - c. Full name of all students in your group.
2. Each group should submit only one assignment. Only the group leader is supposed to submit the assignment on behalf of all the other group members.
3. Please download the support files provided with this assignment and use them when implementing your project.
4. Export your project as follows:
 - a. From eclipse, choose "*Export...*" from the File menu.
 - b. From the Export window, choose *General* then *File System*. Click *Next*.
 - c. Make sure that your project for this assignment is selected. Make sure that all of its subfolders are also selected.
 - d. Choose the location you want to save the exported project directory to. For example, your *Desktop* or *Documents* folder.
 - e. When exporting make sure you select *Create directory structure for files*.
 - f. Click Finish, and then go to the directory you exported the project to. Make sure the exported directory contains all necessary files, such as the .java and resource files.
5. Submission details:
 - a. When you submit the assignment, compress your exported project into a single zip file. The format of compressed file name is InClassAssignment#.zip
 - b. You should submit the assignment through Moodle: Submit the zip file.
- 6. Failure to follow the above instructions will result in point deductions.**

In Class Assignment 8 (100 Points)

In this assignment you will develop “BBC News App”. The App displays news feeds from BBC in different categories and lets you add/delete news items to a Favorites list. In this assignment, you will parse XML news feeds using threads, display them in ListViews and learn to add and delete items to SQLite database.

Important App Requirements:

1. The required Android Virtual Device (AVD) should have **minimum SDK version set to 14 and target SDK at least 19**. The app should display correctly on 3.2” QVGA (ADP2) (320x480: mdpi). **Your assignment will not be graded if it does not meet these requirements, and you will not be granted any points on your submission.**
2. All strings should be read from your strings.xml, all dimensions from dimens.xml, and all images from drawable-ldpi. The string values used for the text labels, and button labels should be read from the `strings.xml` file and should not be hardwired in the layout file.
3. All image downloading should be performed using Threads (or AsyncTask) and your code should not block the main thread.

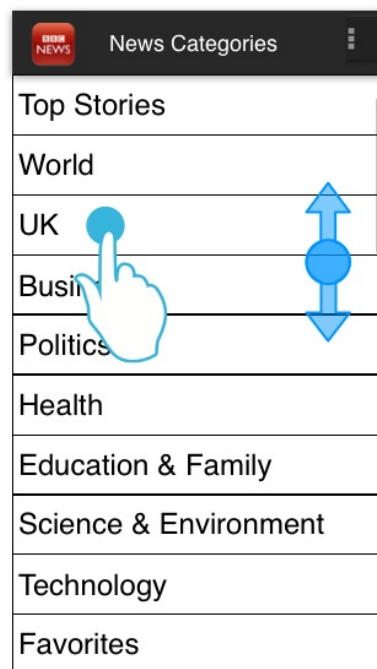


Figure 1, Main Activity Wireframe.

Part A: Main Activity (10 Points)

The launching activity is the Main Activity. Figure 1, shows the UI for the Main Activity. The activity displays a list of the news categories provided by BBC News

feed website at <http://www.bbc.com/news/10628494>, along with a “Favorites” category. The requirements are as follows:

1. The categories that should be included in the list are Top Stories, World, UK, Business, Politics, Health, Education & Family, Science & Environment, Technology, Entertainment & Arts, Favorites. The list should be created using a simple ListView UI component.

```
<rss xmlns:media="http://search.yahoo.com/mrss/" xmlns:atom="http://www.w3.org/2005/Atom" version="2.0">
  <channel>
    <title>BBC News - Science & Environment</title>
    <link>http://www.bbc.co.uk/news/science_and_environment/#sa-ns_mchannel=rss&ns_source=PublicRSS20-sa</link>
    <description>The latest stories from the Science & Environment section of the BBC News web site.</description>
    <language>en-gb</language>
    <lastBuildDate>Wed, 24 Sep 2014 01:24:10 GMT</lastBuildDate>
    <copyright>Copyright: (C) British Broadcasting Corporation, see http://news.bbc.co.uk/2/hi/help/rss/4498287.stm for terms and
conditions of reuse.</copyright>
    <image>
      <url>http://news.bbcimg.co.uk/nol/shared/img/bbc_news_120x60.gif</url>
      <title>BBC News - Science & Environment</title>
      <link>http://www.bbc.co.uk/news/science_and_environment/#sa-ns_mchannel=rss&ns_source=PublicRSS20-sa</link>
      <width>120</width>
      <height>60</height>
    </image>
    <ttl>15</ttl>
    <atom:link href="http://feeds.bbc.co.uk/news/science_and_environment/rss.xml" rel="self" type="application/rss+xml"/>
    <item>
      <title>India Mars mission arrives in orbit</title>
      <description>India becomes the fourth nation to put a satellite into orbit around Mars, as Mangalyaan arrives to study the Red
Planet's atmosphere.</description>
      <link>http://www.bbc.co.uk/news/science-environment-28268186#sa-ns_mchannel=rss&ns_source=PublicRSS20-sa</link>
      <guid isPermaLink="false">http://www.bbc.co.uk/news/science-environment-28268186</guid>
      <pubDate>Wed, 24 Sep 2014 07:16:26 GMT</pubDate>
      <media:thumbnail width="66" height="49" url="http://news.bbcimg.co.uk/media/images/77782000/jpg/_77782576_70969770.jpg"/>
      <media:thumbnail width="144" height="81" url="http://news.bbcimg.co.uk/media/images/77782000/jpg/_77782577_70969770.jpg"/>
    </item>
    <item>
      <title>China and US pledge climate action</title>
      <description>China and the US agree they must lead the rest of the world in curbing emissions to combat climate change, as a
major UN summit closes in New York.</description>
      <link>http://www.bbc.co.uk/news/world-29334807#sa-ns_mchannel=rss&ns_source=PublicRSS20-sa</link>
      <guid isPermaLink="false">http://www.bbc.co.uk/news/world-29334807</guid>
      <pubDate>Wed, 24 Sep 2014 07:18:23 GMT</pubDate>
      <media:thumbnail width="66" height="49" url="http://news.bbcimg.co.uk/media/images/77782000/jpg/_77782318_77782068.jpg"/>
      <media:thumbnail width="144" height="81" url="http://news.bbcimg.co.uk/media/images/77782000/jpg/_77782319_77782068.jpg"/>
    </item>
    .....
  </channel>
</rss>
```

Figure 2, BBC News Feed in XML

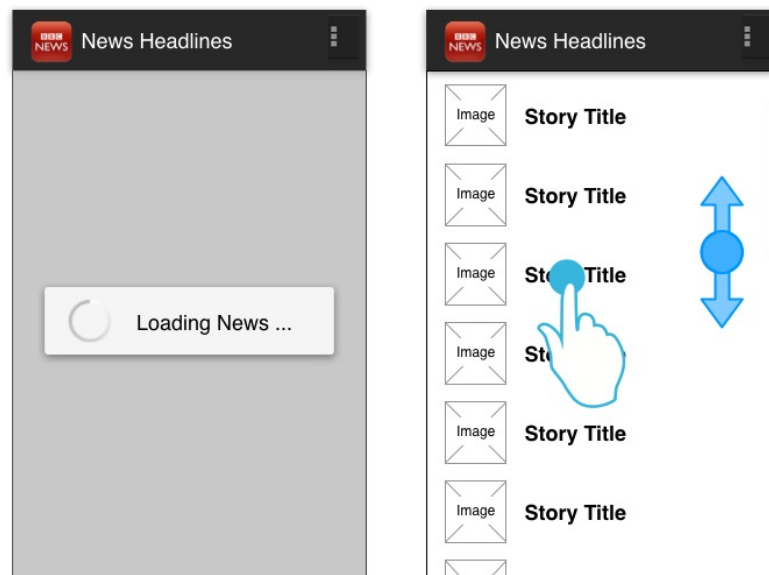
2. Clicking on any category except “Favorites” should start the “**NewsActivity**”, passing it only the url of the selected category. The functionality for “Favorites” category is explained in Part C.

Part B: Loading and Parsing News Items (News Activity) (10 Points)

News Activity should display brief news feed of the selected category. The url to the xml rss feed for the selected will be provided by the Main Activity (in the extras). Figure 2, shows a sample XML feed for the Science and Environment category. Each news item is included under the item element, which includes the news title, description, pubDate and many other fields. In addition, each news

item includes a thumbnail, under media:thumbnail, providing both a small and large thumbnail urls. The requirements are as follows:

1. Use thread or AsyncTask to establish a connection to BBC server using the url passed by the previous activity. All the XML parsing and network connections should be performed by the child thread.
2. Display a Progress Dialog during the download and/or parsing of the XML and dismiss it once these operations are completed as indicated in Figure 3(a).
3. Parse the XML stream using either a XMLPullParser or SAXParser and return the result to the News List.
4. For each news item retrieve the title, and thumbnailSmall.
5. The news items should be displayed in a list, this list should be created using a customized ListView. Each item in the ListView should contain an ImageView and a TextView. See Figure 3(b).
6. In the new items list, for each news item display it's small thumbnail image and the news title. See Figure 3(b). A separate thread or AsyncTask should be used to retrieve the news thumbnail. You can use the Picasso library <http://square.github.io/picasso/> .
7. The activity should display all the news items retrieved from the XML feed, the parser should be parse all the received news items.
8. The news item row inside the News Activity should be clickable
9. Note: In order to easily view the xml feed, you can download it as an RSS XML file and view it in Firefox browser or you can use the eclipse xml viewer.



(a) Progress Dialog

(b) Clickable and Scrollable

Figure 3, News Activity Wireframe.

Part C: Adding, Deleting, and Retrieving News Items from SQLite Database
(55 Points)

1. Create a News Database which contains a table with four columns: Id, category, storyTitle, and thumbnail image.
2. Clicking a news item in all categories except “Favorites” should add the news item into the database.
3. If the “Favorites” category was selected in the Main Activity, retrieve and display all news items from the database.
4. Clicking a news item in “Favorites” category should delete that news item from the ListView and database.

Part D: ORMLite (25 Points)

Implement the functionality in Part C using the ORMLite library.