

Title

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Changemakers: Creativity and Value Creation Assignment 1

BSc Computing (Games Development)

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Question 1

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Innovations are a core foundation to society and its growth and development, where each step progresses further into newer developments and ideas once thought impossible. Innovations have not only an impact on societal development but on daily lives of people. A book written by Daniel Pink [1] titled "A Whole New Mind" discusses how previously, innovation was restricted to people with certain skills, but in modern times innovation is democratised. Any person now has the room to innovate, as more creative areas such as storytellers and designers have become more valuable and desirable. Psychologist Steven Pinker [2] says that welfare has never been better for humans, and that progress is about problem-solving.

Kondratieff waves is the concept that innovations bring prosperity, before a return to norm, then ending with a significant event. Currently there have been 5 Kondratieff waves, ranging from 1780, to 2009. An example could be the 4th Kondratieff wave, which had the innovation of automobiles, with its end being marked by the two oil crises. It is believed that the 6th Kondratieff wave will be marked with innovations such as bio-technology or quantum technology, but it is not known.

Humans are innately creative creatures, born with the capability to design, create, and innovate. However, society and education break this down and strip it out at a young age, where we once were free to be 'wrong', and do things outside typical norm, we become constrained, and the concept of 'wrongness' is stigmatised, resulting in fears of being wrong and desires for 'perfection'. As quoted by Picasso, "All children are born artists, the problem is to remain an artist as we grow up". Sir Ken Robinson in his Ted Talk [3] on the subject states "if you're not prepared to be wrong, you'll never come up with anything original", underpinning that need to be okay with failing to truly create something new.

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A variety of concepts for the project were created and thought out. The first concept was a VR game focused around the exploration of abandoned buildings, with the idea being a relaxation theme as opposed to any horror or gameplay elements. It would be relatively light on mechanics, with the main mechanics being a physically interactable environment, and environment settings such as weather.

A second idea would have focused on a road trip game experience, with no objective other than to keep driving, and unwind. There would be some stops for the player to visit along the drive, with different terrains / areas.

A third idea would be a VR experience, about the player being within a fire lookout or lighthouse, wherein the player can exist within a natural calming environment, with optional mechanics and elements that enable player interaction and immersion.

A fourth idea would be a waiting simulator, designed to put the player in places such as a bus stop or train station, where they can just be within the scene and watch time go by around them. This would have almost no gameplay mechanics other than light interactions around the areas.

The idea selected for this project was the third idea, the fire lookout tower experience. This concept felt the most feasible within constraints, as character models are not needed, the area can be constrained. Comparatively, other ideas could be complex, for example, the road trip experience, would likely require procedural generation to keep the game infinite, the waiting simulator would likely require character models, etc.

The title for this project would be "A VR experience set within a fire watch tower, focusing on relaxation", and the aim would be to research and develop a VR game that will allow players to relax and meditate in a calm and natural environment. The description of the project would be: The game would be based around a fire lookout tower, or lighthouse and would focus on environment and relaxation as opposed to any objectives or puzzles. Light gameplay will be featured for interactivity and immersion, with the main end goal being a comfortable environment for meditation and relaxation.

Some objectives of the project would include:

- To research any similar works, along with tools and practices used.
- Design requirements, along with some early look sketches.
- Develop prototype progressively, with a main focus on getting an early environment setup, even if potentially placeholder.
- Test frequently to ensure no issues with performance or mechanics.
- Reflect on results in alignment with prior aims and objectives.

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A variety of online courses and sources are available to aid with achieving the project, from multiple platforms. From LinkedIn Learning, two courses were found that could be of use to the project. The first may be the most important, being titled Unreal Engine: Game Terrain Techniques [4]. Whilst not the most up to date, it covers fundamentals that can still be applied within the development of the project. There was also a LinkedIn course titled Getting Started in AR/VR Using Unreal Engine [5] which may provide core foundational knowledge for implementing mechanics within the game.

There are also useful resources in other locations, such as YouTube where a variety of videos can be found, such as Create Your First VR Project in Unreal Engine 5 [6], Make Realistic Landscapes Inside UE5 With A Single Click [7], and Maximize Your VR Game's Performance to 120+ FPS [8]. All these can provide a useful range of information for this project.

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Project Solution:

By the end of the project, a functional VR prototype designed to support relaxation and meditation within a calming and natural environment, with light interactive elements included for player immersion and spatial presence.

The environment will be a watchtower in a forest, retrofitted into a cozy place to stay, with a priority on the atmosphere around the environment, being present in the space and providing comfort, as opposed to providing traditional objectives typically seen within games. Interaction is used to further immerse the player into the space.

The intended outcome for the project is the production of a VR experience that focuses on wellbeing, relaxation, and presence, exploring how environment design, lighting, and sounds can contribute to a meditative experience. At a minimum, the experience should serve as a demonstrable prototype, with room for expansion to a completed commercial experience.

Project Resources:

Hardware needed for this project would include a VR headset capable of PCVR, a desktop PC capable of running both VR and Unreal Engine 5. Headphones or other audio devices (such as VR headsets integrated speakers) would be utilised in testing the ambient sounds within the experience.

Software needed for this project includes Unreal Engine 5, including XR/VR workflows. Perforce would be utilised for versioning of the project throughout the development. 3D modelling software such as Blender or Maya would be used to create assets, or they can be acquired through online platforms. Some sound software may be utilised in the creation of custom sounds, such as Audacity, FL Studio, etc.

Project Timeline:

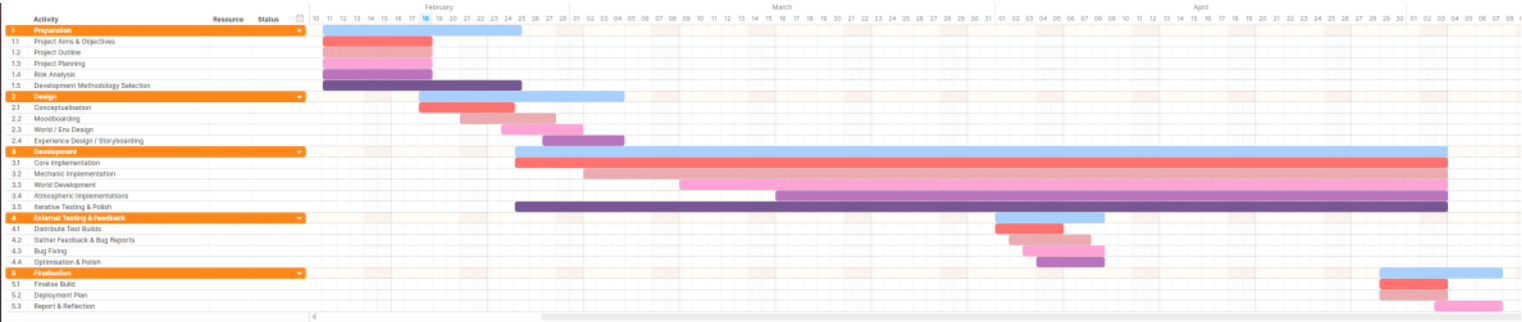
The timeline of the project ranges from early February 2026 to late April 2026.

Task Schedule:

Task	Date
Aim and Objectives	11/02/2026 - 18/02/2026
Project Outline / Scope / Key Sources	11/02/2026 - 18/02/2026
Project Planning	11/02/2026 - 18/02/2026
Risk Analysis	11/02/2026 - 18/02/2026
Development Methodology	18/02/2026 - 25/02/2026
Design Stage	18/02/2026 - 04/03/2026
Development / Implementation Stage (Early Prototyping)	25/02/2026 - 01/04/2026
Testing & Review	01/04/2026 - 08/04/2026
Finish Development	08/04/2026 - 29/04/2026
Deployment Plan	29/04/2026 - 03/05/2026
Report & Reflections	03/05/2026 - 07/05/2026

To better plan out the project, a Gantt Chart was created to give rough ideas on timeframes for different sections of the project. For this project, an online Gantt Chart creator was used called "Tom's Planner", supporting the splitting of the Gantt Chart into multiple sections with specific tasks, along with tracking resources needed and status.

The Gantt Chart for this project was split into 5 main sections, being Preparation, Design, Development, Testing, and Finalisation. Each section contained tasks such as Risk Analysis in Preparation, Conceptualisation for Design, World Development for Development, Bug Reports for Testing, etc. Each task was given a time block, but due to the nature of the project there was large overlap between tasks in the same section. The screenshot below showcases the Gantt Chart created.



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Risk Research

A variety of risks arise during a project, relating to different aspects. Some major aspects often relate to tools, technological problems, along with overload due to how much work a student would take on, as stated by [9]. Other major issues include scope creep, along with unrealistic schedules [10].

Risk Analysis

Below is a completed risk analysis table utilising the above research to highlight some of the most important risks for this project.

#	Risk	Impact	Contingencies
1	Skills relating to tools	High	Resources will be found and used to aid in the skills needed for the projects. This will be done at every stage of the project, from beginning till end, to ensure that skills are as developed as possible.
2	Scheduling / planning	High	Scheduling and planning a project is a high risk area, particularly running out of time in such a short time span project. Gantt charts and other project management tools shall be utilised through the project to ensure that the project remains on time, and updated so that work remains organised.
3	Scope Creep	Medium	Core features will be focused first, with an emphasis on avoiding any unnecessary optional features unless the main scope is already completed, in which case, those low priority out of scope ideas can be implemented. A list of requirements will be made, and any designed aspect that is not strictly required will be marked as such.
4	Overload / Mental Health	Medium	To avoid burnout or mental health aspects, breaks and realistic working schedules should be maintained, especially considering other projects and / or studies at the time.
5	Hardware issues	High	In the event of hardware failure, data will be backed up in multiple locations to preserve and retain data. However, backups to replace said hardware would need to be considered, such as VR headset, desktops, etc. This access may be limited.
6	Technical Issues	Medium	Version control software will be utilised to attempt to reduce the risk of large scale technical issues appearing mid project, with no point to return to. By using versioning, several states of the project should be kept, allowing for the project to return to a prior state if a major issue occurred.

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This project will utilize Kanban Boards and Agile development, managing a Kanban board with 4 columns, To Do / Backlog, In Progress, Review, Finished. Using Trello, each feature can be tagged to easily display priority and optionality. This Kanban board system allows for more efficient planning with the categorisation of tasks.

Tasks can also be split into short periods, a 1-2 weeks at most, called sprints. These sprints can be used to focus development on set features where needed. At the end of each sprint, a review should be carried out to check what was done, and what went good or bad during it. These sprints will be less strict, and not always utilised, to allow for more natural development, but are still useful to focus important features where needed.

While a more rigid waterfall methodology may be more suitable due to the smaller nature of the project, the benefits of a more agile workflow provides flexibility and prototype iterations. [11]. This flexibility is beneficial in VR for ensuring comfort whilst playing.

Question 2

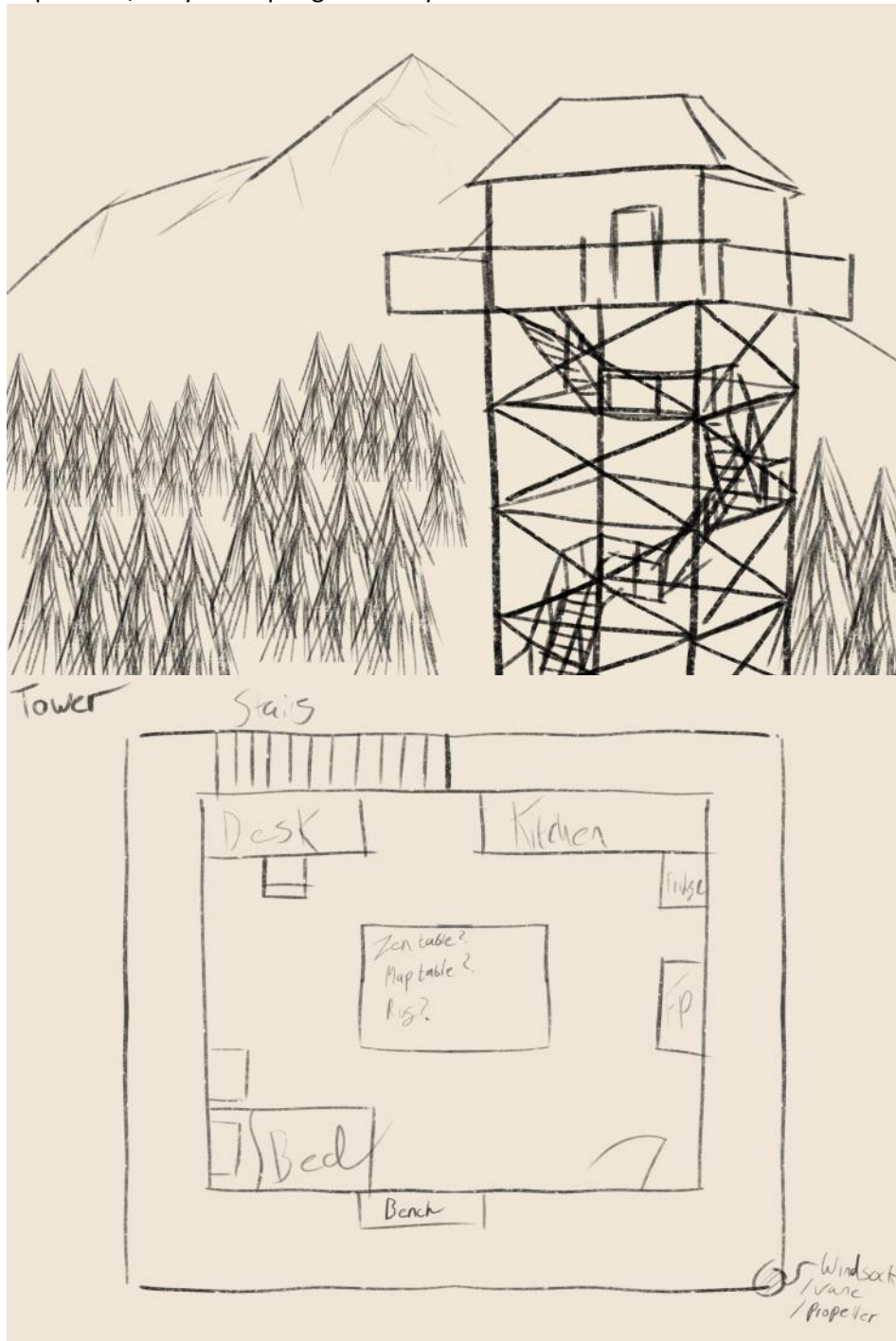
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Various design work was completed for this project, with main one being a requirements specification, covering a range of functional, non-functional, testing, and delivery requirements. These were given IDs and appropriate titles, along with their priority. This specification is shown below:

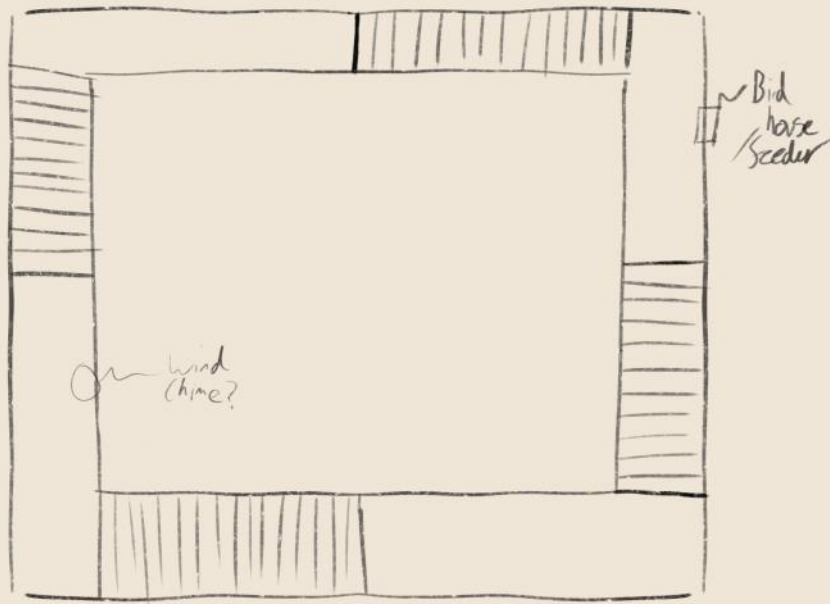
ID	Title	Priority	Description
FR-001	Game Engine	High	Utilise Unreal Engine 5.6.1 (UE5) for development of the project.
FR-002	Platform Support	High	Support Windows-based PCVR, with potential for future expansion to Android / Standalone spaces, if feasible.
FR-003	Core Mechanics	High	Implement the core mechanics for the game, including movement systems, simple interaction bases such as grabbing objects and interactions.
FR-004	Game Systems	Medium	Implement the non-core systems surrounding the game, such as things for the player to interact with, weather and day/night options, etc.
NFR-001	Environment	High	Design and include a believable and functional environment / game world for the player.
NFR-002	Quality	Medium	The environment and other aspects should maintain a high quality level, with support for high-resolution, and some amount of dynamic lighting if feasible within performance requirements.
NFR-003	Performance	High	Maintain a stable 72-90 fps minimum, aiming for high mid-range computer specifications. Re-evaluate as project develops due to the demanding nature of both VR and UE5.
NFR-004	Usability / Accessibility	High	Ensure that all user interfaces are intuitive and natural to use within the VR space. As VR often causes motion sickness, include options to try alleviate these issues.
NFR-005	Scalability	Low-Med	The systems implementations should allow for relatively easy addition of new systems / features along with new levels / environments.
TST-01	Unit Testing	High	Unit tests should be performed for all gameplay mechanics to root out any issues early on.
TST-02	User Testing	Medium	Deliver testing prototypes to some users to acquire feedback on current systems and any changes or issues they encounter.
TST-03	Performance Testing	Medium	Test FPS, Memory Usage, and similar core aspects on the target platforms. Preferably test on various systems to get more detailed information on how the systems perform.
DEL-01	Game Prototypes	High	Deliver various playable prototypes throughout different stages of development, ensuring the inclusion of core mechanics and systems.
DEL-02	Testing Reports	High	Reports should be created based on results of the different testing, including various details and information as fit.

Other design work done included digital sketches and drawings to aid with rough planning and ideas. The first sketch shown was created to get a general atmosphere design and to note any changes or improvements that could be made. The final two sketches are layout sketches, intended to get an early idea around what the spaces the player inhabits will be like, so when it comes time to

implement, early conceptualizing is already done. All sketches are shown below:



Stairs



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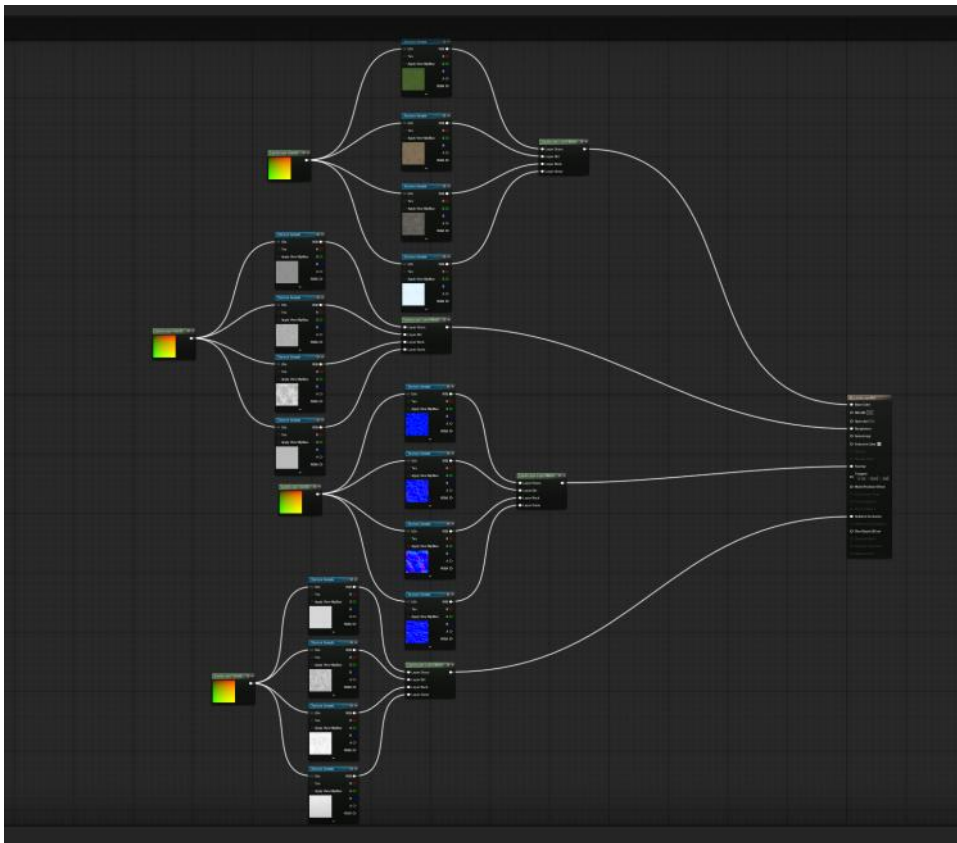
Some practical work went underway using the UE5 VR Template, as focus is more on environment, so this was looked at first. This began using UE5's landscape features, where a landscape can be created and sculpted as the user desires. The screenshot below showcases this initial sculpted landscape.



This landscape was improved upon using the Landmass plugin for UE5, which implements an erosion tool. Using this erosion tool simulates erosion across the landscape based on either custom or preset settings. The results of this simulation are shown below, revealing a much higher quality landscape.



The next stage would be a material setup allowing for painting the landscape with terrain textures. This base material was learnt from a LinkedIn course [4], where it can easily implement multiple layers, serving as a good base. Free textures were acquired via ambientCG.com for their high quality, and easy usage for at minimum a starter material, The material graph is shown here:



This image below showcases the results of some of the terrain painting work:



References

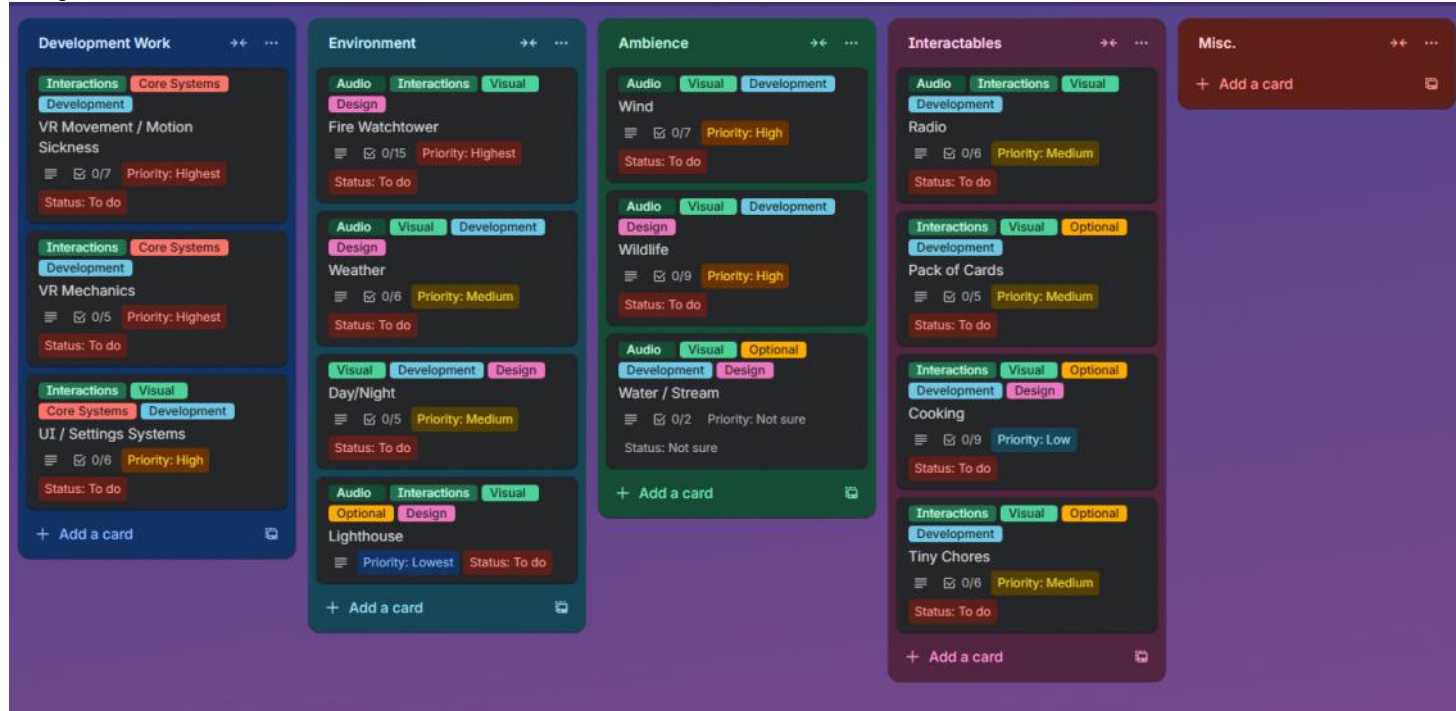
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- [2] S. Pinker, *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress* : Penguin, 2019. [Online]. Available: <https://www.amazon.co.uk/Enlightenment-Now-Science-Humanism-Progress/dp/0141979097>
- [3] TED and K. Robinson, "Do schools kill creativity? | Sir Ken Robinson | TED." YouTube. Accessed: 4 February 2026. [Online]. Available: [Do schools kill creativity? | Sir Ken Robinson | TED](#)
- [4] J. Bradley. "Unreal Engine: Game Terrain Techniques." LinkedIn Learning. Accessed: 11 February 2026. [Online]. Available: <https://www.linkedin.com/learning/unreal-engine-game-terrain-techniques/>
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- [7] UNF Games. "Make Realistic Landscapes inside UE5 with a Single Click." YouTube. Accessed: 11 February 2026. [Online]. Available: [Make Realistic Landscapes inside UE5 with a Single Click](#)
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- [10] Norbert J. Kubilus. "Avoiding Failure with Higher Education Technology Projects." Educase. Accessed: 18 February 2026. [Online]. Available: <https://er.educause.edu/articles/2016/6/avoiding-failure-with-higher-education-technology-projects>
- [11] "Agile vs. Waterfall: Which Development Methodology Works Best for Game Design?" *GAME PILL Game Studio*. (-11-132024). Accessed: 25 February, 2026. [Blog]. Available at: <https://gamepill.com/agile-vs-waterfall-which-development-methodology-works-best-for-game-design/>

Appendix A: Project Management Tool

Friday, March 6, 2026 1:47 PM

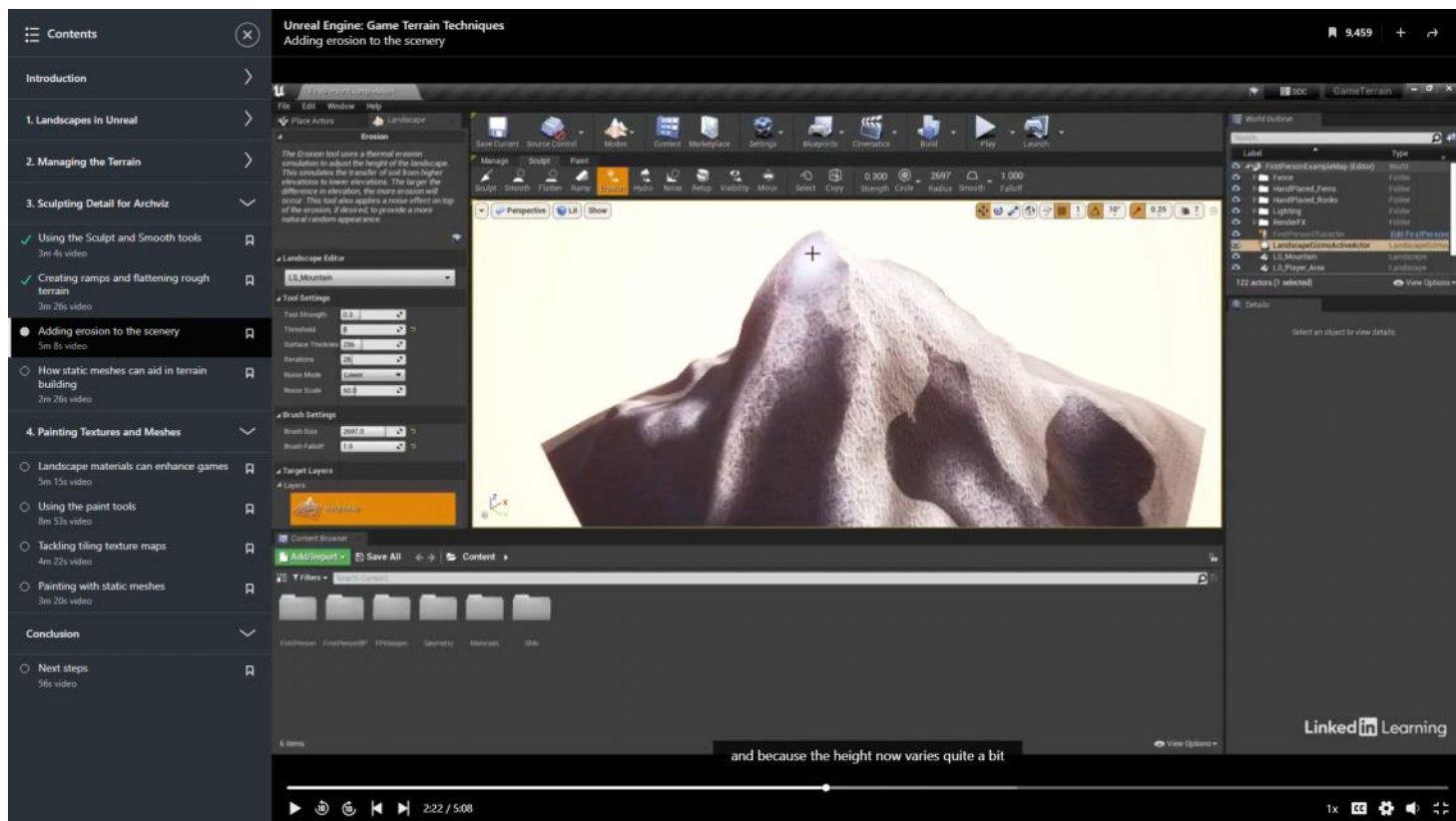
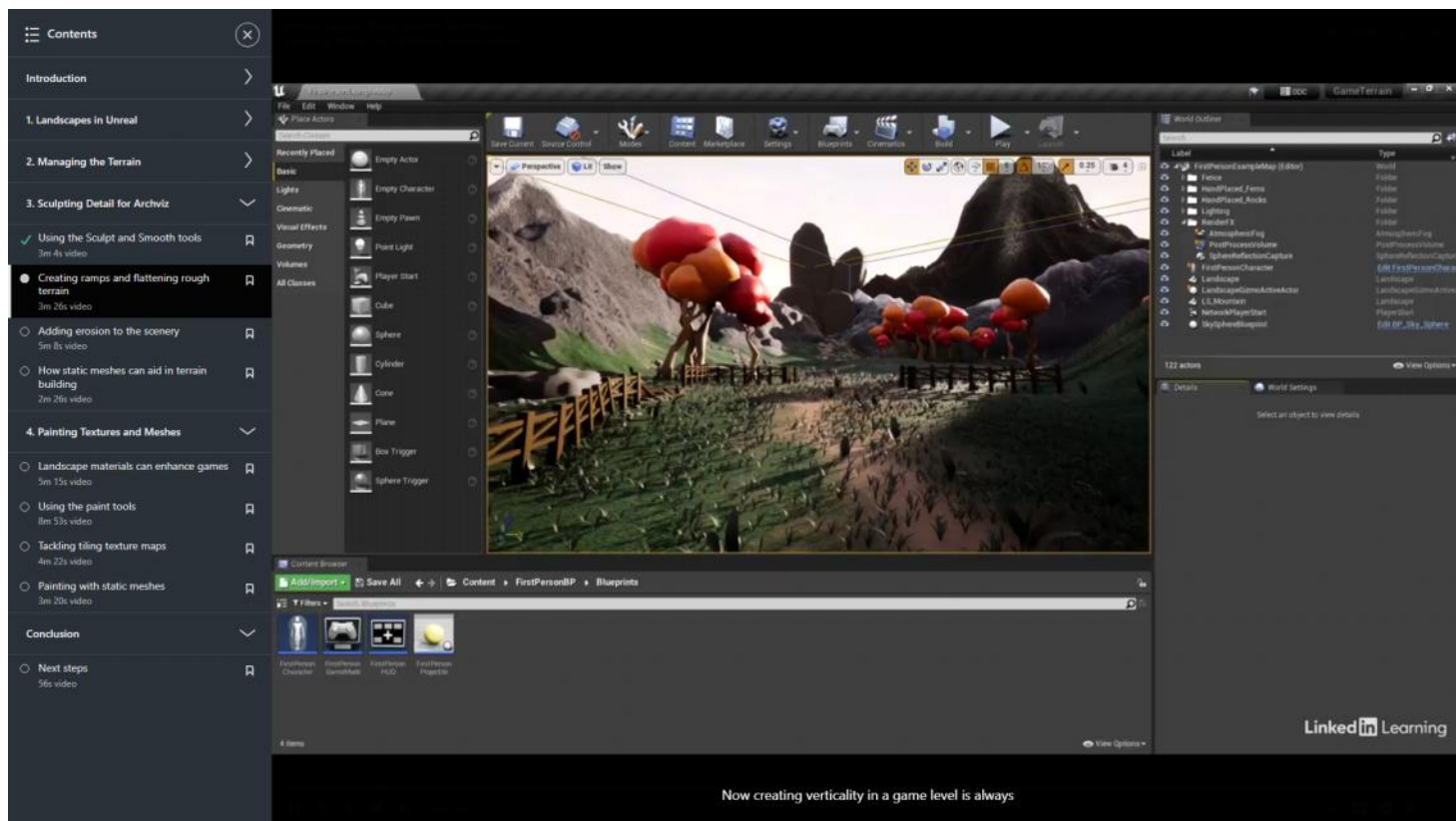
Below is a screenshot of a Kanban board created utilising Trello.com for project management.

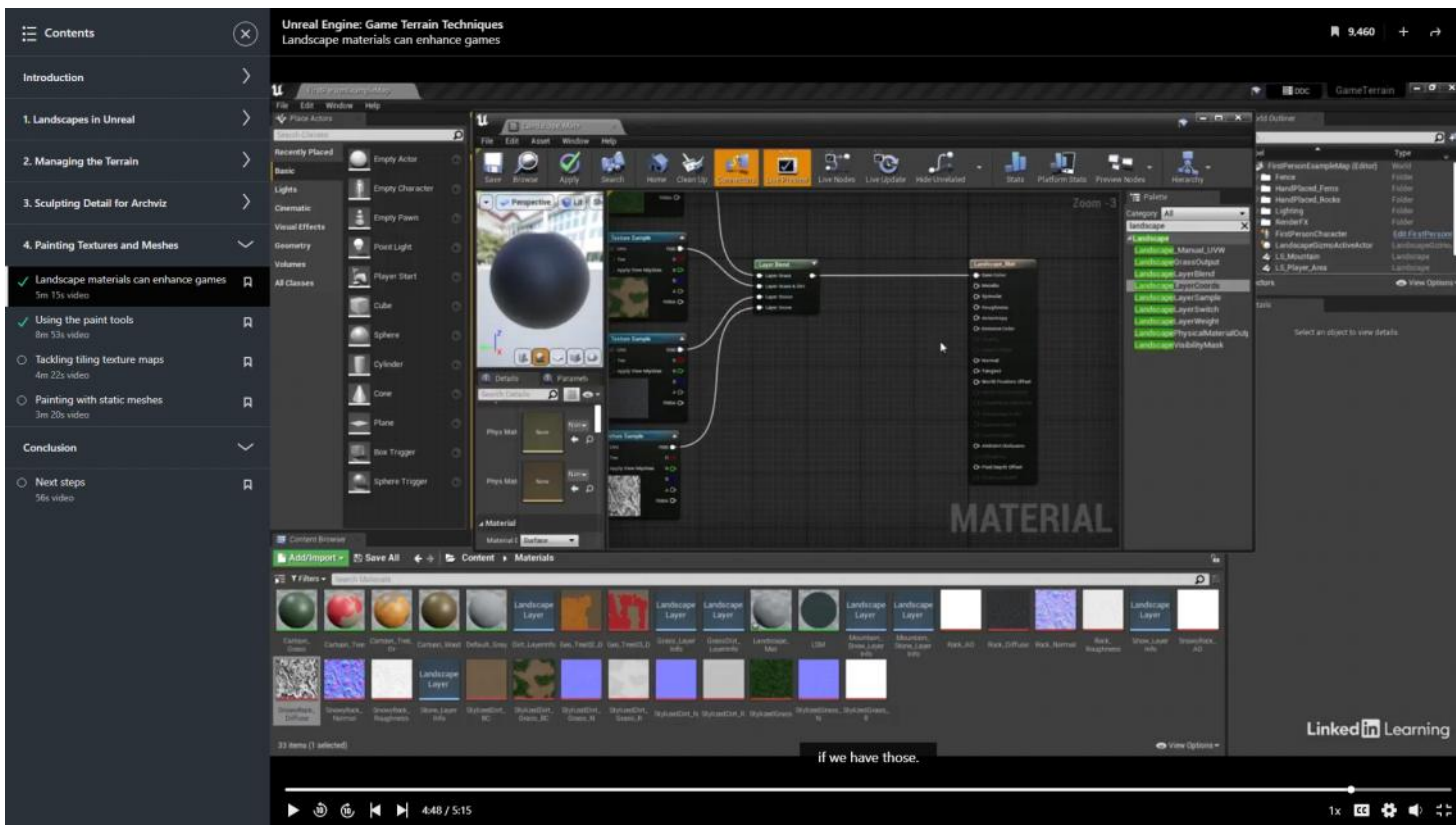
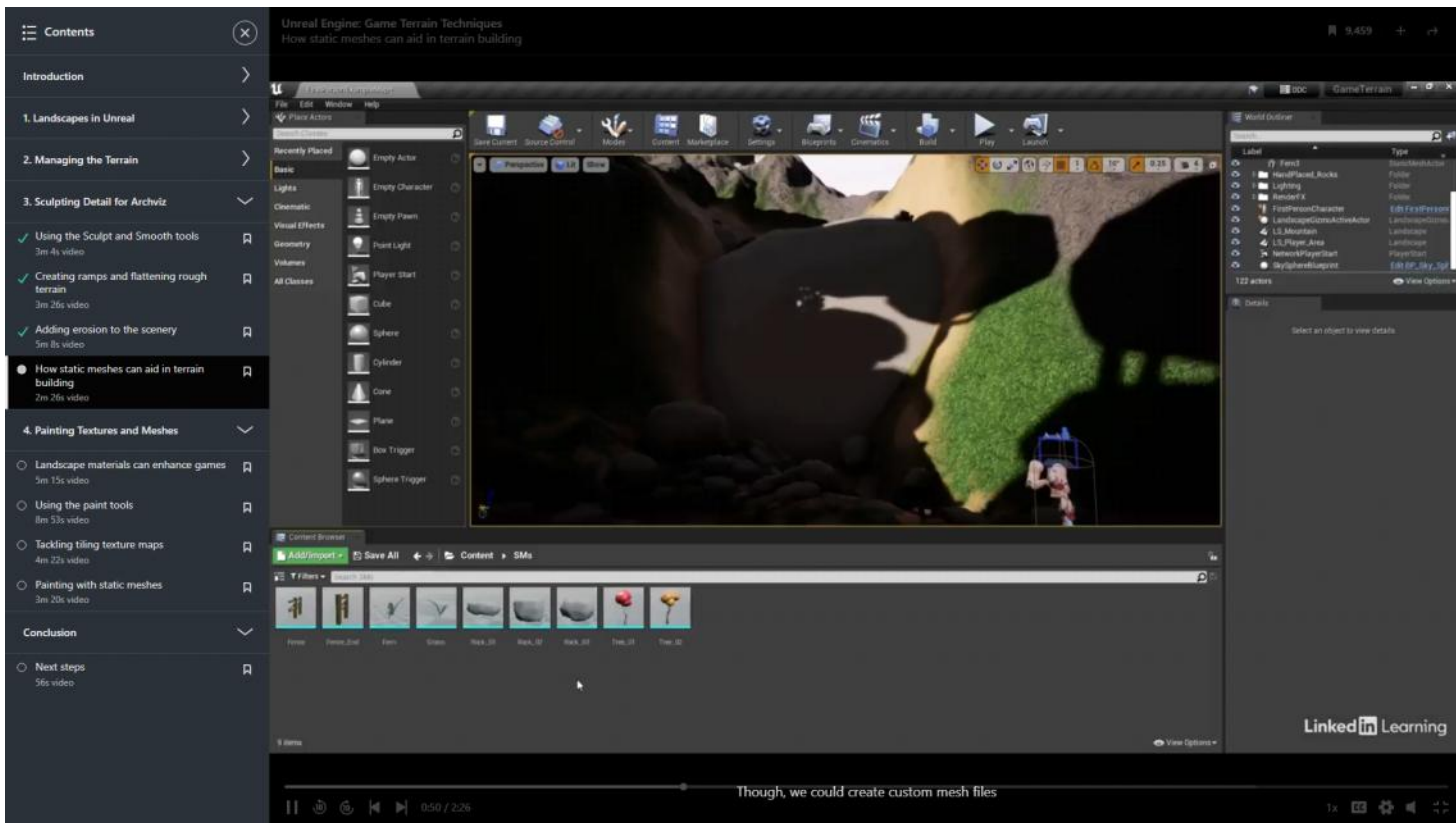


Appendix B: LinkedIn Course

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The below screenshots showcase engagement with a LinkedIn Learning course, being Unreal Engine: Game Terrain Techniques [4].





Contents

Introduction

1. Landscapes in Unreal

2. Managing the Terrain

3. Sculpting Detail for Archviz

4. Painting Textures and Meshes

Conclusion

Next steps

Unreal Engine: Game Terrain Techniques

Next steps

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