Mobile Platform Development Assignment (MH1324189)

Session 2018/2019

Trimester C Assignment

This assignment is worth 50% of the module assessment and is the only piece of course work that will be issued for the first diet of MPD in Trimester C.

The purpose of this assignment is to test your design and programming ability in relation to the development of an application for a mobile computing device. The target device is a mobile phone running Android 6.0 (Marshmallow).

Scenario

BBC weather produces RSS feeds for locations in the UK and round the world. Examples of each can be seen by following the links on the following page.

http://www.bbc.co.uk/weather/about/17543675

The examples on the above page are for Manchester in the United Kingdom.

You are required to develop an Android application which parses the RSS feed for a 3-day forecast and reports the information in the forecast in a meaningful way suitable for a mobile device. There are a number of decisions that you will need to make regarding how this information is displayed.

Basic Specification – GCU World Weather Forecast

The Android Application that you are developing should display a 3-day weather forecast for the GCU Campus locations and associated institutions around the world. The application should report the day of the week and the date the forecast is for, the temperature, the wind speed and the likelihood of rain. Your application should provide some means of displaying more detailed weather information for a particular day. You should be guided by the additional information that is available as part of the RSS feed.

There is scope for making good use of graphics and text to convey information about the weather for a specific campus location. You may find it useful to view a number of web and mobile applications which display weather information.

A good application will include the following features as well:

- The user should be able to navigate from location to location in a sequence as determined by the order of locations in a suitable data structure such as a list. The display should wrap around to the start of the locations when the end of the sequence is reached.
- The application will update at regular intervals as set by the user with the default being 0800 and 20.00.

Additional specification – Home Town Weather Forecast

In addition to the basic requirements, the Android Application that you are developing could display a 3-day weather forecast for your home town. (or nearest town with a BBC weather forecast XML stream)

Weather Service

The "generic" URL for a BBC RSS feed is shown below. The location_id in the URL below will be an integer value which provides a location id for a particular place.

https://weather-broker-cdn.api.bbci.co.uk/en/forecast/rss/3day/***location_id***

For example, the feed for Port Mathurin town in Mauritius: -

https://weather-broker-cdn.api.bbci.co.uk/en/forecast/rss/3day/1545752

Appendix 1 contains some sample XML data from this stream.

The table below provides a list of locations and their corresponding values. You should use them in your assignment.

Location	**Location ID**
Glasgow	2648579
London	2643743
New York	5128581
Oman	287286
Mauritius	934154
Bangladesh	1185241
Enter the name of your home town (Not village)	Enter code here

Table 1

The location id was obtained from the BBC site http://www.bbc.co.uk/weather/

The name of the required location was entered into the search box. The search icon or the return key is pressed and the number in the resulting URL noted. This number is located at the end of the URL and is then used to generate the RSS feed. This manual process was used to produce the table above.

Marking

Marks are allocated as follows.

Category	Mark
Design of the interface including portrait and landscape layouts	20%
Coding of the interface including the handling of Portrait and Landscape layouts.	30%
Code for processing of the data from the XML Feed and storing the information in appropriate Java classes.	10%
The Java software Architecture that you utilised in order to build the Android application.	15%
Code for background Threads (different form the starter code provided)	10%
Documented Testing. This should be a table showing what test you carried out, what the expected outcome was along with the actual outcome.	10%
Video produced using screencast-o-matic	5%

You must hard code your GCU matric number into every screen that you produce in the application. Every Java Class that you produce should have a header as a Java comment containing your name and matric number and every xml file should have a comment line containing your name and matric number. These are anti-plagiarism requirements.

Submission

The full assignment should be handed in no later than 23:59 on Sunday the 04 of August 2019. You will be required to produce a video of your application running using Screencast-o-matic.

All work must be carried out using Android Studio. The application must be written in Java with XML used to describe the interface as appropriate.

You are required to make 2 separate submissions. Separate areas on GCULearn will be set up to allow this.

Submission 1

A ZIP file (NOT a rar or any other archive format) containing your:

- testing report in word format
- android studio project
- .apk file
- Screencast-o-matic video

The zip file is a backup and to facilitate sending coursework's to the External examiners.

The module team marking the assignment will be looking for:

- Quality in the composition of the testing report
- conformance to the specification
- appropriate use of Android graphical components
- appropriate screen displays in Portrait and Landscape layout which utilise the space appropriately
- appropriate use of layout managers
- appropriate use of Java classes to hold for example information about the road works after it has been "parsed" from the XML data.
- appropriate use of menus
- appropriate use of Threads
- appropriate use of a software architecture
- appropriate application of testing

A Specific number of marks are allocated for the use of threads to handle the loading and processing of the weather data from the RSS Feed. This code MUST be different from the supplied started code.

Getting started

Your starting point is the same starter code that you are provided with. This will allow you to check that you can read the data. You should then add features in as you progress. All development work MUST be done in Android Studio, so JAVA and xml are central to building this app.

You will have to "transform" the data in some way and then display it using appropriate Android graphical components. There are a number of possible ways to "parse" the XML data however you MUST use the PullParser approach available in Android which is discussed in the notes.

Marks will be deducted for late submission in line with University Policy.

Appendix 1


```
<?xml version="1.0" encoding="UTF-8"?>
<rss xmlns:atom="http://www.w3.org/2005/Atom"
xmlns:dc="http://purl.org/dc/elements/1.1/"
xmlns:georss="http://www.georss.org/georss" version="2.0">
  <channel>
    <title>BBC Weather - Forecast for  Port Mathurin, MU</title>
    <link>https://www.bbc.co.uk/weather/1545752</link>
    <description>3-day forecast for Port Mathurin from BBC Weather,
including weather, temperature and wind information</description>
    <language>en</language>
    <copyright>Copyright: (C) British Broadcasting Corporation, see
http://www.bbc.co.uk/terms/additional_rss.shtml for more
details</copyright>
    <pubDate>Fri, 24 May 2019 10:20:09 GMT</pubDate>
    <dc:date>2019-05-24T10:20:09Z</dc:date>
    <dc:language>en</dc:language>
    <dc:rights>Copyright: (C) British Broadcasting Corporation, see
http://www.bbc.co.uk/terms/additional_rss.shtml for more
details</dc:rights>
    <atom:link href="https://weather-broker-
cdn.api.bbci.co.uk/%s/forecast/rss/3day/%s" type="application/rss+xml"
rel="self" />
    <image>
      <title>BBC Weather - Forecast for  Port Mathurin, MU</title>

<url>http://static.bbci.co.uk/weather/0.3.203/images/icons/individual_57_ic
ons/en_on_light_bg/3.gif</url>
      <link>https://www.bbc.co.uk/weather/1545752</link>
    </image>
    <item>
      <title>Today: Sunny Intervals, Minimum Temperature: 22°C (71°F)
Maximum Temperature: 27°C (81°F)</title>
      <link>https://www.bbc.co.uk/weather/1545752?day=0</link>
      <description>Maximum Temperature: 27°C (81°F), Minimum Temperature:
22°C (71°F), Wind Direction: Easterly, Wind Speed: 13mph, Visibility: Very
Good, Pressure: 1015mb, Humidity: 81%, UV Risk: 3, Pollution: -- , Sunrise:
06:10 MUT, Sunset: 17:16 MUT</description>
      <pubDate>Fri, 24 May 2019 10:20:09 GMT</pubDate>
      <guid isPermaLink="false">https://www.bbc.co.uk/weather/1545752-0-
2019-05-24T07:00:00.000+0000</guid>
      <dc:date>2019-05-24T10:20:09Z</dc:date>
      <georss:point>-19.6833 63.4167</georss:point>
    </item>
    <item>
      <title>Saturday: Light Rain, Minimum Temperature: 22°C (71°F) Maximum
Temperature: 28°C (83°F)</title>
      <link>https://www.bbc.co.uk/weather/1545752?day=1</link>
      <description>Maximum Temperature: 28°C (83°F), Minimum Temperature:
22°C (71°F), Wind Direction: South Easterly, Wind Speed: 12mph, Visibility:
Good, Pressure: 1015mb, Humidity: 84%, UV Risk: 5, Pollution: -- , Sunrise:
06:11 MUT, Sunset: 17:16 MUT</description>
      <pubDate>Fri, 24 May 2019 10:20:09 GMT</pubDate>
      <guid isPermaLink="false">https://www.bbc.co.uk/weather/1545752-1-
2019-05-24T07:00:00.000+0000</guid>
      <dc:date>2019-05-24T10:20:09Z</dc:date>
      <georss:point>-19.6833 63.4167</georss:point>
    </item>
```

```
    <item>
      <title>Sunday: Light Rain, Minimum Temperature: 21°C (71°F) Maximum
Temperature: 28°C (82°F)</title>
      <link>https://www.bbc.co.uk/weather/1545752?day=2</link>
      <description>Maximum Temperature: 28°C (82°F), Minimum Temperature:
21°C (71°F), Wind Direction: South Easterly, Wind Speed: 13mph, Visibility:
Good, Pressure: 1015mb, Humidity: 83%, UV Risk: 5, Pollution: -- , Sunrise:
06:11 MUT, Sunset: 17:15 MUT</description>
      <pubDate>Fri, 24 May 2019 10:20:09 GMT</pubDate>
      <guid isPermaLink="false">https://www.bbc.co.uk/weather/1545752-2-
2019-05-24T07:00:00.000+0000</guid>
      <dc:date>2019-05-24T10:20:09Z</dc:date>
      <georss:point>-19.6833 63.4167</georss:point>
    </item>
  </channel>
</rss>
```