

Assignment1

by Dylan Kempton

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Welcome

Wednesday, February 4, 2026 10:06 AM

An investigation and practical implementation of a Coop Puzzle Ragdoll Game in Unreal Engine 5.4

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Aim: An investigation and practical implementation of a Coop Puzzle Ragdoll Game in the Unreal Engine

Short Objectives:

- Research information about Unreal Engine 5 on how to do ragdolls, item physics and VR
- Design initial concepts for the game, potential items and level designs
- Development of the game using the research and designs to help
- Testing of the developed game and recording any issues or bugs that are encountered
- Evaluation of the testing of the finished game and the overall process of the game and what went well and what could be improved

Description: A Cooperative game on Unreal Engine 5.4 with William where I work on the items physics when you pick them up or move them, and player ragdoll while he will work on the VR side of things. This game will help us make our indie game CAVERN which we are working on with design students which we plan to release to Steam.

The game will have local coop so 2 players are able to navigate a map where they have to avoid traps and solve puzzles using VR and item physics. During the game they will be able to interact with their friend by shoving them to make them ragdoll. The goal is to complete all puzzles with a low combined death count. The aim of the game is to encourage players to work together to complete puzzles.

Innovation

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Skill development:

I would like to learn how to do player pick up object physics in Unreal as well as learning how to make ragdolls which should help me develop fun games.

Positive Social Impact:

I just want to make fun games where many friends can play together and have fun so learning theses skills will help with that.

Employability:

I would like to develop my Unreal Engine 5 skills as I want to go into the gaming industry and many games I have played have been made in Unreal Engine.

Project idea:

A game in Unreal Engine 5 that will have object pick up physics and player ragdoll.

Ideation

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Old Ideas:

Perfect quantum computing

Pros:

Would look good on my CV
It would solve a lot of problems

Cons:

I have No idea where to start
It will probably take a lot of time
It will take a lot of money

Make an AI to help with day to day life

Pros:

Would look good on my CV
It would help people or myself with day to day work

Cons:

I have No idea where to start
It will probably take a lot of time
It will take a lot of money

Make a new missile defence system

Pros:

Would look good on my CV
Would be able to get a job in the defence area
My moral compass is already messed up
It seems like a fun idea

Cons:

I have No idea where to start
It will probably take a lot of time
It will take a lot of money

Make a good version of SkyNet

Pros:

Would look good on my CV
Would be able to get a job in the defence area
My moral compass is already messed up
It seems like a fun idea

Cons:

I have No idea where to start
It will probably take a lot of time
It will take a lot of money

Make a game with item physics and player ragdoll

Pros:

I am going to implement this into the indie game me and 5 others are making

I have an interest in this area

It seems like a fun idea

Cons:

I don't know how to make a game with that

I might not get it working

New Idea:

Cooperative game on Unreal Engine 5.7 with William where I work on the items physics when you pick them up or move them, and player ragdoll while he will work on the VR side of things. We also plan to have 2 player local play from the same computer that has health and stamina bars

Pros: *unnecessary repetition*

~~I am going to implement this into the indie game me and 5 others are making~~

~~I have an interest in this area~~

~~It seems like a fun idea~~

Cons:

~~I don't know how to make a game with that~~

~~I might not get it working~~

Research

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Ragdoll

Epic Dev:

[Physics Driven Animation in Unreal Engine | Unreal Engine 5.7 Documentation | Epic Developer Community](#)

[Tutorial: Ragdolling and how to recover from it - General / Tutorial & Course Discussions - Epic Developer Community Forums](#)

YouTube:

[How to Make an Easy Ragdoll in Unreal Engine 5](#)

[UE5 Ragdoll Physics Tutorial: Active Ragdoll, Stand Up & Moving Platforms \(Complete Guide\)](#)

Physics item pickup:

Epic Dev:

[\[HELP\] How to create a realistic physics-based grab and carry system for boxes? - Development / Character & Animation - Epic Developer Community Forums](#)

[Item Pick-up Mechanics using Blueprint | Epic Developer Community](#)

YouTube:

["" UPDATED "" PICKUP OBJECTS AND THROW WITH PHYSICS UNREAL ENGINE 5.3.2](#)

Local Co-op:

Epic Dev:

[Make Local Multiplayer! | Epic Developer Community](#)

YouTube:

[UE5.4 - Couch Coop Multiplayer Template \(Split Screen Setup Tutorial\) - YouTube](#)

[UE5.5 Simple Local Multiplayer / MP#1 UE5](#)

Project Scope

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Gantt Chart

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Book 1

Initial Gantt Chart



impossible to read

Risks and Challenges

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A challenge would be that my understanding of object physics is very limited so I will be reliant on the tutorial until I feel more confident to explore other aspects of object physics such as gravity affecting the object.

A risk is Unreal crashing and all work is lost so I will need to save often to overcome this risk.

Another risk is my devices might not be strong enough to handle Unreal so I may only be able to do work at university.

Another risk is that mechanics that we want in the game may not work as we intended so we will have to adapt.

Development Method

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I plan to use the waterfall methodology with a modern twist where we can go back and adjust anything that we may need to as making a game will have unforeseen challenges which means we might have to change the original idea.

The methodology will follow the same phases as waterfall such as Analysis, Design, Implementation, Testing, Operations and maintenance. But we plan to test every new feature as we add them to if there is any problems then we will be able to catch it early and not near the end of testing with a full game.

Design Work

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Requirement spec

Features:

1.Multiplayer

Multiplayer is needed as without it players will be unable to connect to the game by using steam invite.

1.Object pickup.

Object pickup is needed as without it players will be unable to pick up objects and use them to complete puzzles.

1.Ragdoll

Ragdoll was said in the game description so it needs to be prioritised as it will help with some puzzles.

1.Puzzles

Puzzles are needed in the game as they are a core mechanic of the game and without them players will be unable to do anything.

2.First person

The plan is to have the player see through first person though it is not as important as third person is also viable.

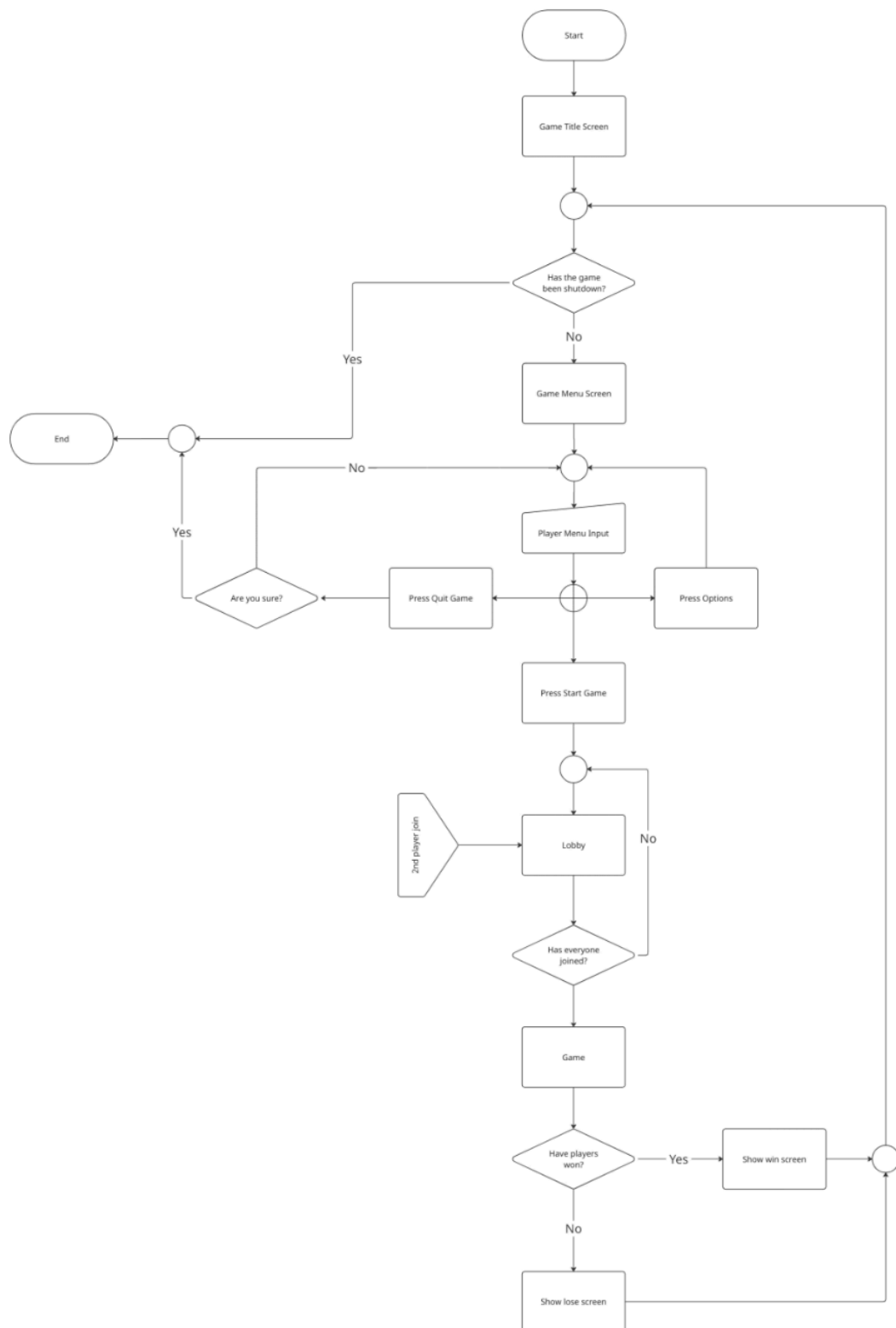
3.Environment

The environment is not important as it does not need to be textured for the game to work but if the game is done then the environment can be textured.

3.Clutter in environment

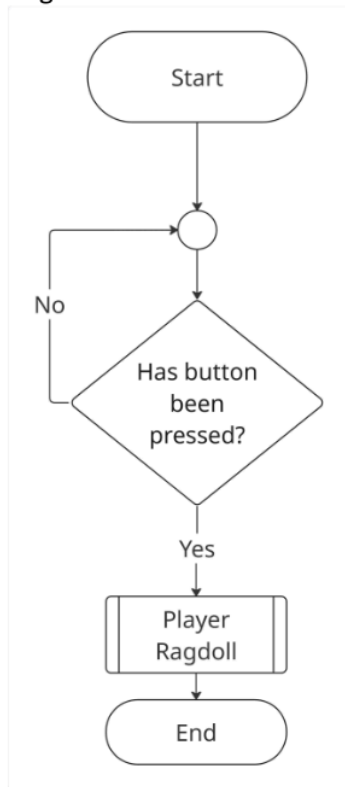
The environment will not need to be cluttered for it to look nice but it would be good to have clutter once everything else is done.

Game Flow chart



This is the game flow chart which shows all the processes that the game will have.
 This clearly explains how I plan for the game to work and what functions will be in the game.

Ragdoll flowchart



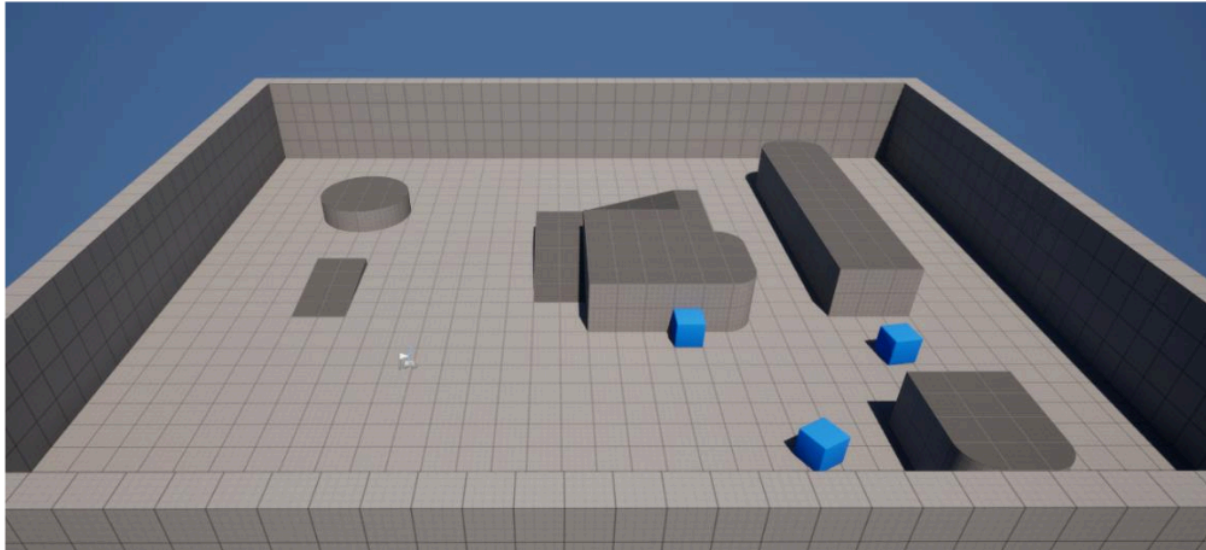
This is a flowchart for the ragdoll.

This will check if the player has pressed the button to ragdoll as they will need to use it to dodge traps or get through puzzles.

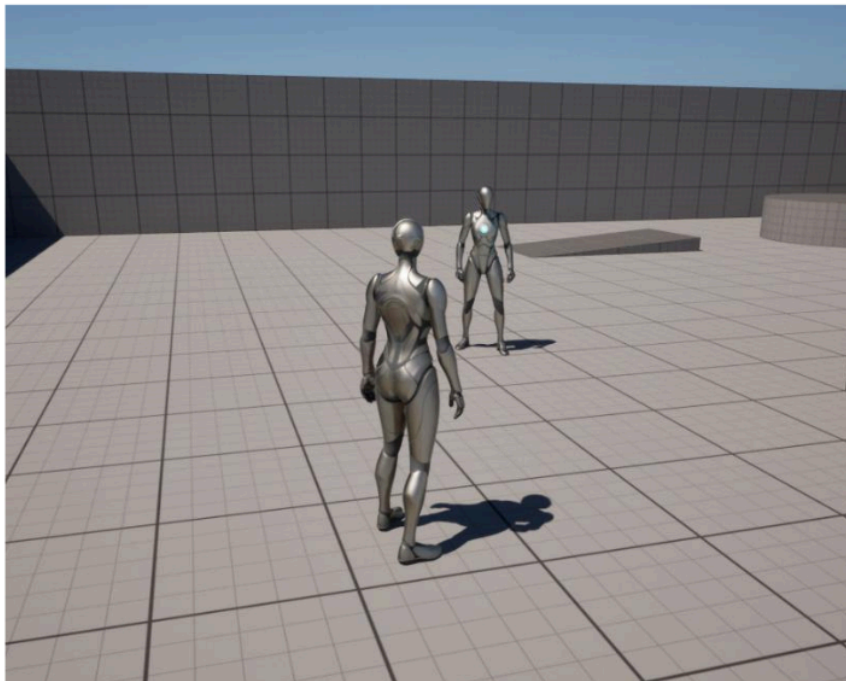
Initial progress

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Progress



Testing map has been made using the third person template.



Multiplayer has been added to the test map as seen by the second player

Issues

We started work on the game and I encountered a problem with the item pick up as the player who was holding the item could see it move, but the other player could not, so I had an idea to change the game so it is still a multiplayer game but the players are separated and must work together to go through levels.

Appendix

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Reference List

Wednesday, February 4, 2026 10:31 AM

[1]DK 3D, "Advanced Seamless Ragdoll mode enter/exit, UE 5 tutorial," YouTube, Aug. 30, 2024. https://www.youtube.com/watch?v=-mHfpyBn_UQ (accessed Feb. 10, 2026).

[2]"Physics Driven Animation in Unreal Engine | Unreal Engine 5.7 Documentation | Epic Developer Community," Epic Games Developer, 2026. <https://dev.epicgames.com/documentation/en-us/unreal-engine/physics-driven-animation-in-unreal-engine> (accessed Feb. 10, 2026).

[3]"Tutorial: Ragdolling and how to recover from it," *Epic Developer Community Forums*, Jul. 10, 2022. <https://forums.unrealengine.com/t/tutorial-ragdolling-and-how-to-recover-from-it/601613> (accessed Feb. 11, 2026).

[4]Gorka Games, "How to Make an Easy Ragdoll in Unreal Engine 5," YouTube, Jul. 13, 2022. <https://www.youtube.com/watch?v=wde-o5wLBI> (accessed Feb. 11, 2026).

[5]"Item Pick-up Mechanics using Blueprint | Community tutorial," Epic Games Developer, 2026. <https://dev.epicgames.com/community/learning/tutorials/8dvj/unreal-engine-item-pick-up-mechanics-using-blueprint> (accessed Feb. 12, 2026).

[6]AMMediaGames, """" UPDATED """" PICKUP OBJECTS AND THROW WITH PHYSICS UNREAL ENGINE 5.3.2," YouTube, Mar. 18, 2024. <https://www.youtube.com/watch?v=PPP12RcrJJA> (accessed Feb. 12, 2026).

[7]Wild Ox Studios, "UE5.4 - Couch Coop Multiplayer Template (Split Screen Setup Tutorial)," YouTube, Mar. 26, 2024. <https://www.youtube.com/watch?v=v0Ca0k7KVz8> (accessed Feb. 12, 2026).

[8]ProfMoto, "UE5.5 Simple Local Multiplayer / MP#1 UE5," YouTube, Apr. 17, 2025. <https://www.youtube.com/watch?v=EUOi8noyPb4&list=PL42piBZS9WmgfIHj0jXsRZiejb5Tr3eMB> (accessed Feb. 12, 2026).

Assignment1

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

58/100

Total: 58

1. Engagement with Literature Skills 10, 10 12

- Descriptive use of citations. References are included but all sources are websites and YouTube; no peer-reviewed literature.

- IEEE reference list format partially correct but inconsistent. No real in-text citation integration (just listed)

2. Knowledge and Understanding Skills 5, 10 5, 5, 5

T1Q1 Innovation: - Insufficient knowledge and understanding of some unit 1 topic 1 concepts.

T1Q2 Ideation: - Several project ideas documented. And 1

project area selected. Good
pros and cons analysis supports project selection, although further depth in justification would strengthen this.

T1Q2 T-A&Os: - A project title, single Aim, and
brief description clearly documented are present but specific objectives are missing

T1Q3 Research: - 3-5 key **courses and sources** documented.
- The relevance could be briefly described i.e. briefly state how each will help you to complete your project aim/objectives. List of courses/sources is provided but their purpose is not explained.

3. Cognitive and Intellectual Skills 5, 5, 5, 5 4

T2Q1:

- No project scope. **solution and required technologies/resources** documented.

- **No project timeline** and **task schedule** documented.

T2Q2: - **Gantt chart** created, documented and but impossible to read; too small

T2Q3: - **Risks/challenges** and contingencies clearly documented. Identified but mitigation could be further developed

4. Practical Application Skills 5, 10, 5 18

T3Q1: + A suitable **Development method** to plan and complete the project is clearly described. 5
8

T3Q2: - Evidence of x2 **Design work documented.** Limited explanation why these designs were chosen 5

T3Q3: + Use of several screenshots with brief description to show some **initial practical implementation** is documented. Good

5.

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Transferable Skills for Life and Professional Practice 10, 5, 5

+ Format, structure and presentation. Good

- Title page. - ToC: Table of contents.

- Spelling and grammar mostly good, but the language is not professional

Appendix:

- No evidence of engagement with 1 relevant course documented.

+ Evidence of use of a relevant Digital tool e.g. Project Planning / Management tool

On-time/Late: OT.

Strengths

- Clear technical focus and ambition
- Strong practical implementation using Unreal Engine
- Good evidence of hands-on development
- Project idea is feasible and relevant to course.

Areas for Improvement

- Very limited academic depth and critical thinking
- Innovation section does not meet L5 theoretical expectations
- Weak justification of ideas and design decisions
- Gantt chart and planning are unclear and underdeveloped
- Sources are non-academic and poorly integrated
- Writing style is too informal for L5
- Objectives are not clearly defined or measurable

Text Comment. same as the previous one

Text Comment. unnecessary repetition

Strikethrough.

Text Comment. impossible to read