**Weekly lOGbOOK**

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# [Bachelor of Science with Honours Computer Games Technology with Professional Placement Year](https://icity.bcu.ac.uk/YourCourse/YourDetail/YourDetail/US1084?academicYear=2023%2F4)

# *Module: CMP6187 Mobile Game Development A S1 2024/5*

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# Weekly Logbook

Throughout my time in studying, this weekly logbook will document the skills, methodologies, and achievements I acquire and accomplish during my Semester 1 Mobile Game Development Module. I will record this information on a week-to-week basis, offering detailed insights into the tasks I undertake. Moreover, I will highlight how these tasks contribute to expanding my expertise in my role as a Mobile Game Developer.

### **September 2024**

**Week 1: Introduction of the module – W/C 23rd September 2024**

The first week started with the introduction of the Mobile Game module along with the overview of the Assessment Guide which we must submit for this module. Dr. Kurtis explained us what is required for this module and showed us past samples of students’ games for us to get an idea on our personal startup projects. He suggested us that we should be writing weekly logbooks, creating drafts/drawings of our game ideas and making a presentation. Then he guided us onto our Lab workshop which was to setup Unity for Android and IOS versions and connect it to our Mobile phones.

* **Reflection:** I realized how important early organization is, which led me to begin structuring my work right away. Setting up the development environment was also crucial because it helped me prepare for the upcoming tasks.
* **Milestone:** Created separate folders for all modules, began writing the weekly logbook, and organized my documentation. Uploaded my first lab work to GitHub to stay on track with progress.

**Week 2: Learning Prototyping & deciding Game Idea – W/C 30th September 2024**

This week, we learned about Prototyping and how Gyroscope is used in Mobile Game. Our task was to make a quick easy game utilising the sensors of a mobile phone for testing. Unfortunately, my Unity version on the PC was unable to let me test properly in my mobile as it required Android API level which kept on failing to connect to my mobile’s unity remote. I discussed this with Dr. Kurtis, and he assured me that he will look at the problem as some machines had this same issue last year as well. However, I completed the Lab work and decided to create a GitHub repository to upload my work.

* **Reflection:** I faced technical issues that slowed my progress, but it taught me the importance of troubleshooting early and managing issues with the development environment.
* **Milestone:** Created my GitHub repository, completed the lab tasks, and began drafting ideas for my game project, outlining potential themes, characters, and levels.

### **October 2024**

**Week 3: Discussion of Game Idea – W/C 7th October 2024**

In this week, I carried out with the lab workshop which was to add some Particles on a project of weather to give it a snowy look with some snowflakes dropping down on a plane. Apart from this, I discussed my Game Idea with Dr. Kurtis on what I am planning to do. The idea is to create a 3D maze game with 2 to 3 levels with the Maze having some obstacles as Laser and the main player must escape the maze without touching the laser points. Dr. Kurtis asked me several questions related to the game and suggested ideas on adding In App Purchases, Ads and where/how to use those ads in the game. He liked the idea of the game and further suggested me to plan it ahead with requirements. Also, with this, he explained how we should document all our screenshots, designs and gave instructions to update logbooks.

* **Reflection:** Discussing the idea with Dr. Kurtis gave me the clarity I needed to refine my concept and helped me understand how in-app purchases and ads could be incorporated.
* **Milestone:** Finalized the concept for a 3D maze game and began planning the implementation of in-app purchases and ads. Updated my logbook and started documenting design sketches and early concepts.

**Week 4: Stage 1 Prototype & Pitch Preparation – W/C 14th October 2024**

This week started off with initial planning to prototyping, focusing on refining game ideas and preparing for Stage 1 submission. I developed sketches for the maze, characters and obstacles to make sure that they align with the game mechanics. I also began documenting core ideas, including game mechanics, player abilities, and potential narrative elements to enhance immersion. In our Week 4 lecture, I reviewed the assessment guide with Dr. Kurtis and clarified requirements for integrating In-App Purchases and ads. His feedback helped me consider how these elements could enhance gameplay and monetization. I also completed the Lab workshops by implementing basic game scene in Unity. Towards the end of the week, I started preparing for the upcoming pitch by outlining the game’s core mechanics and unique features, such as mobile sensor integration.

* **Reflection:** This week helped me consolidate my ideas into a more structured plan, especially after discussing monetization strategies and working on early prototyping. The pitch preparation pushed me to focus on clearly communicating my game’s unique features.
* **Milestone:** Completed sketches for the core elements of the game, started documentation for game mechanics, and began pitch preparation. Built a basic game scene in Unity and outlined core game features for the Stage 1 submission.

**Week 5: Presentation & Further Implementations – W/C 21st October 2024**

This week began with the presentation for Stage 1, where I showcased my documentation, game idea and initial prototype to Dr. Kurtis. Following the presentation, I resumed work on the game scene, focusing on building out the level design and refining player interactions. I implemented additional visual elements in the game scene to create a more engaging environment and started exploring ways to integrate laser obstacles and simple animations for the player character.

* **Reflection**: Presenting my work helped clarify the direction of my game and provided motivation to improve the game scene. Focusing on the core scene development allowed me to create a more immersive experience that aligns with my initial vision.
* **Milestone**: Completed the Stage 1 presentation and implemented additional features in the game scene, including obstacle integration and player interaction improvements.

**Week 6: Worked on Mobile Features for the Game – W/C 28th October 2024**

This week, I dedicated time to integrating mobile-specific features such as touch controls and basic gyro functionalities. This included implementing swipe gestures for movement and setting up accelerometer functions to add a layer of interactivity to the game. I also tested the prototype on different mobile devices to ensure compatibility and responsiveness across screen sizes. The lab session covered mobile-specific optimization, which was helpful in fine-tuning the game for a smoother user experience.

* **Reflection:** Working on mobile features highlighted the importance of testing on multiple devices early on, as this uncovered some UI scaling issues. Implementing gyro and touch controls was challenging but rewarding, as it added a more immersive experience to the game.
* **Milestone:** Successfully implemented touch controls and initial gyro functions, tested compatibility across various screen sizes, and addressed minor UI issues for better user experience on mobile.

### **November 2024**

**Week 7: Feedback on the Progress & Continued the Game Project – W/C 04th November 2024**

In Week 7, I received feedback on the current progress, which included suggestions for refining specific features. Based on this, I adjusted the touch controls to improve their responsiveness and reviewed the UI layout for accessibility enhancements. Additionally, I worked on improving the game's core mechanics, particularly focusing on refining the player movement and integrating additional visual elements to enhance immersion. The lab sessions this week provided insights into further mobile optimizations, which I applied to improve performance.

* **Reflection**: The feedback was invaluable, as it helped me identify areas needing improvement, especially around touch control sensitivity and UI accessibility. Making these adjustments improved the gameplay experience and allowed me to address areas that could impact the final submission.
* **Milestone**: Addressed feedback, enhanced touch control sensitivity, refined player movement and made UI adjustments for better accessibility. Continued to implement feedback-driven improvements to prepare for the next submission.

**Week 8: Memory and Asset Optimization – W/C 11th November 2024**

In Week 8, I learned about memory and asset optimization techniques to ensure our game performs efficiently on mobile devices. Dr. Kurtis guided us through the assessment breakdown and reiterated the key requirements for our projects. I started applying memory optimization strategies, such as reducing texture sizes and managing in-game assets efficiently, to improve the performance of my game. Additionally, I reviewed the project documentation to ensure it aligns with the assessment criteria.

* **Reflection:** Learning about optimization helped me understand the importance of balancing performance and visual quality. Applying these techniques enhanced the game's responsiveness and ensured better compatibility with lower-end devices.
* **Milestone:** Implemented initial memory and asset optimization techniques and reviewed project documentation based on the assessment breakdown.

**Week 9: Easing Functions, Audio and Optimization Tips – W/C 18th November 2024**

This week focused on practical tips for optimizing mobile games, including easing functions, audio management and movement interpolation using Lerp. I began applying easing functions to smooth player animations and integrated basic audio features, such as background music and sound effects, for better immersion. Additionally, I continued refining the performance of the game based on optimization tips learned in class.

* **Reflection:** Implementing easing functions and audio added polish to the gameplay experience, making movements and transitions feel more fluid and engaging. The insights into optimization further enhanced my ability to improve performance while maintaining quality.
* **Milestone:** Integrated easing functions and audio into the game. Refined optimization techniques for smoother gameplay performance.

**Week 10: Publishing to Google Play Store – W/C 25th November 2024**

In Week 10, we focused on the process of publishing Unity games to the Google Play Store. I learned about setting the target API level to 31 or above and ensuring the game meets Google’s requirements for publishing. Additionally, I worked on implementing features from Chapters 10, 11, and 12 of our course material, including polishing the UI, refining controls and enhancing game mechanics for the final build.

* **Reflection:** Understanding the publishing process was essential for preparing the game for deployment. Working on these implementations helped me align the game with industry standards and improve its readiness for submission.
* **Milestone:** Prepared the game to meet Google Play Store requirements. Implemented features from Chapters 10, 11 and 12 into the game.

### **December 2024**

**Week 11: Web Game Development and Final Queries – W/C 2nd December 2024**

This week, we discussed web game development related to mobile games and addressed project queries with Dr. Kurtis. I finalized the UI and ensured cross-platform compatibility while continuing to refine the game mechanics. I also explored the possibility of converting the game into a web-based version, focusing on making it lightweight and responsive.

* **Reflection:** Discussing queries with Dr. Kurtis provided clarity on final adjustments needed for the project. Exploring web game development expanded my understanding of cross-platform game deployment and gave me insights into future possibilities for the project.
* **Milestone:** Finalized the game’s UI and continued polishing the mechanics. Addressed project queries and ensured the game is ready for final feedback.

**Week 12: Final Instructions and Project Review – W/C 9th December 2024**

In the final week, we received detailed instructions about the project submission and reviewed our games with Dr. Kurtis. I applied the last round of optimizations and ensured all features were functioning as intended. Reading materials on the Moodle page provided additional insights into polishing the game for submission.

* **Reflection:** The final review and instructions were crucial in identifying and addressing minor issues in the game.
* **Milestone:** Implemented further optimizations and ensured cross-device compatibility.

**Week 13: Project Implementation for Submission – W/C 16th December 2024**

This week, I focused on the final stages of implementing and testing the game for submission. However, progress was initially slowed due to a Gradle Build Error that took me four days to fix. The issue was caused by duplicate files and errors within the packages folder and Gradle folder of the Temp. Resolving this required careful examination of the Asset Resolve Libraries and manual corrections to avoid conflicts. After successfully resolving the build error, I moved forward with integrating essential features like In-App Purchases (IAP), Unity Ads and the Weather API for added functionality.

* **Reflection:** Resolving the Gradle Build Error was frustrating, but it taught me the importance of managing dependencies and understanding build processes. Despite the setbacks, integrating IAP and ads made the game feel more polished and ready for publication.
* **Milestone:** Fixed Gradle Build Error, implemented IAP, Unity Ads and Weather API functionality.

**Week 14: Publishing Preparation & Google Play Console – W/C 23rd December 2024**

During this week, I set up my Google Play Console account to publish the game. The account verification process took several days, but once completed, I began closed and internal testing for the app to ensure its functionality and compliance with Google’s guidelines. Additionally, I implemented vibration functionality to enhance the game’s user experience. Testing vibrations for different events like collisions and rewards added another layer of immersion for players.

I also created an account on itch.io and successfully published my game there, making it available to a wider audience for testing and feedback.

* **Reflection:** Publishing the game on two platforms (Google Play Store and itch.io) was a significant milestone. Testing on these platforms helped identify areas for improvement while giving me valuable experience in app deployment and distribution.
* **Milestone:** Set up Google Play Console, performed internal testing, integrated vibration functionality, and published the game on itch.io.

**Week 15: Final Documentation & Error Resolution – W/C 30th December 2024**

This week was dedicated to finalizing all project-related documentation, including the PowerPoint presentation, weekly logbooks, planning documentation, and GitHub repository updates. I also reviewed the checklist to ensure all submission requirements were met. During this process, I encountered and resolved additional minor errors, such as issues with IAP purchases and ad integration, which required detailed debugging and adjustments.

* **Reflection:** Compiling and refining the documentation helped me assess the project as a whole and ensure that it met the required standards. Resolving lingering errors ensured the game was as polished and bug-free as possible before submission.
* **Milestone:** Completed all documentation, fixed remaining errors, and finalized the project for submission.

### **January 2025**

**Week 16: Final Testing and Submission – W/C 6th January 2025**

The final week was focused on extensive testing across multiple devices to ensure the game’s performance, functionality, and compatibility. I performed another round of testing for features like Google Play Services, Unity Ads, Weather API, and vibration functionality. These tests confirmed the game’s readiness for submission. I also reviewed all documentation and added the final touches to the GitHub repository to ensure everything was up to date.

* **Reflection:** Testing on various devices highlighted the robustness of the game and gave me confidence in its quality. Completing the final submission marked the culmination of weeks of effort and problem-solving.
* **Milestone:** Conducted final testing, completed documentation review, and submitted the project on Moodle.