

# Left 2 Dead

## *Final Project*

### *Game Design Document*

Deadline: 11:58 pm Thursday, 14th of January

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## *Guidelines*

This project should be done in groups of minimum 6 and maximum 9 students. We will use the Bold letter “x” to refer to the number of team members throughout this document. You can share ideas, consult the manual, and search online. However, all work done in this project must be done by the team members and the team members only.

All team members should work on this project equally and no work should be done by anyone outside the team. Individual **evaluations will be conducted** at the end in order to verify that. The main aim of this project is to test your skills in working in a large team while using git and unity to create a fully functioning game as a part of a gaming studio.

Please Register your studio using the following link: <https://forms.gle/UzH94ngASBVptvTj7>  
**The deadline for registering your studio is on Monday 21/12 at 11:59PM.**

**All external assets used (including those from unity asset store) must be credited in the credits section of the main menu.**

Use Github, Unity and C# to create this project. Once you are done, build the project into an exe and compress the whole folder in a zip file. The zip file should be named in the following format StudioName\_Project (Ex: UniSoft\_Project). If the total size of the submission exceeds 250MB, please submit the zip file containing the exe only and upload the “\_Data” folder to your own google drive and provide us with the shareable link (“can edit” enabled) when you are submitting. The .zip file should also be uploaded as a Github Release.

Use the following link to submit your .zip file:

**Link will be provided later!**

# Description

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## What is the main Idea?

The main idea here is to create a small and **modified** version of the “Left 4 Dead” game. If you are unfamiliar with the game, you can check out the entire gameplay by following this link: <https://www.youtube.com/watch?v=uBzgosq6EEk>

All information regarding the original game can be found here: [https://left4dead.fandom.com/wiki/Left\\_4\\_Dead\\_Wiki](https://left4dead.fandom.com/wiki/Left_4_Dead_Wiki)

# Game Design

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## Gameplay

The player controls the main character called Joel in an indoors or outdoors environment. He is usually accompanied by a young girl by the name of Ellie or other companions that the player chooses before gameplay. The goal of the player is to go through all the levels while killing as many infected as possible in order to survive along with his companion.

**The entire gameplay of the game from the first level until the last level should not be doable in less than x minutes, where x is the number of team members.**

### 1. The Companions:

Before gameplay, the player should be able to choose Joel's companion. A companion is a character that has neither health points nor can be attacked by the infected. Each companion has a special passive ability that is applied to Joel as long as they are together. Each companion carries a different weapon that he/she can only use whenever Joel orders him/her to. You are required to have at least  $\text{int}(x/2.25)$  different

companions that the player gets to choose from. The following table shows different companions and their assigned weapons,

Companion	Weapon	Max Clips	Passive Ability
<a href="#">Bill</a>	Submachine Gun	6	+50% max ammo (all assault weapons)
<a href="#">Zoey</a>	Hunting Rifle	5	2x collectible ingredients (Alcohol, Rags, etc.)
<a href="#">Louis</a>	Assault Rifle	4	+1 HP every 1 second
<a href="#">Ellie</a>	Pistol	3	2x rage meter increase

## 2. The Infected:

There are two types of infected in this game; Normal and special.

### **Normal Infected**

Normal infected are the most common throughout the gameplay. They keep walking around in a specific place and they start to aggressively chase Joel whenever they detect him. Once they start chasing Joel, they will not stop until they or Joel are dead (however, Stun, Pipe, and Bile bombs can be used to temporarily distract them). They can also group up and attack in groups called a horde. They are attracted to loud noises and will start chasing Joel if he fires his weapon near them.

They have 50 health points and can cause 5 points of damage per second to Joel.

### **Special Infected**

These usually are more difficult to kill and have special abilities that can cause serious damage. There are 7 types of special infected in the game. You are required to have at least  $\text{int}(x/1.5)$  special infected in total in your game. Details about the different types of special infected are as follows,

#### [Boomer](#)

- Health: 50
- Can shoot the bile from long ranged distances.
- If the Bile hits Joel, it affects his vision and summons a horde of infected on him.
- The summoned horde must have at least 4 new infected per second.
- The effect of the bile lasts for 4 seconds.
- It waits 10 seconds between each attack.

### Hunter

- Health: 250
- Able to leap long distances at once.
- Can pin down Joel by leaping on him.
- Causes 10 points of damage per second after pinning Joel down.
- Joel is not able to attack the hunter after it pins him down.
- After leaping on Joel, it keeps dealing damage until either Joel is dead, or the Hunter has been shot by the companion.
- It waits 5 seconds between each attack.

### Smoker

- Health: 250
- Has a very long and poisonous tongue.
- Can wrap up and drag Joel from a distance with its long tongue.
- Causes 10 points of damage per second.
- Joel is not able to attack the smoker while being dragged.
- It keeps dealing damage until either Joel is dead, or it is shot by the companion.
- It waits 5 seconds between each attack.

### Jockey

- Health: 325
- Has small size but powerful hands.
- Latches on to Joel and forces him in certain directions.
- Causes 20 points of damage per second.
- Joel can stop its damage by resisting its motion.
- It lets go of Joel after 5 seconds.
- It waits 5 seconds between each attack.

### Charger

- Health: 600
- Has bulky muscles and very fast movements.
- Can charge at Joel to pin him down and attack.
- Causes 75 points of damage once the charge hits Joel correctly.
- It waits 5 seconds between each attack.

### Spitter

- Health: 100
- Can spit a green ball of acid towards Joel from long distances
- Once the acid hits the ground, it expands into a large puddle and damages Joel if he makes contact with it
- Causes 20 points of damage per second.
- It waits 5 seconds between each attack.

### Tank

- Health: 1000
- Possesses Inhuman strength and endurance.
- Attacks Joel using heavy and devastating attacks
- Each attack causes 30 points of damage.
- It waits 1 second between each attack.

### 3. Weapons:

Joel can carry different weapons throughout the game. Weapons are divided into two categories; Assault weapons and Grenades.

#### **Assault Weapons**

Assault weapons are used to fight off the infected one at a time. Joel starts each level with only a pistol and can pick up other assault weapons along the way. Joel can only have one assault weapon equipped (active) at a time. The player should be able to switch their currently equipped weapon during gameplay. Each weapon has specific attributes that make it different from the rest. You are required to have **all** of the following Assault weapons in your game,

Type	Damage	Rate of Fire	Clip Capacity	Max Ammo
Tactical Shotgun	10 projectiles * 25 damage each	200/min	10	130
Assault Rifle	33	600/min	50	450
Hunting Rifle	90	240/min	15	165
Submachine Gun	20	900/min	50	700
Pistol	36	300/min	15	Infinite

#### **Grenades**

Grenades are powerful weapons that can deal great damage from afar. Joel can only carry a maximum number of each grenade type at a time. You are required to have at least int(x/2) different grenades from the following,

Type	Behaviour	Damage	Max
Molotov Cocktail	Once it hits the ground, it sets the area around it on fire for 5 seconds	25 damage points per second	3
Pipe Bomb	Emits loud beeps that attract the infected towards it for 4 seconds before exploding	100 damage points to all infected gathered around it	2
Stun Grenade	Emits a bright flash that stuns all Infected that are chasing/attacking Joel for 3 seconds	No damage	2

Bile Bomb	Once it hits the ground, it confuses the infected around it making them attack one another for 5 seconds	damage points according to the type of infected attacking (refer to the previous section)	1
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#### 4. Crafting:

This gameplay mechanic enables Joel to create useful items from simple supplies/ingredients. Joel can pick up ingredients that are available throughout the game, in order to perform the craft.

With the exception of Bile, all ingredients (Alcohol, Rags, Sugar, Gunpowder, Canisters) can be picked up from the environment. Bile however is gained automatically after killing any one of the special infected.

There exists some overlap in the uses of each ingredient. For example, the ingredients for the Molotov Cocktail can also be used to make a Health Pack. You are required to make sure that each level has all needed ingredients that enables Joel to create different crafts. The following table shows the required ingredients for each craft,

Craft	Ingredients
Molotov Cocktail	2 Alcohol + 2 Rags (cloth-like materials)
Stun Grenade	1 Sugar + 2 Gunpowder
Health Pack	2 Alcohol + 2 Rags
Pipe Bomb	1 Alcohol + 1 Gunpowder + 1 Canister (bucket)
Bile Bomb	1 Bile + 1 Gunpowder + 1 Canister

The player can view the crafting screen during gameplay to view collected ingredients and to start crafting. The game should be paused while in the crafting screen. Grenades available for crafting should match the int(x/2) required grenades.

## 5. Level Design:

You are required to have **at least three levels** throughout the game; two normal levels and one rescue level. For the design of each level, you can create your own designs or use some of the original levels from the game as a reference. Each level must contain all the different collectibles, as well as all the weapons in order for Joel to pick them up. Pick up items as well as ammo and health packs should be scattered throughout the level.

Whenever the player loses, they have to restart the level from the beginning. It is optional however, to create checkpoints throughout the levels to prevent that.

### **Normal Levels:**

- Choose from one of the levels of the original game or create your own.
- These levels must contain enemies.
- Each level must have at least one area where an entire horde is rushing towards Joel (minimum 20 infected).
- Each level must contain at least  $\text{int}(x/2)$  special infected.
- A level can be a stealth level where the number of infected is very large that the player must find a way to reach the end while avoiding the infected horde or it can be a fighting level where the player must kill all enemies before reaching the end or anything else that fulfills the requirements.
- Levels should be different and diverse (e.g. having two stealth levels is not allowed).
- When the player finishes a level, he/she goes automatically to the **next level**.

### **Rescue Levels:**

- The rescue level is where the companion is trapped and Joel must rescue them before they die
- Rescue levels must contain at least **one** special infected.
- Rescue levels **cannot** contain Hunters nor Smokers.
- Each level has a timer that counts down from the start of the level.
- Joel must reach and free the companion before the time ends or else they die.
- After freeing the companion, the timer stops and Joel must defeat all remaining infected in order to escape with them.
- Player loses if they fail to escape with the companion.
- Once the rescue level is won, the credits should roll.

## 6. Rules of Play:

1. Joel is controlled in a 1st person perspective.
2. Joel can walk, run, jump, and evade (dive/dash).
3. Joel starts with 300 health points.
4. Enemies directly attack Joel.
5. Joel can fire his currently equipped weapon.
6. Joel can pick up weapons and add them to his list of available weapons.
7. Joel can change his currently equipped weapon.
8. Joel can change the currently equipped grenade.
9. Joel can throw carried grenades.
10. Joel can pick up ammo packs which adds ammo to their equipped weapon.
11. Joel can pick up health packs that increase their health by 50 points.
12. Joel can pick up ingredients to be used in crafting.
13. Joel cannot craft grenades of a certain type if he already carries the Max amount for that type.
14. Companions always follow Joel throughout the levels.
15. Companions do not have health points and can not be attacked by the infected.
16. Companions can use their weapon only when Joel tells them to.
17. Companions' weapons have different ammo capacity (Max clips).
18. Companions start with 1 clip and get 1 additional clip for every 10 infected kills (by them or Joel).
19. Companions do not need to reload their weapon after each clip
20. Companions can use their weapon to attack any infected including the special infected.
21. Companions will always prioritize attacking the special infected, especially those who have Joel pinned/captured.
22. Joel has a rage meter that increases whenever he successfully kills an enemy.
23. After killing a normal infected the meter increases by 10 points.
24. Killing a special infected increases the rage meter by 50 points.
25. The rage meter resets back to 0 if 3 seconds pass without killing any infected.
26. When the rage meter reaches 100. Joel can activate it.
27. In rage mode Joel's weapons deal 2x the damage and Companions get unlimited ammo.
28. Rage mode lasts for 7 seconds after which it resets back to 0.



# Technical

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## Screens

1. Main menu
  - a. Start: takes the player to Choose Companion Screen
  - b. Options
    - i. Audio
      1. Music level
      2. Speech level
      3. Effects level
    - ii. How to Play
    - iii. Credits
  - c. Quit Game
2. Choose Companion Screen:
  - a. Choose companion: allows the player to view and choose Joel's companion which sticks with the player throughout the whole gameplay. Once the player chooses the companion the game should start with both Joel and the chosen companion loaded in the scene
  - b. Start Game
3. Game Screen
  - a. Health
  - b. Currently equipped weapon
  - c. Ammo count (Current Ammo / Maximum Ammo)
  - d. Type of grenade carried (if any)
  - e. Companion's ammo count
  - f. Remaining time (only in rescue levels)
4. Pause Screen
  - a. Resume
  - b. Restart level
  - c. Quit to main menu
5. Crafting Screen
  - a. Materials Gathered (e.g. Alcohol, Gunpowder, Rag count..)
  - b. Items to craft
  - c. Craft
  - d. Resume
6. Game Over Screen
  - a. Restart level
  - b. Quit to main menu

## Controls

1. The player controls Joel's walking movement forwards and backwards using the arrow keys **and** the "W" and "S" keys respectively.
2. The player controls Joel's walking movement right and left using the right and left keys **and the** "A" and "D" keys respectively.
3. The player controls the camera rotation with the mouse.
4. The player runs by holding down "Left SHIFT" along with one of the movement keys.
5. The player jumps by pressing space.
6. The player evades by pressing "Left CTRL" along with one of the movement keys.
7. The player fires their currently equipped weapon by clicking the left mouse button.
8. The player throws the carried grenade by clicking the right mouse button.
9. The player can reload their currently equipped weapon pressing "R".
10. The player can pick up items (grenades and weapons) by pressing "E".
11. The player can open the crafting screen by pressing "T".
12. The player can switch between different weapons using "C".
13. The player can switch between different Grenades using "Z".
14. The player can instruct their companion to fire his/her weapon using "Q".
15. The player activates rage by pressing "F".
16. The player can pause the game by pressing ESC or "P".

# Graphics

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## Style Attributes

## Graphics Needed

1. Characters
  - a. Joel (Main Player)
    - i. Animations:
      1. Idle
      2. Walk
      3. Run
      4. Jump
      5. Evade
      6. Fire weapon
      7. Reload Weapon
      8. Pickup grenade
      9. Throw grenade
      10. Hit reaction (can be screen color animation)
      11. Dying
  - b. Companion
    - i. Animations:
      1. Idle
      2. Walk
      3. Run
      4. Jump (If needed in the levels)
      5. Fire weapon
  - c. Infected
    - i. Animations
      1. Running
      2. Attacking
      3. Hit reaction
      4. Dying
2. Items and Weapons
  - a. Guns
  - b. Grenades
  - c. Ammo packs

- d. Health packs
  - e. Collectible material (e.g. Alcohol, Gunpowder, Rags, etc.)
- 3. Ambient
  - a. Buildings
  - b. Cars
  - c. Furniture
  - d. You can add more objects as you want, but make sure that they would fit the scene or the concept of your level.

## *Sounds/Music*

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### **Sound Settings**

The audio in your game should be divided into at least three independently controllable categories; Music, Speech, and Sound effects(SFX). The easiest way to achieve that in unity is to create at least one audio mixer with at least three groups other than the master. Each group should represent one of the three categories and all the clips belonging to that category must pass through it. This way, you can control the entire audio category by controlling its mixer group.

### **Style Attributes**

The music has a calm feel when the player is exploring the level so as to create a relaxing environment for the gamer. When the player is in a fight, the music needs to be a bit tense in order to create an exciting environment. However, these music attributes could vary depending on the theme and the atmosphere of your level..

### **Sounds Needed**

- 1. Speech
  - a. Voice over when Joel or the companion detect an Infected.
  - b. Voice over when Joel tells the companion to fire his/her weapon.

3. Effects
  - a. Footsteps of Joel as he moves.
  - b. Grenade explosion.
  - c. Infected rushing towards Joel.
4. Feedback
  - a. When Joel is hit.
  - b. When Joel dies.
  - c. When bullets are fired.
  - d. When reloading weapons.
  - e. When switching weapons.
  - f. When picking up ammo.
  - g. When activating rage mode.
  - h. When a special infected dies.

## Music Needed

1. Slow-paced track for the main menu and pause.
2. At least two tracks for the game levels depending on the atmosphere.

# *Cheats (Required)*

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## Required cheats

- Increase Joel's Health
- Fill up weapon's ammo
- Spawn different kinds of infected
- Spawn an entire horde of infected
- Kill all infected in a level
- Damage all infected in a level by 10 damage points
- Equip Joel with the different types of grenades
- Spawn an ammo pack
- Spawn a health pack
- Add 10 points to the rage meter
- Toggle rage mode on/off
- Proceed to next level
- Freeze timer in rescue level
- Add an ammo clip to companion's weapon