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	2. Creating Interactive Applications				
Date Set		**Deadline Date**	8th February 2020		
Student Name		**ID Number**		**Class / Group**	

Assessment Criteria	Maximum Mark
KU3 – Extend the functionality of Mobile Application to the home screen	5
KU4 – Identify and explain different types of services	5
KU6 – Describe a complete test plan for a Mobile Application	5
KU7 – Describe a mobile application use-case requiring the use of a web-based services	5
AA2 – Use the lifecycle of a background service	7
AA3 – Relate a mobile application's functionality to an occurring OS event	7
AA5 – Construct application logic to make use of a device's built-in hardware	7
SE1 – Establis an Interaction between events, services and a mobile application	10
SE2 – Develop a better user engagement with Push Notifications	10
SE3 – Evaluate an implement functionality for short distance communication between devices	10
Total Mark	71

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/Unicheck 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.

Instructions to Students

- This is a Home Assignment. The deadline for this assignment is 8th February 2021 (23:59)
- Upload the assignment on Moodle
- Upload Task 1 as a pdf or Word Document
- Upload Task 2 and 3 (zip or rar) in a single Android studio project

Task 1 – Written Questions

1. KU4 – Idenitfy and explain different types of Services

- Mention 3 different types

5 Marks

2. KU7 – Describe a mobile application use-case requiring the use of a web-based Services
    a. Why web based services are important to Mobile Applications
    b. Describe a mobile application (case – study) where web-base services (APIs) might be required
    c. Identify a real online service which can be used in the scenario described in question 2b

5 Marks

3. AA2 – Use the Lifecycle of a background Service (part1)
    a. List and describe the Main call back method in Services
    b. Due to recent resctrictions on Android to improve battery life, all Background work including periodic tasks should now be scheduled through the Job Scheduler
        i. Describe JobScheduoler
        ii. Describe JobService

4 Marks

Task 1 – Marking Sheet

KU4 – Identify and explain different types of Services		
a. List 3 different types of Services	3 Marks	
b. Correct description of each	2 Marks	
KU7 – Describe a mobile application use-case requiring the use of a web-based Services		
a. Importance of web based services	2 Mark	
b. Case study	2 Marks	
c. Identification of web services	1 Marks	
AA2 – Use the Lifecycle of a background Service (part1 – 4 Marks)		
a. List and Describe Main Call backs	2 Mark	
b. Describe JobScheduler	1 Mark	
c. Describe JobService	1 Mark	

Task 2 – Implementation

Task 2.1 – Widgets

KU3 *- Extend the functionality of mobile application to the home screen*
AA3 *– Relate a Mobile applications functionality to an occurring OS event*
SE1 *– Establish an Interaction between events, services and a mobile application*
SE2 *– Develop a better user engagement with Push Notifications (part 1)*

i. You are required to create a widget which displays 3 cyrpto currency rates – Make use of a third party (free) crypto service to get the required information.
ii. The widget should self updated every hour.
iii. If the widget is clicked go to Main activity with the downloaded currency's details
iv. Once an instance of the widget is added to the home screen, set a phone number and a desired rate for each currency within the configuration.
v. Notify the user (with a notification) once a rate is reached or exceeded.
vi. Add an action to the Notification calling and a Broadcast receiver should answer

27 Marks

Task 2.2 – Notifications

SE3 *– Evaluate and Implement functionality for short distance communication between devices*

i. The action (Task 2.2 vi) should send an sms with the 3 crypto rates to the SMS number set within the widget's configuration activity (Task 2.1 iii)

10 Marks

Task 2.3 – GPS

AA5 – Make use of the GPS functionality

i. Load the longitude and latitude (GPS coordinates)
ii. With the help of a web service (such as https://geocode.xyz/api) display the country Name on the widget.

7 Marks

Task 2.4 – Cloud Messaging

AA2 – Use the Lifecycle of a background Service (part 2) 
SE2 – Develop a better user engagement with Push Notifications (part2)

By implement a service the application should receive a notification from an online service (such as the firebase Cloud Messaging). Once received update widget with the latest rates.

8 Marks

Task 2 – Marking Sheet

KU3 - Extend the functionality of mobile application to the home screen

AA3 – Relate a Mobile applications functionality to an occurring OS event

SE1 – Establish an Interaction between events, services and a mobile application

SE2 – Develop a better user engagement with Push Notifications (part 1 – 5 Marks)

a. Create Widget Correctly	5 Marks	
b. Configuration Activity	5 Marks	
c. On Widget click go to Main Activity	2 Marks	
d. Broadcast answering the notification's action	10 Marks	
e. Create Notification with action	5 Marks	

SE3 – Evaluate and Implement functionality for short distance communication between devices

a. Load mobile Number	2 Mark	
b. Create SMS with info (crypto rates	2 Marks	
c. Send SMS	6 Marks	

AA5 – Make use of the GPS functionality

a. Load Longitude and Latitude	4 Marks	
b. Get Country Name	2 Marks	
c. Display Country	1 Mark	

AA2 – Use the Lifecycle of a background Service (part 2)

SE2 – Develop a better user engagement with Push Notifications (part2)

a. Implement service to receive notifications	3 Marks	
b. Update Widget once notification received	5 Marks	

Task 3 – Testing

KU6 – Describe a complete test plan for a mobile Application

Come up with a test plan and then implement how to test the widgets update and notifications without waiting the 1 hour interval – (Random data can be generated. Document tests including screenshots

5 Marks

Task 3 – Marking Sheet

KU6 - Describe a complete test plan for a mobile Application		
a. Plan (write up including justification and final screenshots)	2 Marks	
b. Implementations	3 Marks	