Manchester Metropolitan University

Department of Computing and Mathematics

ASSESSMENT COVER SHEET 2023/24

Unit Code and Title:	6G6Z0014 – Mobile Computing
Assessment Set By:	Adrian Davison
Assessment ID:	1CWK100
Assessment Weighting:	100%
Assessment Title:	Developing a Cross-Platform Mobile App
Type:	Individual
Hand-In Deadline:	Friday 3rd May, 2024
Hand-In Format and Mechanism:	Upload to Moodle

Learning outcomes being assessed:

LO1 Create applications capable of running on contemporary mobile devices using appropriate tools and techniques.

LO2 Utilise specialist on-board mobile hardware by interfacing with appropriate APIs and libraries.

Note: it is your responsibility to make sure that your work is complete and available for marking by the deadline. Make sure that you have followed the submission instructions carefully, and your work is submitted in the correct format, using the correct hand-in mechanism (e.g., Moodle upload). If submitting via Moodle, you are advised to check your work after upload, to make sure it has uploaded properly. If submitting via OneDrive, ensure that your tutors have access to the work. Do not alter your work after the deadline. You should make at least one full backup copy of your work.

Penalties for late submission

The timeliness of submissions is strictly monitored and enforced.

All coursework has a late submission window of 7 calendar days, but any work submitted within the late window will be capped at 40%, unless you have an agreed extension. Work submitted after the 7-day late window will be capped at zero unless you have an agreed extension. See 'Assessment Mitigation' below for further information on extensions.

Please note that individual tutors are unable to grant extensions to assessments.

Assessment Mitigation

If there is a valid reason why you are unable to submit your assessment by the deadline you may apply for assessment mitigation. There are two types of mitigation you can apply for via the unit area on Moodle (in the 'Assessments' block on the right-hand side of the page):

- **Self-certification**: does **not** require you to submit evidence. It allows you to add a short extension to a deadline. This is not available for event-based assessments such as in-class tests, presentations, interviews, etc. You can apply for this extension during the assessment weeks, and the request must be made **before** the submission deadline.

- **Evidenced extensions:** requires you to provide independent evidence of a situation which has impacted you. Allows you to apply for a longer extension and is available for event-based assessment such as in-class test, presentations, interviews, etc. For event-based assessments, the normal outcome is that the assessment will be deferred to the Summer resit period.

Further information about Assessment Mitigation is available on the dedicated Assessments page: https://www.mmu.ac.uk/student-life/course/assessments#ai-69991-0

Plagiarism

Plagiarism is the unacknowledged representation of another person's work, or use of their ideas, as one's own. Manchester Metropolitan University takes care to detect plagiarism, employs plagiarism detection software, and imposes severe penalties, as outlined in the Student Code of Conduct and Regulations for Undergraduate Programmes. Poor referencing or submitting the wrong assignment may still be treated as plagiarism. If in doubt, seek advice from your tutor.

As part of a plagiarism check, you may be asked to attend a meeting with the Unit Leader, or another member of the unit delivery team, where you will be asked to explain your work (e.g. explain the code in a programming assignment). If you are called to one of these meetings, it is very important that you attend.

If you are unable to upload your work to Moodle

If you have problems submitting your work through Moodle, there is a Contingency Submission Form on the university's Assist ticketing system, where you can upload your work. If you use this submission method, your work must be uploaded **by the published deadline**, or it will be logged as a late submission. Alternatively, you can save your work into a single zip folder then upload the zip folder to your university OneDrive and submit a Word document to Moodle which includes a link to the folder. **It is your responsibility to make sure you share the OneDrive folder with the Unit Leader, or it will not be possible to mark your work.**

Assessment Regulations

For further information see Assessment Regulations for Undergraduate/Postgraduate Programmes of Study on the Student Life web pages.

Formative Feedback:	Provided in timetabled sessions and during office hours.
Summative Feedback:	Please see attached.

Assignment Brief

Students will be tasked with the development of a mobile application, utilising the Multi-platform App User Interface (MAUI) framework for the display of data, and making use of the mobile device's hardware for suitable additional functionality.

Your task will be to design and create a suitable mobile application that involves:

1. Writing a design report that shows the user interface (UI) design of your app using an appropriate method (e.g., wireframes). The report should be approximately 1000 – 2000 words.

2. Using MAUI to develop a cross-platform mobile application that can be deployed to Android and other devices (Windows, tablets, iOS.).

3. Ensuring quality UI and user experience (UX).

4. Making sure your app follows current accessibility guidelines for mobile applications.

5. Add basic functionality that are common in mobile applications (buttons, menus etc.)

6. Ensure the eXtensible Application Markup Language (XAML) is used for defining UIs.

7. Utilise the specialist hardware available to mobile devices (e.g., gyroscope, camera)

8. Utilise the cross-platform APIs available to access native device features, such as battery levels and network status.

9. Where relevant, follow the Model-View-ViewModel (MVVM) or Model-View-Update (MVU) pattern to separate the applications business and presentation logic from its UI.

10. Ensure the application has strong testing, validation, and error handling.

11. Show evidence for the app to be able to be deployed to Android and at least 1 other device (Windows, tablets, iOS etc., on physical or emulators) without significant differences between them. Your development of the app should be developed with the goal of cross-platform compatibility.

Submission of Deliverables

Each individual should create a zipped file of their design report in PDF format and the mobile app solution, and upload to Moodle. In addition, functionality of the app will be demonstrated through a screencast.

Marking Scheme (out of 100%)

Brief Mark Scheme

UI/UX Design	**20%**
Accessibility	**15%**
Use of mobile hardware	**15%**
Functionality	**15%**
Testing and Validation	**10%**
Deployment	**5%**
Design Report	**20%**

Detailed Mark Scheme

The indicative criteria that will be applied to each part of the submission are given in the table below.

	Bad Fail (0% - 19%)	Fail (20%-39%)	Pass (40% – 49%)	Satisfactory (50% - 59%)	Good (60% - 69%)	Very Good (70%+)
UI/UX Design (20%)	• Very little consideration to usability and design	• Little consideration to usability and design • Very limited XAML use on 1 page	• Some consideration to usability and design • Very limited XAML use across multiple pages	• Good usability practices and style but may not provide the smoothest experience for users. • Some use of XAML	• Good use of style, usability, and frameworks • Good use of XAML	• Exceptional and consistent style, usability, and use of frameworks • Extensive use of XAML
Accessibility (15%)	• Very little application of accessibility features	• Little application of accessibility features	• Some consideration to accessibility features • Does not clearly align to accessibility guidelines.	• Good application of accessibility guidelines but does not apply more than half.	• Follows most accessibility guidelines. • Clear user instructions are available	• Strictly adhered to accessibility guidelines for mobile applications • Clear user instructions are available
Use of mobile hardware (15%)	• Uses no specialist mobile hardware	• Mobile hardware feature	• Demonstrates the use of a minimum of 1 different	• Demonstrates the use of a minimum of 2 different mobile	• Demonstrates the use of a minimum of 3 different mobile hardware	• Demonstrates the use of a minimum 4 different mobile hardware features

		attempted but does not correctly work.	mobile hardware features.	hardware features.	features.	(e.g., sensors, camera). • Advanced methods would be to use machine learning or computer vision for higher marks
Functionality (15%)	• App uses very little basic functionality. • Screencast was not submitted or did not show functionality.	• App uses little basic functionality. • Screencast submitted but does not clearly show app functionality.	• App uses simple basic functionality, such as buttons and dynamic text. • Screencast submitted and showed some of the functionality.	• App uses some basic functionality. • Some advanced functionality is attempted, including gestures and different menu styles. • Screencast submitted and showed most of the functionality.	• Use of a large amount basic functionality elements and some advanced elements. • Screencast submitted and showed all functionality but was not always clear.	• Use of many different basic and advanced functionality elements, including buttons, gesture control, networking etc. • Each element should work together seamlessly (e.g., button presses updating a graph). • Screencast shows each function clearly and concisely.
Testing and Validation (10%)	• Very little to no testing or validation • Errors are not handled. • Screencast was not submitted or did not show validation examples.	• Little testing or validation used. • Screencast submitted but does not clearly show errors being handled.	• Some testing and validation were used. • Some validation handling does not work correctly. • Screencast submitted and showed some error handling.	• The app has good validation to minimise errors, mostly for user input. • Over half errors handled correctly. • Screencast submitted and showed over half of the errors being handled and includes any validation that was attempted but unsuccessful.	• The app has good validation to minimise errors due to user input and other issues. • Most errors are handled correctly. • Screencast submitted and showed how most errors are handled.	• The app has robust validation to minimise errors due to user input and other issues. • All errors are handled correctly. • Screencast shows how each error is handled.
Deployment (5%)	• App can load on 1 emulator that is either Android-based or another device (Windows, tablets, iOS etc.)	• App can load on 1 emulator or physical device that is Android-based and another device (Windows, tablets, iOS etc.). • Loaded app can be navigated around using the emulator	• App can load on Android and another device (Windows, tablets, iOS etc.) emulator/physical device with large issues on native functionality in at least 1 OS. • Loaded app can be navigated around but does not run smoothly.	• Can be deployed to Android and another device (Windows, tablets, iOS etc.), with some issues on native functionality in at least 1 OS. • Loaded app can be navigated around, runs smoothly, with basic features available.	• Can be deployed to Android and another device (Windows, tablets, iOS etc.) with minor issues on native functionality. • Can be deployed to both phones and tablets, but the app does not scale correctly to the tablet version. • Loaded app can be used smoothly with all advanced features	• Can be deployed to Android and another device (Windows, tablets, iOS etc.) with no issues. • Can be deployed to both phones and tablets, where the tablet version scales correctly. • Loaded app works the same across Android and another device (Windows, tablets, iOS etc.) with all advanced features available.

		or physical device.			available	
Design Report (20%)	• Very little or no report	• Report is basic and includes some app screenshots	• Report is basic. • Includes wireframes for some main elements of the app. • Includes some app screenshots.	• Report is good, with some details. • Includes over half of the wireframe designs for app elements. • Includes most app screenshots	• Report is very good but misses some minor parts of the app (not the main pages such as the home page). • Includes most wireframe designs for app elements. • Includes all app screenshots.	• Report is clear and concise. • Includes wireframe designs of each intended app page. • Detailed explanations of UI/UX design choices • Explanations of accessibility choices • Includes all app screenshots.