MCAST

ASSESSMENT AND INTERNAL VERIFICATION FRONT SHEET (Individual Criteria)

(Note: This version is to be used for an assignment brief issued to students via Classter)

Course Title	**B.Sc. (Hons.) Software Development**		**Lecturer Name & Surname**	**James Decelis**	
Unit Number & Title	ITSFT-506-2010 Interactive Mobile Development				
Assignment Number, Title / Type	3, Synoptic / Home				
Date Set	12th March 2024	Deadline Date			
Student Name		ID Number		Class / Group	

Assessment Criteria	Maximum Mark
KU1.2 – Differentiate between different Layouts	12
KU1.3 – Extend the functionality of Mobile Application to the home screen	10
KU2.2 – Produce OS relevant code to load data from a content provider	20
KU2.3 – Describe a complete test plan for a Mobile Application	9
AA2.4 – Use a Lifecycle of a background service	10
AA3.1 – Produce OS relevant code to Implement a Web Service API	10
AA4.1 – Construct application logic to make use of a device's built-in hardware	17
SE3.3 – Develop a better user engagement with Push Notifications	12
Total Mark	100

Notes to Students:

- This assignment brief has been approved and released by the Internal Verifier through Classter.
- Assessment marks and feedback by the lecturer will be available online via Classter (Http://mcast.classter.com) following release by the Internal Verifier
- Students submitting their assignment on Moodle/Turnitin will be requested to confirm online the following statements:

Student's declaration prior to handing-in of assignment

- I certify that the work submitted for this assignment is my own and that I have read and understood the respective Plagiarism Policy

Student's declaration on assessment special arrangements

- I certify that adequate support was given to me during the assignment through the Institute and/or the Inclusive Education Unit.
- I declare that I refused the special support offered by the Institute.

Interactive Mobile Development

B.Sc (Hons) in Software Development Year 2

Synoptic

Instructions to Students

- The deadline for this assignment 1 week after day of issue
- Upload the assignment on VLE
- Upload the assignment as a single Android studio project

Assignment Description

You are required to create an Android Widget that displays the following:

1. Weather
    1. Use the link provided below to load the weather for a selected city.
        https://api.jamesdecelis.com/api/v1/weather/CITY
        - Replace city with the actual name of the city for example:
          https://api.jamesdecelis.com/api/v1/weather/valletta
    2. The city is selected from a configuration activity. The configuration activity should have three (3) hardcoded cities to choose from: Valletta, Paris and Rome.
    3. Display the temperature, weather status, and location name.
2. Extreme weather Alerts vis Firebase Cloud Messaging(FCM)
    1. Get a message through FCM about extreme weather
    2. Display a notification once the message is received
    3. The widget updates with a red warning (message received)
3. Battery Level
    1. The widget should update every hour.
    2. Check battery level on each widget update.
        - Display:
            - a green battery if level is between 75% and 100%
            - an orange battery if level is between 45% and 75%
            - a red battery if level is less than 45%
        - you can use the following icons:
        - https://www.cleanpng.com/png-battery-levels-charging-symbol-bolt-of-lightning-b-7868481
    3. Implement a Broadcast receiver for low battery and power connection(charging) and update widget accordingly
    4. Keep track of every time the phone is connected to a charger (store in shared preferences, data, and time).

Implement a pending Intent so that when the widget is clicked, an activity is launched displaying every time the phone was connected to a charger (loaded from the Shared Preference)

- Display the data in a RecyclerView using ListAdapter

NB: commit 3 times on Github or Bitbucket. Each commit must have substantial updates - trivial changes to the code does not count. Include the Github or Bitbucket link as a comment in the Widget Provider Class

Marking Sheet

KU1.3– Extend the functionality of mobile application to the home screen		
a. Design	3 Marks	
b. Widget Provider	5 Marks	
c. Widget provider XML	2 Marks	
KU1.2 – Differentiate between different layouts		
a. Display data in a Recycler View	10 Mark	
b. ListAdapter	2 Marks	
KU2.2 – Produce OS relevant code to load data from a content provider		
a. Storing device charging in Shared Preferences	5 Marks	
b. Loading device charging data from Shared Preferences	5 Marks	
c. Broadcast Receiver — Low battery/Charging	7 Marks	
d. Updating widget	3 Marks	
AA3.1 – Produce OS relevant code to implement a Web Service API **AA4.1 – Construct Application Logic to Make use of a device's built-in hardware**		
a. Correct implementation of RetroFit	5 Marks	
b. Correct Implementation of Coroutines using lifecycleScope	3 Marks	
c. Configuration Activity	7 Marks	
d. Load weather of the selected City	7 Marks	
c. Display weather (temp, location, and status)	5 Marks	
KU2.3 – Describe a complete test plan for a Mobile Application **AA2.4 – Use the lifecycle of a background service.** **SE3.3 – Develop a better user engagement with Push Notifications**		
a. Implement FCM Service to receive message from Firebase	8 Marks	
b. Update Widget once the message from Firebase is received	10 Marks	
c. Recording of Test widget and app	4 Marks	
d. 3 Commits on GitHub	9 Marks	